

# Cancer Prevention and Control, Client-Oriented Screening Interventions: One-on-One Education – Cervical Cancer (2008 Archived Review)

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## Review Summary

### Intervention Definition

One-on-one education is provided in person or by telephone to encourage individuals to be screened for cancer. Healthcare providers can deliver one-on-one education in clinical settings, at home, or in local gathering places. Brochures, informational letters, or reminders may also be used. The information can be general or tailored to the needs of each person.

### Summary of Task Force Finding

The Community Preventive Services Task Force recommends interventions that include one-on-one education based on strong evidence of its effectiveness in increasing cervical cancer screening by Pap test.

The Task Force has related findings for one-on-one education specific to the following:

- [Breast cancer](#) (recommended)
- [Colorectal cancer](#) (insufficient evidence)

### Results from the Systematic Review

Five studies (including 8 study arms) qualified for the systematic review.

- Proportion of study participants completing Pap test: median increase of 8.1 percentage points (8 study arms)

The studies were conducted in rural and urban communities and among different ethnic and socioeconomic groups.

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, Breslow RA, et al. [Client-directed interventions to increase community demand for breast, cervical, and colorectal cancer screening: a systematic review](#) [www.thecommunityguide.org/cancer/screening/client-oriented/Cancer2008\_ClientDirected\_Demand.pdf]. *Am J Prev Med* 2008;35(1S): S34-55.

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 one-on-one education interventions to increase breast, cervical, and colorectal cancer screening.

## **Task Force Finding**

### **Intervention Definition**

One-on-one education contains messages similar to those conveyed in group education, but delivered in person or by telephone. Sessions can be held in medical, community, worksite, or home settings. Messages can be conveyed by healthcare workers, trained professionals (e.g., health educators), lay health advisors, or volunteers. As with small media, interventions can be untailored to address a general target population or tailored to reach specific individuals based on unique characteristics as derived from individual assessments. As defined for these reviews, one-on-one education may include an accompanying small media or client reminder component.

### **Task Force Finding (July 2008)\***

The Task Force recommends the use of one-on-one education to increase screening for breast and cervical cancers on the basis of strong evidence of effectiveness. There is insufficient evidence to determine the effectiveness of this intervention in increasing screening for colorectal cancer because only two studies (each with some methodological limitations) were found.

\*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

See Figure 1 on page S36 of Baron RC, Rimer BK, Breslow RA, et al. [Client-directed interventions to increase community demand for breast, cervical, and colorectal cancer screening: a systematic review](#) [www.thecommunityguide.org/cancer/screening/client-oriented/Cancer2008\_ClientDirected\_Demand.pdf]. *Am J Prev Med* 2008;35(1S): S34-55.

### 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

For the six intervention approaches, the team identified key research issues that had not been answered in the review. Researchers are encouraged to consider which of these questions might be answered as part of studies already underway, through studies being planned, or through new studies. Research questions are grouped within each of the two effectiveness ratings (i.e., effective based on strong or sufficient evidence or undetermined based on insufficient evidence).

#### Interventions Shown to Be Effective

Additional evidence of effectiveness was found in these reviews, which demonstrated that three interventions to enhance community demand for breast, cervical, and colorectal cancer screening—client reminders, small media, and one-one-one education—are effective (strong or sufficient evidence) in increasing screening rates for one or more of these cancer sites. However, several important general and specific questions about effectiveness remain.

#### General:

- How does the effectiveness of interventions to increase community demand for screening vary with the health literacy of a target population or subpopulation?
- How can newer methods of communication—including automated telephone calls and Internet-delivered applications—be used to improve delivery, acceptance, and effectiveness of these interventions?
- How effective are these interventions in increasing screening by colorectal endoscopy or by double contrast barium enema (for which no qualifying studies were identified)?

- What is required to disseminate and implement effective interventions in community settings across the United States?
- How can or should these approaches be applied to assure that screening, once initiated, is maintained at recommended intervals?
- With respect to interventions that may be tailored to individuals, how are effective tailoring programs adapted, disseminated, and implemented in community-based settings across the United States?
- Are these interventions potentially effective in increasing screening of these cancer sites?
- Do these interventions result in other positive or negative changes in healthcare services (e.g., blood pressure monitoring or adult immunization) or health behaviors (e.g., smoking or physical activity)?

**One-on-one education**

(effective in increasing breast and cervical cancer screening only):

- What are the minimal and optimal duration, dose, and intensity requirements for one-on-one educational approaches to be effective?

**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
Calle, 1994 8-month intervention period; secular year NR  <b>Intervention:</b> One-on-one ed	<b>Design:</b> Randomized trial (Individual)  <b>Design Category:</b> Greatest suitability  <b>Execution:</b> Fair	Jacksonville, FL and Orlando, FL (Urbanicity NR), 2 local ACS units  Age ≥40 yrs who were listed by ACS volunteers; ~ 60% white, ~39% Black, ~1% Hispanic; ~65% married, ~50% < \$40,000; ~15% never had prior mammogram	1. Volunteers provided names of friends eligible for mammogram; called 5 people on list up to 3 times in 6-month period to emphasize importance of regular mammogram & to determine if appointment had been made <b>UNTAILORED</b> (n= 289) 2. No phone calls made (n= 305)	Mammography determined by self-report (8 months): 1 vs. 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
<p>Champion, 1994 1 year, study period NR</p> <p><b>Intervention:</b> One-on-one ed</p>	<p><b>Design:</b> Randomized trial (Individual)</p> <p><b>Design Category:</b> Greatest suitability</p> <p><b>Execution:</b> Fair</p>	<p>Midwestern metropolitan area – Indianapolis, IN (urban), Community-wide</p> <p>Age <math>\geq 35</math> without history of breast cancer, and literate</p> <p>8% African American</p> <p>40% reported having a mammogram the year before enrollment</p>	<ol style="list-style-type: none"> <li>1. Belief intervention - based on responses to baseline survey; developed strategies to address beliefs &amp; alter individually. Research assistant visited women's homes to provide pamphlet reinforcing the information <b>TAILORED</b></li> <li>2. Information intervention – research assistant visited homes &amp; provided information about mammography &amp; screening intervals <b>UNTAILORED</b></li> <li>3. Belief/informational - received both the belief – <b>TAILORED</b> and information about mammography and ACS screening intervals</li> <li>4. Control group; no intervention</li> </ol> <p>Total n = 322</p>	<p>Mammography determined by self-report (1 year):</p> <p>1 vs. 4 = 11 pct pt (p &lt; .05);</p> <p>2 vs. 4 = 2 pct pt (p &lt; .05);</p> <p>3 vs. 4 = 9 pct pt (p &lt; .05)</p>

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
<p>Champion and Huster, 1995</p> <p>1 year, study period NR</p> <p><b>Intervention:</b> One-on-one ed</p>	<p><b>Design:</b> Randomized trial (Individual)</p> <p><b>Design Category:</b> Greatest suitability</p> <p><b>Execution:</b> Fair</p>	<p>Midwestern metropolitan area – Indianapolis, IN (urban), Community-wide</p> <p>Age ≥40 (mean=55) w/o history of breast cancer 7.8% African American</p> <p>Pre-intervention survey</p> <p>N completing study=405</p>	<p>One-on-one education delivered by nurse research assistant ~ 6 mo after baseline survey</p> <ol style="list-style-type: none"> <li>1. Belief intervention - based on responses to baseline survey; developed strategies to address these beliefs &amp; alter them on an individual basis. <b>TAILORED</b></li> <li>2. Information intervention – a research assistant visited the women’s homes &amp; provided information about mammography &amp; screening intervals <b>UNTAILORED</b></li> <li>3. Belief/informational - received both the belief – <b>TAILORED</b> and information about mammography and correct ACS screening intervals</li> <li>4. Control group; no intervention</li> </ol> <p>The belief intervention was individually tailored to each research participant’s baseline beliefs. Information related to facts about breast cancer, explanation of the mammography procedure and timing of mammograms.</p>	<p>Mammography determined by self-report (1 year); Odds ratios for Mammography compliance:</p> <p>1 vs. 4 – OR=2.0 (1.0, 3.9)</p> <p>2 vs. 4 – OR=1.5 (0.8, 2.9)</p> <p>3 vs. 4 – OR=2.3 (1.1, 4.5)</p>
<p>Champion, 2000</p> <p>one year intervention period; secular year NR</p> <p><b>Intervention:</b> One-on-one ed</p>	<p><b>Design:</b> Randomized trial (Individual)</p> <p><b>Design Category:</b> Greatest suitability</p> <p><b>Execution:</b> Fair</p>	<p>Indiana, (urbanicity NR), community service center,</p> <p>Low income, African American women, ages 45–64 years</p>	<ol style="list-style-type: none"> <li>1. Interventions used flip charts and brochures to address perceived susceptibility to breast cancer, &amp; perceived benefits of &amp; barriers to screening. Intervention tailored to woman’s baseline stage of adopting mammography (health belief model). Delivery of the intervention &amp; 2nd data collection completed during the in-home interview – <b>TAILORED</b> (n= 159)</li> <li>2. Usual care (n= 170)</li> </ol>	<p>Mammography determined by self-report (12 months):</p> <p>1 vs. 2 = 10 pct pt (NR)</p>

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
Champion, 2002 1996 – 2000 <b>Intervention:</b> One-on-one ed	<b>Design:</b> Randomized trial (Individual) <b>Design Category:</b> Greatest suitability <b>Execution:</b> Fair	St. Louis, MO & Bloomington, IN (urban) - Two HMO's and a General medicine clinic  Women with no history of breast cancer, no mammogram in 15 months, and 51 years of age or older (at the selected HMO and general medicine clinic);  <u>HMO study pop:</u> 77% White, 21% African American, 24% < \$15,000 annually, 18% < hs education <u>Clinic study pop:</u> 83% African American, 15% White, 77% < \$15,000 annually, 52% < hs education	1. Telephone counseling; included messages on perceived risk, benefits, barriers, and self-efficacy (from baseline responses). Counseling session lasted ~ 15 minutes – <b>TAILORED</b> (n= 223) 2. Usual Care (no intervention) (n=269)	Mammography determined by self-report (2 months):  1 vs. 2 = 10.4 pct pt (NR)
Champion, 2003 1996 – 2000 <b>Intervention:</b> One-on-one ed	<b>Design:</b> Randomized trial (Individual) <b>Design Category:</b> Greatest suitability <b>Execution:</b> Fair	Indiana (Urban) – large HMO and a general medicine clinic; Ages 50 - 85, no mammogram in 15 months and no hx breast cancer; Mean age~ 61 yrs, ~ 30% African American, ~ 20% < \$10,000 per year	1. Telephone counseling – <b>TAILORED</b> (n= 114) 2. In-person (face to face) counseling – <b>TAILORED</b> (n= 128) 3. Usual care – general postcard reminder to schedule a mammogram (n= 134)	Mammography as determined by self-report (6 months):  One-on-one: 1 vs 3 =15.1 pct pt (p < .05); 2 vs 3=25.6 pct pt (p < .05);
Costanza, 2000 Three years (not specified) <b>Intervention:</b> One-on-one ed	<b>Design:</b> Randomized trial (Individual) <b>Design Category:</b> Greatest suitability <b>Execution:</b> Fair	Central MA, HMO group practices/ communities' women under-using mammography (failure to get two annual or biannual mammograms over 2-4 yr period prior to baseline), never users or "former" users	1. Barrier-specific telephone counseling + reminder <b>TAILORED</b> (n= 609) 2. Comparison group - reminder for women to contact their primary care provider to schedule a mammogram (n= 494)	Mammography utilization (regular, interim, no additional use) determined by self-report survey  1 vs. 2 = 2 pct pt (NS)

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
Crane, 1998 1994–1995  <b>Intervention:</b> One-on-one ed	<b>Design:</b> Randomized trial (Individual)  <b>Design Category:</b> Greatest suitability  <b>Execution:</b> Fair	Throughout Colorado (urbanicity NR), Community-wide  Age $\geq 50$ yrs residing in low income and minority neighborhoods; English speaking, Colorado resident, no previous breast cancer diagnosis, no serious overriding health problems, no prophylactic double mastectomy	1. Outcall: participants were asked about their mammography behavior & intentions; appropriate educational messages then delivered <b>TAILORED</b> (n= 738) 2. Advance notice card + outcall (described above): subjects were mailed a card invitation to participate in a health survey; mailed up to 2 months before the call <b>TAILORED</b> (n=757) 3. Usual care; no intervention (n= 689)	Mammography as determined by self-report (2 years):  1 vs. 3 = 4.9 pct pt (NS)  2 vs. 3 = 7.4 pct pt (NS)
Dignan, 1996  1991–1993  <b>Intervention:</b> One-on-one ed	<b>Design:</b> Randomized trial (Individual)  <b>Design Category:</b> Greatest suitability  <b>Execution:</b> Good	Qualla Boundary, Western North Carolina (Urbanicity NR), Community-wide  Age $\geq 18$ years living on tribal land, registered tribal members (Eastern-band Cherokee)	1. NC Native American Cervical Ca Prevention Project - lay health educators/members of the tribes received 1 wk training. Provided 2 face-to-face sessions, in women's homes, 30–60 minutes. 1st visit identified barriers to screening and 2nd provided suggestions for overcoming them. A health risk appraisal was performed, oral and written information was provided and reinforced with a 10-minute videotape <b>TAILORED</b> (w/o pretest n= 218; w/pretest n =263)  2. No education provided (w/o pretest n= 238; w/ pretest = 277)	Pap test as determined by self-report ( $\geq 6$ months):  No pretest:  1 vs. 2 = 13.5 pct pt (p < .05)  Pretest:  1 vs. 2 = 5.9 pct pt (p < .05)
Dignan, 1998  30-month intervention period beginning 1991  <b>Intervention:</b> One-on-one ed	<b>Design:</b> Randomized trial (Individual)  <b>Design Category:</b> Greatest suitability  <b>Execution:</b> Fair	Robeson County, NC (urbanicity NR), Community-wide (homes)  Lumbee tribe Age $\geq 18$ years living in Robeson County during the study period  Mean age 42.4 years, ~ 29% < \$11,000 per year, ~45% privately insured	1. Two home visits to eligible women, a few weeks apart. Individualized information on cervical cancer, Pap tests, the importance of follow-up care when needed, and access to health care services was provided by lay health educators. Additional contact with the participants was maintained through periodic mailings that reinforced the information <b>TAILORED</b> (both with and without pretest n = 424) 2. No intervention activities (both with and without pretests n=415)	Pap test as determined by self-report (6 months):  No pretest:  1 vs. 2 = 7.2 pct pt (NS)  Pretest:  1 vs. 2 = 5.5 pct pt (NS)

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
<p>Duan, 2000 1996–1998</p> <p><b>Intervention:</b> One-on-one ed</p>	<p><b>Design:</b> Randomized trial (Individual)</p> <p><b>Design Category:</b> Greatest suitability</p> <p><b>Execution:</b> Fair</p>	<p>Los Angeles, CA (urban), homes, community-wide</p> <p>Ages 50– 80 who were affiliated with one of the participating churches; ~ 83% of women had high school education or more, ~50% white, ~28% African American, ~13% Hispanic (+ other); 91% insured</p>	<p>1. Part-time peer counselors conducted 1 session of mammography counseling by telephone annually for 2 yrs - <b>TAILORED</b> (n conversion = 152; n maintenance = 264; n total = 416)</p> <p>2. Usual care (n conversion = 139; n maintenance = 258; n total = 397)</p>	<p>Mammography determined by self-report (12 months)</p> <p>Conversion 1 vs. 2 = 2.6 pct pt (NS)</p> <p>Maintenance 1 vs. 2 = 7.5 pct pt (p &lt; .05)- not included in the manuscript</p>
<p>Hoare, 1994 1991</p> <p><b>Intervention:</b> One-on-one ed</p>	<p><b>Design:</b> Randomized trial (Individual)</p> <p><b>Design Category:</b> Greatest suitability</p> <p><b>Execution:</b> Fair</p>	<p>Oldham, UK, Community-wide</p> <p>Pakistani or Bangladeshi women registered with GPs in the study area that were due to be invited for breast cancer screening  Mean age:  55.9 yrs (I)  56.2 yrs (C)</p>	<p>1. “Linkworkers” carried out interviews in the appropriate language using a semi-structured questionnaire. A short explanation about breast screening was given to provide information and encouragement to take up forthcoming invitations – <b>NON TAILORED</b> (n= 247)</p> <p>2. Usual care invitations (n= 251)</p>	<p>Mammography attendance determined by ‘Greater Manchester Screening Office’ computer (follow-up time NR ):</p> <p>1 vs. 2 = 2 pct pt (NS)</p>
<p>Howze, 1992 3-week period in late Spring ed 1989</p> <p><b>Intervention:</b> One-on-one ed</p>	<p><b>Design:</b> Post-test only controlled design</p> <p><b>Design Category:</b> Greatest suitability</p> <p><b>Execution:</b> Fair</p>	<p>University community in Virginia, hair salons</p> <p>Ages 35–75 yrs  63% had household incomes over \$35,000</p> <p>77% had some college; 71% married; 54% worked full time outside the home</p> <p>Results that were reported were only for women who had a mammogram the year before; only ‘no statistical difference’ for the study sample that included women who had not received a mammography the year before.</p>	<p>1. Hair stylists at a local salon were trained to give patrons information about breast cancer. Women received materials with a personalized message about mammography emphasizing the dimension of risk, risk factors and the benefits of early detection. In addition, they received an ACS pamphlet and persuasive communication written in Q &amp; A format that addressed common concerns about mammography &amp; a letter endorsing mammography written by the chief of radiology of a local hospital – <b>TAILORED</b> (n = 25)</p> <p>2. Controls received information about diet (n = 28)</p>	<p>Completed mammography determined by self-report (12 months)</p> <p>1 vs. 2 = 23 pct pt (NR)</p>

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
<p>King, 1994 1989–1991</p> <p><b>Intervention:</b> One-on-one ed</p>	<p><b>Design:</b> Randomized trial (Individual)</p> <p><b>Design Category:</b> Greatest suitability</p> <p><b>Execution:</b> Fair</p>	<p>United States (urbanicity NR), individual practice associated with HMO</p> <p>Women enrolled in HMO, age 50–74 years who had not obtained annual mammogram (remained non-compliant after steps 1 and 2 of larger intervention)</p>	<p>Part of larger intervention that began with: distribution of breast cancer info packets containing free mammogram (step 1); women who did not obtain a mammogram w/in 45 days received brief reminder letter; 95 days after packet mailing, telephone survey conducted to assess mammography status at days 45 and 95 (step 2) :</p> <p>Step 3 evaluation: 598 women who did not have mammogram randomized into three groups receiving a preventive office visit letter (not considered in this analysis) and:</p> <ol style="list-style-type: none"> <li>1. Tailored telephone counseling; motivational phone call (n= 200)</li> <li>2. Comparison: 2<sup>nd</sup> reminder (n= 196)</li> </ol>	<p>Mammography as determined by self report and validated by record review (3 months): 17 pct pt (p= NR)</p>
<p>Lauver, 1999 study period NR</p> <p><b>Intervention:</b> One-on-one ed</p>	<p><b>Design:</b> Randomized trial (Individual)</p> <p><b>Design Category:</b> Greatest suitability</p> <p><b>Execution:</b> Fair</p>	<p>(Urban) hospital mammography clinic</p> <p>Ages 51–80 who had a mammogram in the past 18 months, did not have a history of breast cancer, could be contacted by telephone, and able to communicate in English 45% African American</p>	<ol style="list-style-type: none"> <li>1. In phase, women were contacted by nurses and a prepared message was delivered regarding breast cancer screening; barriers were addressed. For the experimental message, nurses followed a prepared text for content but tailored the order of discussion based on issues women named as most salient to them during phase I. A colorful brochure reinforcing critical information about breast screening was sent to the intervention group after Phase I - <b>TAILORED</b></li> <li>2. No intervention Total n = 101</li> </ol>	<p>Mammography as determined by self-report (4 months):</p> <p>1 vs. 2: OR: 1.48 (95% CI 0.61,3.5)</p> <p>(reflecting outcome in a favorable direction, could not be converted to pct pt change)</p>

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
<p>Lauver, 2003</p> <p>NR</p> <p><b>Intervention:</b> One-on-one ed</p>	<p><b>Design:</b> Randomized trial (Individual)</p> <p><b>Design Category:</b> Greatest suitability</p> <p><b>Execution:</b> Good</p>	<p>Milwaukee, WI (mixed) Community-wide, hospital and regional</p> <p>Aged 51 - 80 who had not had mammography in the prior 13 months; Women with a history of cancer (except basal cell carcinoma) or an inability to speak English, were excluded</p> <p>~90% white, mean age ~64 years old</p>	<p>1. Phone counseling - nurses provided basic information about breast screening; clarification about mammography procedures, rationale and normative recommendations. If the participant asked questions non-generic questions, they were directed to call a health practitioner for more information. A pamphlet containing messages to reinforce the telephone call, were mailed after phone contact <b>UNTAILORED</b> (n= 251)</p> <p>2. Phone counseling tailored to client: In addition to the above messages, participants received a input tailored to their beliefs, feelings and personal barriers. Pamphlets containing messages about recommendations and core tailored content were mailed after telephone contact <b>TAILORED</b> (n= 240)</p> <p>3. Usual care/no additional intervention (n= 237)</p>	<p>Mammography as determined by self-report via telephone interview (13 - 16 months):</p> <p>1 vs. 3 = -.3 pct pt (p= NR)</p> <p>2 vs. 3 = 9.3 pct pt (p &lt; .05)</p>
<p>Lipkus, 2000</p> <p>June 1994 – March 1998</p> <p><b>Intervention:</b> One-on-one ed</p>	<p><b>Design:</b> Randomized trial (Individual)</p> <p><b>Design Category:</b> Greatest suitability</p> <p><b>Execution:</b> Fair</p>	<p>Raleigh, Durham and Chapel Hill, NC (urban) HMO</p> <p>Women ≥ 50 years of age, members of the Kaiser Foundation Health Plan of NC from 5 sites; had 2 or fewer mammograms in a 36 month period. Women who did not speak English or who had a history of breast cancer that resulted in double mastectomy or who currently had breast cancer were excluded; 82% Caucasian, 16% African American; mean age 59 y/o</p>	<p>1. Pre-intervention assessment used to collect mammography histories, barriers and facilitators. Women were called twice, 2 years apart, by a trained female counselor. They reinforced previous screening, supported reasons to be screened and to identify and overcome the woman's unique barriers. <b>TAILORED</b> (n=371)</p> <p>2. Usual care (Extensive system of reminders to non-compliant eligible women) (n=362)</p>	<p>Mammography completed (on schedule) as determined by self report after first year:</p> <p>1 vs. 2 = 9 pct pt (p &lt; .05)</p> <p>(6 pct pt among women on schedule at pre-intervention survey [n=271] vs. 19 pct pt among women off schedule at pre-intervention survey [n=100])</p>

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
<p>Marcus, 1993</p> <p>one year intervention period, secular year NR</p> <p><b>Intervention:</b> One-on-one ed</p>	<p><b>Design:</b> Randomized trial (Individual)</p> <p><b>Design Category:</b> Greatest suitability</p> <p><b>Execution:</b> Fair</p>	<p>United States (urbanicity NR) Community-wide</p> <p>Age <math>\geq 40</math> years at two sites not calling about breast cancer or breast cancer screening, no report of breast cancer symptoms, not a cancer patient, and no previous call to the Cancer Intervention Service (CIS) during accrual period</p> <p>~38% <math>\geq 60</math> years old, 90% white</p>	<ol style="list-style-type: none"> <li>Interactive counseling to overcome barriers to screening mammography delivered by CIS counselors &amp; combined with follow-up mail out to reinforce the 6-minute telephone call <b>TAILORED</b> (n= 870)</li> <li>No counseling (n= 961)</li> </ol>	<p>Mammography as determined by self report (12 months): 1.9 pct pt (NS)</p>
<p>McAvoy, 1991</p> <p>February 1987-March 1988</p> <p><b>Intervention:</b> One-on-one ed</p>	<p><b>Design:</b> Randomized trial (Individual)</p> <p><b>Design Category:</b> Greatest suitability</p> <p><b>Execution:</b> Good</p>	<p>Leicester, United Kingdom (urban), Community-wide – homes; Women with Asian names, registered with general practitioner from Leicester and not having computer record of pap test as of 31 Dec 1986</p> <p>Asian in this study refers to those who are of New Commonwealth and Pakistani ethnic origin or descent, including those from Bangladesh and east Africa</p> <p>Age range: 18-52, 100% Asian</p>	<ol style="list-style-type: none"> <li>An in-person visit as well as a leaflet and fact sheet (in the appropriate language) <b>UNTAILORED</b> (n= 153)</li> <li>An in-person visit as well as being shown a video and fact sheet (in the appropriate language) <b>UNTAILORED</b> (n= 170)</li> <li>Not contacted at all in any way (n= 124)</li> </ol>	<p>Pap test as determined by electronic audit of laboratory records (follow-up NR):</p> <p>1 vs. 3 = 21 pct pt (NS)</p> <p>2 vs. 3 = 25 pct pt (p &lt; .05)</p>

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
<p>Messina, 2002                      May 1996 - March 1998                      [baseline assessment April - Aug 1995]</p> <p><b>Intervention:</b> One-on-one ed</p>	<p><b>Design:</b> Randomized trial (Individual)</p> <p><b>Design Category:</b> Greatest suitability</p> <p><b>Execution:</b> Fair</p>	<p>4 towns on Long Island, NY (Suburban/semi-rural) Clinic/office</p> <p>Women 50 - 80 years old living in any of the four towns. Excluded Women who did not speak either English or Spanish. Regular mammography users (at least 2 mammograms w/l the last 48 months) also excluded (intervention targeted women who were underusers at baseline (&lt; 2 mammograms in the past 48 months)</p>	<p>1. Annual with educational materials, encouraging recipients to get a mammogram. 3 months later, telephone counseling was initiated. Stage of readiness was assessed and appropriate counseling given – <b>TAILORED</b> (n= 92)</p> <p>2. No additional intervention/ usual care (n= 115)</p>	<p>Mammography determined by self-report (3 years):</p> <p>1 vs. 2 = 13 pct pt (p &lt; .05)</p>
<p>Myers, 1991                      (April-July 1989)</p> <p>Greatest: RCT (individual)</p> <p>Fair</p> <p>IPA-type HMO members</p> <p>Contacted at home</p> <p><b>Intervention:</b> One-on-one ed</p>	<p><b>Design:</b> Randomized trial (Individual)</p> <p><b>Design Category:</b> Greatest suitability</p> <p><b>Execution:</b> Fair</p>	<p>Ages 50–74 years, members of US Healthcare and eligible for annual FOBT screening</p> <p>Treatment <b>Group 3</b> (one-on-one ed): N=700</p> <p>Comparison: N = 601</p>	<p>A central screening office mailed an FOBT screening kit to HMO members on an annual basis.</p> <p><u>Group 1</u> received the same usual care plus a reminder telephone call* at 30-days if no tests were returned.</p> <p><u>Group 2</u> was given usual care with the addition of a self-held screening booklet (ColoRecord) included in the screening kit and 30-day reminder telephone call*.</p> <p><u>Group 3</u> received usual care, the ColoRecord, the 30-day reminder call and an instructional telephone call*; all of the booklets contained a set of messages concerning the efficacy of the gain and loss message framing-</p> <p>Reminder calls delivered by counselors using formatted script and providing responses keyed to subject's reason for nonadherence.</p> <p><b>Comparison: usual care</b> defined as advance letter, screening kit with cover letter and a reminder letter at 15 days.</p>	<p>Percent of patients adherent to fecal occult blood testing</p> <p>Treatment group 1: 37.1%</p> <p>Treatment group 2: 37.3%</p> <p>Treatment group 3: 48.1%</p> <p>C: 27.4%</p> <p>Message framing:</p> <p>Gain: 36.3%</p> <p>Loss: 39.7%</p> <p>Gp 1 = 9.7% p &lt; .05</p> <p>Gp 2 = 9.9% p &lt; .05</p> <p>Gp 3 = 20.7% p &lt; .05</p>

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, 2002  November 1997 – August 2000  <b>Intervention:</b> One-on-one ed	<b>Design:</b> Randomized trial (Individual)  <b>Design Category:</b> Greatest suitability  <b>Execution:</b> Fair	North Carolina (urbanicity –various) HMO; enrollment in Blue Cross Blue Shield of NC); Aged 40 – 44 and 50 – 54 enrolled in the Personal Care Plan of BCBSNC)  ~83% white, ~40% had at least a college education, 89% work for pay	<ol style="list-style-type: none"> <li><b>A brief counseling call about 2 weeks after mailed a tailored booklet/newsletter was sent 2 – 3 weeks following their baseline interview TAILORED (n= 339)</b></li> <li><b>Tailored print material only (374)</b></li> <li>Postcard reminders (n= 378)</li> </ol>	Mammography determined by self-report (24 months):  <b>One-on-one: 1 vs 2=8.5 pct pt (p &lt; .05)</b>  2 vs. 3 = Tailored small media, alone = -4.5 pct pt)  1 vs 3 multicomponent (one-on-one + tailored small media) = 4.0 pct pt
Saywell, 2003  NR  <b>Intervention:</b> One-on-one ed	<b>Design:</b> Randomized trial (Individual)  <b>Design Category:</b> Greatest suitability  <b>Execution:</b> Fair	Indiana (NR), Large HMO office and a general clinic, Ages 50-85 and no breast cancer; no mammography in 15 months; enrolled in HMO or general medical clinic during the study period. Typical age = 61 years, ~66% white, 20% incomes < \$10,000, 45% married	<ol style="list-style-type: none"> <li>Telephone counseling + brochures mailed prior to the session to reinforce messages <b>UNTAILORED</b> (n= 59)</li> <li>In-person counseling + brochures mailed prior to the session to reinforce messages <b>UNTAILORED</b> (n= 49)</li> <li>No intervention (n= 65)</li> </ol>	Mammography as determined by self-report (6 months):  1 vs. 3 = 23.9 pct pt (p < .05)  2 vs. 3 = 26.4 pct pt (p < .05)
Schwartz, 1999 study period NR  <b>Intervention:</b> One-on-one ed	<b>Design:</b> Randomized trial (Individual)  <b>Design Category:</b> Greatest suitability  <b>Execution:</b> Fair	Setting not stated,  Age ≥40 yrs with a positive family history of breast cancer in at least one first-degree relative. Exclude women with a prior cancer diagnosis (except basal or squamous cell skin cancers).	<ol style="list-style-type: none"> <li>Breast cancer risk counseling (BCRC) consisted of discussing breast cancer risk factors, presenting individualized risk figures, recommending annual mammography based on NCI recommendations for women with familial risk, and instruction in breast self-exam - <b>UNTAILORED</b></li> <li>General health education (GHE) consisted of assessing health practices, age-specific cancer screening recommendations, and encouragement to quit smoking, suggestions to reduce dietary fat &amp; recommendations for regular aerobic exercise. Total n= 430</li> </ol>	Completed mammography determined by self-report (12 months)  1 vs. 2 = -6 pct pt (NS)

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
Segura, 2001 January – February 1998 <b>Intervention:</b> One-on-one	<b>Design:</b> Randomized trial (Group) <b>Design Category:</b> Greatest suitability <b>Execution:</b> Fair	Barcelona, Spain (urban), community-wide Aged 50-64 with no report of mammography in past 12 months; Lower SES 47% completed primary ed 18% completed secondary ed ~ 30% illiterate	1. Direct contact from non-health professional delivering information about screening benefits, addressed questions, concerns and attitudes. At visit, also handed contact the invitation (see below) from physician in charge – <b>UNTAILORED</b> (n= 340) 2. Standard screening invitation; no other intervention (n= 317)	Mammography (NR how ascertained); follow up time NR: 1 vs. 2 = 11.4 pct pt (p < .05)
Seow, 1998 Over two years, NR <b>Intervention:</b> One-on-one	<b>Design:</b> Randomized trial (Individual) <b>Design Category:</b> Greatest suitability <b>Execution:</b> Fair	Singapore (urban), hospital and homes, Women between the ages of 50 and 64 years selected for the Breast Screening Project who had not responded to the invitation or 1st reminder and were due to receive a 2 <sup>nd</sup> reminder in Dec of 1996 ~ 73% Chinese, ~18% Malay, ~9% Indian, ~1% Other, mean age = 59 years	The study was part of a larger project on mammography screening conducted by the Ministry of Health; a randomized trial comparing responses of women who repeatedly ignored invitations for free screening, with those who received health education material sent by post, or a home visit for women to increase the uptake of mammography 1. Additional invitation/reminder and an additional education folder and session at home by a female field worker <b>UNTAILORED</b> (n= 500) 2. Additional series of invitations alone (n= 500)	Mammography as determined by record review (follow up NR): 1 vs. 2 = 6.3 pct pt (NS)
Sung, 1997 11-month study period beginning Feb. 1990 <b>Intervention:</b> One-on-one	<b>Design:</b> Randomized trial (Individual) <b>Design Category:</b> Greatest suitability <b>Execution:</b> Fair	(urban) Intervention implemented in homes, community-wide Inner-city Age ≥35 yrs with no history of cancer or hysterectomy 100% African American	1. Women visited twice at home by lay health workers. 3rd review session scheduled. Sessions focused on breast & cervical ca screening; included videotape of Pap test and breast exam using African-American patients and healthcare providers. Promoted transportation, scheduling, & screening; encouraged to participate in self-help groups – <b>UNTAILORED</b> (n= 163) 2. No intervention (n= 158)	Determined by self-report (6 months): Completed mammography: 1 vs. 2 = 9.8 pct pt (NS) Completed Pap test: 1 vs. 2 = - 1.8 pct pt (NS)

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
<p>Taplin, 2000                      year of intervention NR</p> <p><b>Intervention:</b> One-on-one</p>	<p><b>Design:</b> Randomized trial (Individual)</p> <p><b>Design Category:</b> Greatest suitability</p> <p><b>Execution:</b> Good</p>	<p>Puget Sound area, WA (Urbanicity NR), Large HMO,</p> <p>Women with no history of breast cancer, no prior involvement in mammography recruitment studies, resident of the regions served by 2 screening centers, due for a mammogram, &amp; English speaking</p>	<ol style="list-style-type: none"> <li>1. Phone call conducted by woman employed at radiology dept; who scheduled appointment and answered questions about logistics (avg call = 3.1 minutes)  <b>UNTAILORED</b> (n= 585)</li> <li>2. Motivational call to elicit info on demographics, perceived risk, past health behavior, logistics and health care system support. Calls were made by trained female counselors. Counselors could also make appointments (avg length of call = 8.5 minutes)  <b>UNTAILORED</b> (n= 590)</li> <li>3. Reminder postcard - The postcard acknowledged the prior letter, informed each woman that she could still schedule an appointment and stated that the appointment was an important part of her care (n = 590)</li> </ol>	<p>Mammography determined by record review (1 year):</p> <p>1 vs. 3 = 16.4 pct pt (<math>p &lt; .05</math>)</p> <p>2 vs. 3 = 14.4 pct pt (<math>p &lt; .05</math>)</p>
<p>Thompson, 1986                      Time intervention implemented NR</p> <p><b>Intervention:</b> One-on-one</p>	<p><b>Design:</b> Randomized trial (Individual)</p> <p><b>Design Category:</b> Greatest suitability</p> <p><b>Execution:</b> Fair</p>	<p>Men (38%) and women with existing appointments for a physical exam, age <math>\geq 45</math> years, English speaking, without presumed or confirmed diagnosis of colorectal cancer</p> <p>Age range 45 -92 years, 38% male, 11.3% &lt; \$10,000/ year</p>	<p>All groups received a Hemoccult packet with printed instructions:</p> <ol style="list-style-type: none"> <li>1. A 3–5 min talk by the physician on the importance, purpose, and procedure of the Hemoccult test <b>UNTAILORED</b></li> <li>2. A talk by a nurse identical to the physician talk <b>UNTAILORED</b></li> <li>3. No additional intervention</li> </ol> <p>Total n = 507</p>	<p>FOBT as determined by returned kits (3 months):</p> <p>1 vs. 3 = 12.9 pct pt (NS)</p> <p>2 vs. 3 = 6.6 pct pt (NS)</p>

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
Valanis, 2002  November 1997 – November 1998  <b>Intervention:</b> One-on-one	<b>Design:</b> Randomized trial (Individual)  <b>Design Category:</b> Greatest suitability  <b>Execution:</b> Good	Portland, Vancouver (urban?) HMO; Females ages 52 – 69 who had been KPNW Health Plan members for at least the prior 3 years without record in the health plan database of hysterectomy or bilateral mastectomy and no record of a mammogram in the prior 2 years and Pap in the prior 3 years  ~84% white, ~23% employed full time, mean age = 59 yrs old	1. ~20 minute post-visit interception of the patient (in person motivational interview). The interventionists helped women make appointments when requested <b>TAILORED</b> 2. Usual care (included non-tailored reminder letters; some clinics mailed letters from a woman's personal provider or clinic; in 80% of the clinics call lists were provided to the staff; some clinics tried to intercept women as they came into the clinic)	Determined by electronic records review (14 months):  mammography: 1 vs. 2= 5 pct pt (NS)  Pap: 1 vs. 2= 9 pct pt (NS)

## Included Studies

### Cervical Cancer

Dignan M, Michielutte R, Blinson K, et al. Effectiveness of health education to increase screening for cervical cancer among eastern-band Cherokee Indian women in North Carolina. *J Natl Cancer Inst* 1996;88:1670-6.

Dignan MB, Michielutte R, Wells HB, et al. Health education to increase screening for cervical cancer among Lumbee Indian women in North Carolina. *Health Educ Res* 1998;13(4):545-56.

McAvoy B, Raza R. Can health education increase uptake of cervical smear testing among Asian women? *Br Med J* 1991;302:833-6.

Sung J, Williams J, Blumenthal D, Alema-Mensah E, Coates R, Liff J. Effect of cancer screening intervention conducted by lay health workers among inner-city women. *Am J Prev Med* 1997;13(1):51-7.

Valanis BG, Glasgow RE, Mullooly J, et al. Screening HMO women overdue for both mammograms and pap tests. *Prev Med* 2002;34(1):40-50.

### 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, Client-Oriented Screening Interventions: One-on-One Education – Cervical Cancer (2008 Archived Review) 18

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.

Document last updated September 27, 2013