

Roetzheim RG, Christman LK, Jacobsen PB, et al. A randomized controlled trial to increase cancer screening among attendees of community health centers. *Ann Fam Med.* 2004;2:294-300.

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Appendix 2, Table 1. Costs of the Cancer SOS Intervention by Type of Resource Input

Resource Inputs	Utilization or Price		Cost Per Eligible Patient
	Units per Patient	Unit Cost \$	Payer Perspective \$
Personnel time, min			
Clerical/support	2.60	0.21	0.55
Nursing	1.92	0.45	0.87
Physician assistants & related	2.20	0.50	1.10
Physicians (MDs and DOs)	1.21	1.03	1.25
Total personal time	7.93	0.47	3.76
Clinic overhead, \$	1.0	1.43	1.13
Cancer SOS-specific materials			
Materials, printing, etc	1.0	0.32	0.32
Clerical support	0.85	0.21	0.18
Total Cancer SOS-specific materials	1.0	0.50	0.50
Total cost per patient, \$			5.39

Cancer SOS = Cancer Screening Office Systems; MD = doctor of medicine; DO = doctor of osteopathy.

Notes. Estimates of the time it took personnel at each of the intervention sites to carry out Cancer SOS-related tasks were obtained by means of a self-administered questionnaire distributed roughly midway through the period in which the study was active at each site. The questionnaire asked each respondent, mostly in closed-end question format, to describe his or her occupational position and work schedule in the clinic, and then to estimate the time each spent on Cancer SOS-related patient matters during a 2-week reference period. The time-related questions included, among others, the total amount of time consumed by Cancer SOS-related tasks, the number of Cancer SOS-eligible patients encompassed by that time input, the amount of time spent in any of 19 detailed tasks corresponding to the Cancer SOS work (eg, the identification of eligible patients, helping the patient with the checklist, placing the list in the chart, checking on test status, double-checking test with the physician, peeling the sticker when tests come back, etc). Only tasks that could strictly be attributed to Cancer SOS were included. Thus, routine tasks associated with screening, such as writing orders, discussing results with patients, etc, were excluded from Cancer SOS costs per se. Task-specific time inputs were then tallied and divided by the estimated number of patients served by those time inputs. In a few cases, estimates of total minutes varied with the task-specific breakdown, so adjustments were made to ensure consistency between the two. Time inputs per patient were then averaged over occupational groups and intervention sites. Time inputs were then weighted by mean hourly wage rates calculated by the Bureau of Labor Statistics and adjusted nominally to year 2000 prices. To simplify matters, we aggregated the occupational categories into the 4 general groupings presented above for this purpose. Hourly wage estimates for each group were further prorated by an assumed fringe benefit rate of 20%. To account for the general overhead costs associated with that personnel time, ie, telephones, office equipment, etc, personnel costs were then prorated by an indirect rate of 30%. The fringe benefit and indirect (capital) cost rates used are consistent with those used in the literature and will be subjected to sensitivity tests in the more extensive analysis of Cancer SOS cost-effectiveness in preparation. Administrative overhead, however, does not include specifically designed materials used to carry out the Cancer SOS intervention (peel-off stickers and the like), nor does it include any of the research-related costs of the Cancer SOS trial. The latter amount is excluded in the cost figures presented here, whereas the former was priced from project invoice statements and presented above as a line item.

Appendix 2, Table 2. Cost-Effectiveness of the Cancer SOS Intervention by Test and Patient Group

Numerator and Denominator Terms	Screening Test per Patient Group			
	Mammogram Women 50-75 y	Pap Smear Women 50-75 y	FOBT Men/Women 50-75 y	Any Test Men/Women 50-75 y
Marginal cost from payer perspective (ΔC)				
Cancer SOS cost per patients adjusted for test eligibility* (\$)	2.55	1.96	2.96	3.12
Marginal effectiveness (ΔE)				
Difference in 12-month screening rates (SOS ₁₂ -control ₁₂) (%)	4.63	14.21	28.18	11.54
Difference in screening rate changes [(SOS ₁₂ -SOS ₀)-(control ₁₂ -control ₀)] (%)	9.10	9.91	14.38	10.04
$\Delta C/\Delta E$				
Cost per 12-month screening rate (\$)	55.08	13.79	10.50	27.04
Cost per change in screening rate (\$)	28.02	19.78	20.58	31.08
Cancer-SOS = Cancer Screening Office Systems; Pap = Papanicolaou smear; FOBT = fecal occult blood test.				
* The costs of each type of test were obtained by weighting mean cost per patient by the proportions of the study population eligible for all 3 tests, for 2 of the tests or just 1 test. Specifically, if C = per patient cost and Φ_{i3} is the proportion of the patient group eligible for the <i>i</i> th test that is also eligible for both of the other 2 tests, Φ_{i2} is the proportion of the <i>i</i> th group eligible for only 1 of the other tests, and Φ_{i1} is the proportion eligible only for the <i>i</i> th test, then the cost of the <i>i</i> th test, C _i , is: $\{(C/3) \Phi_{i3}\} + \{(C/2) \Phi_{i2}\} + (C \Phi_{i1})$. The same logic is applied to the cost of "any test, except that Φ term refers to the total eligible (all <i>i</i>) group.				

Appendix 2, Table 3. Summary of Cost-Effectiveness of Interventions Promoting Screening Mammography

Study	Type of Intervention, Target Population	Effectiveness/ Follow-up Period		ΔC/ΔE (\$) (Payer Perspective)
		ΔE (%)	Months	
Cancer SOS	Clinic in-reach Women 50–75 y	0.046	12	55
Anderson et al ¹	Outreach Women 50–80 y	0.025	36	1,371
Bird et al ²	In-reach, physician reminders Women ≥40 y	0.060	9	103
Costanza et al ³	HMO outreach, Women underusers 50–80 y	0.039	36	784
Crane et al ⁴	Multiple call outreach Low-income women >50 y	0.066	6	178
Fishman et al ⁵	HMO in-reach Women 50–79 y	0.181 0.346	12	24 60
Mohler ⁶	Primary care in-reach Women 50–59 y	0.184 0.322	2	5 101
Saywell et al ⁷	HMO/medical clinic In-reach women 50–85 y	0.049 0.174	1.5	276– 84
Saywell et al ⁸	HMO in-reach Women 50–85 y	0.126 0.290	6	107 67
Stockdale et al ⁹	Church-based outreach Women 50–80 y	0.058	12	200
Thompson et al ¹⁰	Public hospital in-reach Women 50–79 y	0.150	2	930
Van Harrison et al ¹¹	Medicare outreach Women ≥70 y or 70–79 y	0.028 0.040	12 14	58– 51
Weber & Reilly ¹²	Primary care in-reach Women 52–77 y	0.180	4	464

HMO = health maintenance organization

Appendix 2, Table 3. References

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