

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 1. Description of the Cancer Screening Office Systems (Cancer SOS) Intervention**

### **Description of Clinics**

Participating clinics were located either in Tampa, Fla, neighborhoods serving disadvantaged populations (5 clinics), or in surrounding rural areas of Hillsborough County in which migrant farm workers represented an important population served (3 clinics). The largest clinic had 7 full-time medical providers, and the smallest had 2 full-time providers (average of 4 overall). Nonphysician providers (nurse practitioners, physician assistants) accounted for 30% of overall medical providers.

Each clinic had a medical director and an office manager, usually the senior member of the nursing staff. Decision making was usually shared at each clinic, with the medical director approving new policies after input from providers and staff during regularly scheduled meetings. Office managers reported an overall cohesive work environment, with 5 of 8 clinics rating their staff's ability to work well together as a 5 (representing a staff that "works extremely well together as a team") on a 5-point scale.

All clinics were able to provide Papanicolaou (Pap) smears and fecal occult blood tests (FOBTs) on site; mammograms were available either at local hospitals or by regularly scheduled mobile mammography buses. All clinics had a preventive medicine flow sheet of some sort. Although some clinics occasionally had medical or nurse practitioner students on site, none used resident physicians as part of their workforce. All clinics remained stable in terms of facilities, key personnel, and governance throughout the intervention.

### **Cancer SOS Intervention**

The intervention was designed to make cancer screening easier to accomplish in busy medical practices. For simplicity, we targeted men and women between the ages of 50 and 75 years only, and we selected 3 cancer-screening tests that are widely recommended for this age-group that were available at all participating clinics. For women, the materials and methods were intended to increase the use of mammograms, Pap smears, and FOBTs. For men, the materials and methods were intended to increase the use of FOBTs. FOBT refers only to 3 self-collected home specimens, not testing for blood in the stool obtained during a digital rectal examination.

Prostate-specific antigen testing was not targeted because of uncertainty regarding its benefit. We did not target flexible sigmoidoscopy or colonoscopy because these services were not available to patients at all clinics. All targeted screening tests were available to patients either on site (FOBT, Pap smears) or through referral to community sites (mammograms) and were covered under the existing patient insurance programs (Medicare, Medicaid, county health plan).

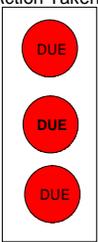
The Cancer SOS intervention had 2 components: a kit of materials used to facilitate screening referrals, and a division of office responsibilities and tasks to achieve this goal. The kit of materials consisted of a reminder checklist and a 3-part series of chart stickers that indicate whether specific cancer-screening tests were due, ordered, or completed.

### **Cancer-Screening Checklist and Chart Stickers**

The cancer-screening checklist, which was self-administered by the patient, inquired whether specific screening tests had been done in the recommended interval. For example, for mammography the question read, "Have you had a mammogram in the past year?" The patient checked the box labeled "Yes" or "No" as appropriate. The chart stickers were used in conjunction with the checklist to help office staff and

medical providers determine at a glance whether patients were up-to-date on cancer screening. The stickers also helped document the actions taken for required screening tests and assisted in insuring patient follow-through.

**Figure 1. Initial visit cancer-screening checklist.**

Initial Visit		YEAR 2000	
WOMEN'S CANCER SCREENING CHECKLIST			
<b>NAME:</b> Mary Jones	<b>DATE:</b> 06/28/2000		
		Month/Day/Year	
We are trying to increase the amount of preventive care that our patients receive. Would you please help us by completing this form?			
Did you complete 3 cards at home that check for hidden blood in your bowel movements in the past year?	YES <input type="checkbox"/>	NO <input checked="" type="checkbox"/>	Office Use Only Action Taken 
Have you had a mammogram in the past year?	YES <input checked="" type="checkbox"/>	NO <input type="checkbox"/>	
Have you had a Pap smear in the past year?	YES <input type="checkbox"/>	NO <input checked="" type="checkbox"/>	
Note: Patients are requested to complete a cancer-screening checklist, which asks patients to self-report their cancer-screening behaviors during the previous year. Chart stickers remain red until action is taking by the staff.			

The top sticker was red and labeled "DUE," indicating that the patient was due for a cancer-screening test. If the red sticker was peeled away by medical staff, a yellow sticker labeled "ORDERED" was exposed.

Exposing the yellow sticker meant the test had been ordered or recommended but not yet completed. If both the red and yellow stickers were peeled away by medical staff, a green sticker labeled "OK" was exposed, which meant the patient was up-to-date on the screening test for that year.

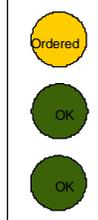
The sequence of the red-yellow-green color system was analogous to the color sequence of a traffic light and designed to help

track which patients were up-to-date on screening and whether screening tests had been ordered. The checklist was attached to the medical record and placed on top to serve as a reminder to accomplish cancer screening for that calendar year. At the start of a new year, a new cancer screening checklist (of a different color) was given to patients, and the overall process was repeated to promote cancer screening for the next year.

### Division of Office Responsibilities and Tasks

Receptionists and front office staff were responsible for identifying patients between the ages of 50 and 75 years and providing them with the cancer-screening checklists. The nursing staff was responsible for

**Figure 2. Cancer-screening checklist at 2-month follow-up.**

Follow-up Visit		YEAR 2000	
WOMEN'S CANCER SCREENING CHECKLIST			
<b>NAME:</b> Mary Jones	<b>DATE:</b> 10/28/2000		
		Month/Day/Year	
We are trying to increase the amount of preventive care that our patients receive. Would you please help us by completing this form?			
Did you complete 3 cards at home that check for hidden blood in your bowel movements in the past year?	YES <input type="checkbox"/>	NO <input checked="" type="checkbox"/>	Office Use Only Action Taken 
Have you had a mammogram in the past year?	YES <input checked="" type="checkbox"/>	NO <input type="checkbox"/>	
Have you had a Pap smear in the past year?	YES <input type="checkbox"/>	NO <input checked="" type="checkbox"/>	
Note: Color-coded stickers are changed as action is taken by the staff. In this example, the patient is already up-to-date on mammography, so the red and yellow stickers are removed. Fecal occult blood test cards are given to the patient, and an appointment is made for a Papanicolaou smear. Yellow stickers are exposed to indicate these tests have now been ordered.			

reviewing the completed checklist and attaching it to the inside cover of the chart. Providers' responsibilities were to review the checklist and use the colored stickers to decide what cancer-screening action was required. Both nurses and providers were responsible for updating the appropriate colored chart stickers.

Examples of how the system would work are depicted in Appendix 1, Figures 1 through 3. "Mary Jones" completes the cancer-screening checklist and all stickers are initially red until some action is taken by the staff (Appendix 1, Figure 1). For tests that are up-to-date, in this case mammography, red and yellow stickers are removed by the staff to indicate that the test is up-to-date (Appendix 1, Figure 2). Mary Jones is given FOBT cards and

instructions for their completion, and she is asked to make a follow-up appointment for a Pap smear. These 2 cancer-screening tests are now considered ordered so the red stickers are removed. The patient returns for a Pap smear, and upon its completion, the corresponding yellow sticker is removed indicating this test is now up-to-date (Appendix 1, Figure 3). The patient has still not completed the FOBT cards, so this sticker remains yellow to serve as a reminder to providers and staff.

**Figure 3. Cancer-screening checklist at 4-month follow up.**

Follow-up Visit		YEAR 2000	
<p style="text-align: center;"><b>WOMEN'S CANCER SCREENING CHECKLIST</b></p> <p><b>NAME:</b> Mary Jones    <b>DATE:</b> 10/28/2000  <small>Month/Day/Year</small></p>			
<p>We are trying to increase the amount of preventive care that our patients receive. Would you please help us by completing this form?</p>			<p>Office Use Only Action Taken</p>
<p>Did you complete 3 cards at home that check for hidden blood in your bowels in the past year?</p>	<p><b>YES</b> <input type="checkbox"/></p>	<p><b>NO</b> <input checked="" type="checkbox"/></p>	
<p>Have you had a mammogram in the past year?</p>	<p><b>YES</b> <input checked="" type="checkbox"/></p>	<p><b>NO</b> <input type="checkbox"/></p>	
<p>Have you had a Pap smear in the past year?</p>	<p><b>YES</b> <input type="checkbox"/></p>	<p><b>NO</b> <input checked="" type="checkbox"/></p>	
<p><small>Note: The patient now returns for her Papanicolaou (Pap) smear. She indicates that she still has not yet completed the fecal occult blood test cards, so the sticker remains yellow. After her Pap smear is completed, the yellow sticker is removed exposing the green OK sticker indicating this screening test is now up to date.</small></p>			