

Increased Willingness to Undergo Colorectal Cancer Screening When Offered a Paid Day Off from Work Among Inner City Hospital Employees

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Abstract: *Background:* Though several modalities are available for colorectal cancer screening, only about half of adults are being screened. Barriers to compliance include fear of diagnosis, lack of motivation and logistical difficulties, including taking time off work. The aim of the study was to evaluate whether offering a paid day off from work would motivate more patients to undergo screening.

Methods: A questionnaire was administered to employees at the Bronx-Lebanon Hospital Center in 2007.

Results: Of the 916 surveys returned, we focused on the 438 responders who needed a screening test due to age greater than 50, or less than 50 but with a family history of colon cancer. Of the 438, fifty responders were not sure or not willing to undergo screening. The remainder were willing or had been screened and were excluded from the analysis. Among the fifty, 17 (34%) were more willing to undergo screening when they were offered a paid day off from work. Six out of ten men (60%) changed their mind based on this incentive while only 11 out of 40 women (27%) did so ($p=0.05$).

Conclusions: A paid day off from work may increase screening compliance. This effect was more pronounced in men.

BACKGROUND

Among cancers that affect both men and women, colorectal cancer is the second leading cause of cancer-related deaths in the US [1]. According to United States Preventive Services Task Force (USPSTF), there are several recommended methods for screening which include fecal-occult blood testing (FOBT), double contrast barium enema, flexible sigmoidoscopy, and colonoscopy [2]. These methods have been shown to detect colorectal cancer or polyps at an earlier stage and hence cost effective in preventing colorectal cancer [3]. However, FOBT, sigmoidoscopy and combined FOBT with sigmoidoscopy was reported to detect only 24%, 70% and 76% respectively in persons with advanced neoplasia at distal colon [4]. Although the reduction in colorectal cancer mortality with screening colonoscopy was reported as high as 90% [5], recent study showed that the screening was associated with fewer deaths of colorectal cancer which was limited to left side of the colon [6]. While there is inconsistency in effectiveness of the available screening modalities, they are strongly recommended for screening, compared to no screening. The rates of utilization of these modalities for colorectal cancer screening remain underused with only about 45% to 60% of adults being screened [7, 8]. Screening and surveillance guidelines recommend testing patients beginning at age 50 using one of several tests to find early colorectal cancer and polyps, unless the patient has a family history of colon carcinoma, in which case the screening may need to begin earlier [9, 10].

Many barriers have been identified preventing patients from undergoing screening. These include fear of diagnosis, fear of pain from procedure, lack of motivation and logistical difficulties such as scheduling, preparing for the test, or taking time off work [11-14]. The aim of this study was to evaluate whether, a paid day off from work would help motivate more patients to undergo screening.

METHODS

The Bronx-Lebanon Hospital Center (BLHC) is an inner city hospital in the South Bronx, New York City. Both the patient population and the employees are predominantly African-American and Hispanic. Employees to whom the questionnaires were administered were as follows: 43% African-American, 30% Hispanic, 17% Asian and 11% White. We administered a one page questionnaire to all employees at BLHC. The survey was conducted between April 15th and May 10th, 2007. The questionnaires were distributed to all employees through two payroll periods and did not include any personal identifiers. A postage-paid envelope was provided for returning the questionnaire by mail. Those not responding after three weeks from the distribution of the questionnaire were considered non-responders.

The survey questionnaire assessed basic demographic data, including gender and age, and specific data regarding prior history of colon cancer screening and family history of colon cancer. All employees were asked whether they would be willing to undergo a screening test but those who had a prior screening test were excluded from further analysis. Then the latter were asked to state whether they would be more likely to undergo screening if they were given a paid day off from work. SAS version 8.2 was used for statistical analyses.

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Table 1. Characteristics of 916 Survey Responders in Bronx Lebanon Hospital Center

Characteristics	Number (Percentage)
Women	658 (71.8)
Age > 50 years	384 (41.9)
Family history of colorectal cancer or polyps	161 (17.6)
Age > 50 years or < 50 years but positive family history of colorectal cancer (Target group)	438(47.8)
- Already underwent screening in the target group	242 (55.2)
- Did not undergo screening in the target group	196 (44.8)

RESULTS

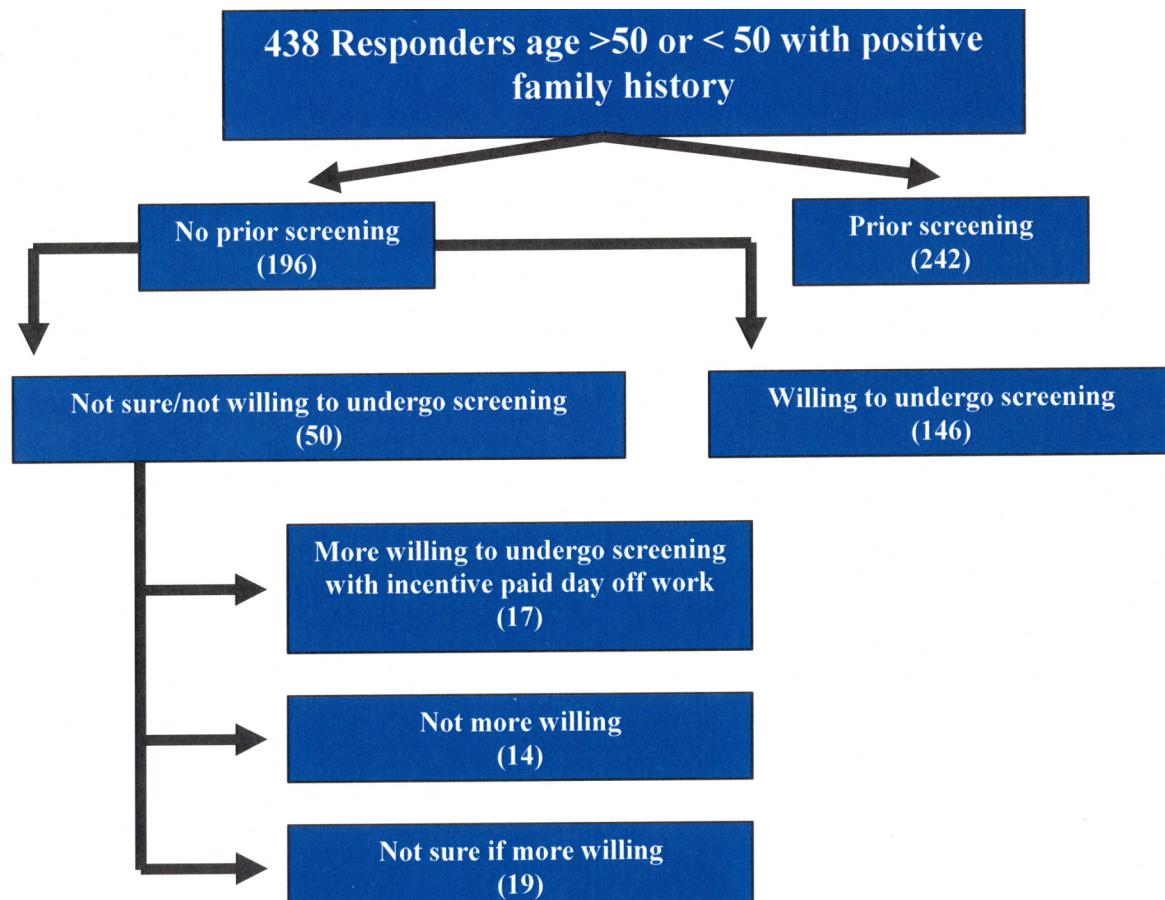
Of the total of 4501 surveys which were distributed to all hospital employees, 916 (20%) surveys were returned within the first three weeks. More women (73%) than men responded and 384 responders were greater than 50 years of age. One hundred and sixty one responders (18%) had a family history of colorectal cancer. Although 789 (86%) were aware of colorectal cancer screening methods, 619 (68%) never underwent a screening test (Table 1).

Our target group comprised of the 438 patients who needed a screening test because they were greater than age 50 or less than fifty but had a family history of colon cancer. Of this group, 242 (55%) had already undergone some screening. Of the 196 who had no screening in the past, 146 (74%) were willing to undergo screening tests. Fifty re-

sponders were not sure or not willing to undergo screening. Of these fifty, 17 (34%) were more willing when they were offered a paid day off from work (Fig. 1). Six out of ten men (60%) changed their mind based on the incentive, while only 11 out of 40 women (27%) did so (Chi-square p-value =0.05).

DISCUSSION

Our study shows that in people who need screening colonoscopy but who are unwilling initially, their willingness would increase if they are given a paid day off from work. This effect was more pronounced in men. This was not surprising, since previous studies have shown that women are less likely than men to undergo complete colonoscopy [11]. Only 55% of those who should have already been screened had done so, despite the fact that they work in a

**Fig. (1).** Flow chart for distribution of the target group and willingness to undergo colorectal cancer screening.

hospital setting where the screening can be done on the premises and is covered by health insurance.

A meta-analysis by Stone *et al.* (2002) that looked at colorectal cancer screening, in addition to breast cancer, immunization, mammography, and cervical cytology, has shown similar findings: financial incentives improve patient compliance in screening interventions [14].

Our study has some weaknesses. First, we did not differentiate between the various screening modalities, although informally most people assume the screening would be done by colonoscopy. Also, our survey response rate was only 20%, but given the anonymous nature of the survey no reminders were sent to the non-responders. However, given that 55% of our high risk responders already had been screened (similar to the national average from other studies), we are reasonably confident that we had a relatively representative sample of employees. Another issue to be considered is the composition of the employees, which includes 89% of minorities and hence may affect the generalizability.

CONCLUSION

In conclusion, screening for colorectal cancer may be life saving [3], albeit screening rates remain unsatisfactory. Strategies must be developed to increase compliance with screening guidelines. This study assesses the attitude change in certain responders based on the paid day off incentive. In our study 34% of the fifty responders who were not sure or not willing to undergo screening were more willing when they were offered a paid day off from work. Although such a response in a questionnaire does not necessarily translate in real life situation to increased compliance. It is important for employers to participate in helping employees utilize preventive measures, given that this reduces their costs in the long run and assures improved health outcomes for employees and greater workplace productivity [15]. Future studies are needed to implement this strategy to gauge its actual effectiveness.

ACKNOWLEDGEMENTS

Department of Medicine, Bronx-Lebanon Hospital Center.

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Received: November 7, 2008

Revised: December 20, 2008

Accepted: February 4, 2009

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