

Colorectal Cancer Screening Practices Among Asian Immigrants in New York City

N. Sarita Shah

A. Study Purpose and Rationale

Disease patterns and risks vary widely among different population groups. From the public health perspective, it is important to identify populations which differ in disease patterns, risk factors and outcomes, and whether biological, environmental, or cultural factors correlate with differences. Thus ethnicity often serves as a proxy for risk factors of greater biological significance. Accurate data are needed to effectively plan, implement and monitor programs aimed at improving the health of individuals from diverse racial, ethnic, and cultural backgrounds.

Cancer is the 2nd leading cause of death in the United States, accounting for 25% of all deaths, with an annual cost \$107 billion. Colorectal cancer (CRC) is the 2nd leading cause of cancer-related death in the U.S. The American Cancer Society estimated 135,400 new cases and 56,700 deaths due to CRC in 2001¹. There is increasing evidence that several types of cancer can be prevented, especially with culturally- and linguistically-appropriate information provided on prevention, early detection, and treatment to the public and to providers. For CRC, early detection is beneficial given that 5-year survival for localized disease is 91%, compared with regional or widely metastatic disease which portends a 60% or 6% 5-year survival, respectively.

Racial and ethnic minorities in the United States generally receive lower quality health care than whites. Several recent studies have specifically looked at the 'race gap' in medicine with an effort to identify factors mitigating these differences, from poor access to care, to subtle prejudices in referral patterns². While there are many sources for health and disease statistics that contain race-specific data (i.e. National Cancer Institute's SEER database), information about Asians is lacking. It is hypothesized that CRC screening rates among Asians lags behind the estimates for the general U.S. white population. A secondary hypothesis is that with increasing length of time in the U.S., compliance rates among Asians will approximate that of whites.

B. Literature review

The US Census 2000 data estimates 10.2 million Asians, representing 3.6% of the total population, with a growth rate of 48% over the past 10 years. In New York City (NYC), there is a high concentration of Asians, comprising nearly 10% of the population (787,047 Asians/ total population 8 million). Nearly 50% of Asians in NYC live in Queens, comprising 17.6% of the total population (2.2 million) of this borough³.

Currently, 60% of newly diagnosed CRC presents with advanced disease.

Known risk factors include: increasing age, inflammatory bowel disease, personal or family history of CRC or polyps, hereditary diseases (HNPCC, FAP), and possibly lifestyle factors including diets low in fruits, vegetables and fiber. Screening guidelines target all adults over the age of 50 (or earlier if personal or family history) for the following tests:

1. Annual Fecal Occult Blood Test (FOBT) + Flexible Sigmoidoscopy every 5 years Studies have estimated a sensitivity of 50-66%, specificity of 99%, positive predictive value of 2-11% for carcinomas, 20-30% for adenomas⁴. FOBT has been shown to reduce CRC mortality by up to 33%⁵. Flexible sigmoidoscopy detects 40-65% of CRC if the proximal sigmoid colon is reached⁶. However, a recent VA study showed that 2.7% of patients without adenomas distal to the splenic flexure had advanced proximal neoplasms. This suggests that

flexible sigmoidoscopy is insufficient as a screening test for complete evaluation of the colon⁷.

2. Colonoscopy every 10 years

Colonoscopy is now the preferred screening test for all adults. The risk of perforation is largely operator-dependent, but ranges from 1/500-3000. The greatest barriers to successful completion of this procedure are the colonic prep the day prior to the appointment, and ability to tolerate conscious sedation.

The Centers for Disease Control and Prevention (CDC) has developed a survey, the Behavioral Risk Factor Surveillance System (BRFSS), to collect health risk behavior data. This is an ongoing, state-based, random-digit-dialing telephone survey of civilians, age 18 and older. Based on 1999 data obtained on 63,555 respondents 50 years or older, screening for CRC lags far behind that for other cancers. Only 40.3% of adults reported ever having had an FOBT, and only 20.6% had completed this test within the past year. Only 43.8% had ever had a sigmoidoscopy or colonoscopy, with only 33.6% having undergone these procedures in the past 5 years⁸. BRFSS data on Asians and Pacific Islanders is very limited and comes from only 105 respondents in California and Hawaii. These limited data suggest lower screening rates among this group, with the largest barriers to appropriate care cited as lack of insurance and cost of tests.

The 1965 Immigration and Naturalization Act opened doors to many professionals around the world. In 1986, the Immigration Reform and Control Act made it easier for family members and low-skill laborers to enter the U.S. Recently, increasing numbers of work visas have been granted for technology industry workers. Studies have shown that cancer rates among populations increase with migration from areas of low to high incidence. Studies conducted in England and Canada show higher rates of cancer in Asian immigrants than their native counterparts⁹. U.S. Asian studies from California show an 80% increased risk of breast cancer compared with non-immigrant counterparts in Asia. Proposed factors include maladaptive changes in diet, lifestyle, environment, occupation, and/or genetics¹⁰.

A recent study of U.S. Asian Indians similarly found higher rates of breast and colon cancer in immigrants. Limited SEER data from 1988-91 estimates CRC incidence in Asian Indians of 26.6/100,000 in men and 6.8/100,000 in women (compared with whites, 43.2/100,000 in men and women). More concerning is an upward trend in CRC in Asians, which means that with time, Asian rates will likely approximate U.S. white rates¹¹. This underscores the importance of implementing a successful screening program now to prevent the further rise in incidence and mortality.

C. Study Design and Statistical Analysis

1. Study Arms: Asian sub-groups and whites in NYC
2. Study Subjects: Asian immigrants and non-immigrant whites, age 50 years or older, living in Queens
3. Number of Subjects enrolled: 400 per arm x 5 arms (Chinese, South Asian, Japanese, Korean, and white) = 2000
Powered for a 10% less rate of completion of screening tests from 44% to 34%
4. Statistical Analysis:
Chi-square test comparing proportions in two groups (Asian sub-group vs whites)

D. Study Procedure

This study is a cross-sectional, epidemiologic disease description of CRC screening practices in Asian immigrants living in NYC. A study questionnaire will be prepared in English and 4 languages of the target Asian immigrant groups (Chinese, Hindi, Japanese, and Korean). Surveys will be administered

by trained personnel fluent in English and one of the 4 above languages. Subjects will be recruited by the following methods:

1. Telephone calls: Random-digit-dialing from a listing of households identified as Asian by the Asian-American Federation of NY (lists generated from U.S. census data). A screening call will evaluate language preference and willingness to complete the survey. A follow-up call will be made in the appropriate language to administer the questionnaire. All adults age 50 or older are eligible for the study. Proxy interviews may be conducted on demographic data and health care practices, but not on beliefs. Those households initially declining participation in the study will be called back on 2 separate occasions by different study personnel. Thereafter, they will not be contacted.
2. Mailings: Random-address-mailings from a listing of households identified as Asian. An introduction/explanatory letter, questionnaire, and return envelope will be mailed to each household. A follow-up reminder postcard will be sent if no response is received within 2 weeks. A second study package will be sent if there is still no response within another 2 weeks. Households who decline to participate will not be contacted thereafter.

The primary outcome will be comparison of preventive health practices in each Asian sub-group vs matched non-immigrant whites. Secondary outcome will be comparison of compliance rates based on length of time in the U.S. Data will also be collected on potential barriers to adequate health care.

E. Study Drugs:

None

F. Medical Devices:

None

G. Study Questionnaires

1. Demographics:
 - Number of years in U.S
 - Education
 - Employment
 - Immigration status
 - Last check-up
 - Regular MD
 - English proficiency
 - Insurance type: Medicare, Medicaid, private, self-pay
 - Use of alternative/complimentary health care
 - Family history of cancer, CRC
 - Personal history of cancer, CRC
2. Practices
 - Knowledge of screening recommendations
 - FOBT: ever, within past year
 - Sigmoidoscopy or Colonoscopy: ever, within past 5 years

H. Study Subjects

1. Inclusion Criteria:

- a. Asian = Chinese, South Asian, Japanese, Korean
 - b. Non-immigrant whites = Birthplace within U.S.
 - c. Adults, age 50 or older (or younger if personal or family history)
 - d. Able to complete at least 50% of questionnaire
2. Exclusion Criteria:
 - a. Cannot complete questionnaire
 - b. Recent immigrant whites

I. Recruitment of Subjects

See Study Procedure section

J. Confidentiality of Study Data

1. All study subjects will be given a unique code number
2. Records of code numbers and data obtained will be stored in a secure location, accessible only to investigators

K. Potential Conflicts of Interest

No investigator or the University stands to benefit financially from the results of this investigation.

L. Location of the Study

All study activities, including telephone calls and postage/ mailing, will take place within CPMC.

M. Potential Risks

There are no potential risks or discomforts to the subject.

N. Potential Benefits

Subjects may or may not benefit as a result of participation in this study. The potential benefits include increased knowledge of CRC as an important disease, and awareness available screening tests.

O. Alternative Therapies

None

P. Compensation to Subjects

None

Q. Costs to Subjects

None

R. Minors as Research Subjects

None

S. Radiation or Radioactive Substances

None

T. Limitations

1. Self-reported responses - One study evaluated reliability of phone interview self-reports of CRC screening tests compared with Kaiser records and found the following¹²:
 - Sensitivity = 96.2% for FOBT, 94.9% for sigmoidoscopy, 88.7% for colonoscopy
 - Specificity = 85.9% for FOBT, 92.2% for sigmoidoscopy, 96.8% for colonoscopy
2. Subject selection-bias
 - a. Must be registered with the US Census, so excludes very recent immigrants or those without legal immigration status
 - b. Must own a telephone
 - c. Must speak or read English or one of 4 other main Asian languages, so excludes those who speak less common dialects
3. Sampling error

U. References

1. Department of Health and Human Services, Centers for Disease Control and Prevention. *Colorectal Cancer: The Importance of Prevention and Early Detection 2001*. <http://www.cdc.gov/cancer/natlancerdata.htm#colon>
2. *Unequal Treatment: Confronting Racial and Ethnic Disparities in Health Care (2002)*. Institute of Medicine. <http://www.nap.edu/books/030908265X/html/>
3. <http://www.census.gov/population/www/socdemo/race/api.html>
4. Allison, JE, et al. *Hemoccult screening in detecting colorectal neoplasm: sensitivity, specificity, and predictive value*. *Ann Intern Med*. 1990, 1; 112 (5):328-233
5. Mandel, JS, et al. *Reducing Mortality from Colorectal Cancer by Screening for Fecal Occult Blood*. *New Engl J Med*. 1993, 328:1365-71
6. US Preventive Services Task Force. *Screening for Colorectal Cancer: Guide to Clinical Preventive Services, 2nd Ed*. Baltimore: Williams & Wilkins, 1996, p.89
7. Lieberman, DA, et al. *Use of Colonoscopy to Screen Asymptomatic Adults for Colorectal Cancer*. *New Engl J Med*. 2000, 343:162-8
8. <http://www.cdc.gov/nccdphp/brfss>
9. Winter, H, et al. *Cancer Incidence in South Asian Population in England*. *British J Cancer*. 1999, 79(3-4):645-54
10. Ziegler, RG, et al. *Migration Patterns and Breast Cancer Risk in Asian American Women*. *J Natl Cancer Inst*. 1993 85:1819-1827

11. Blesch, KS. *A Comparison of Breast and Colon Cancer Incidence Rates Among Native Asian Indians, US Immigrant Asian Indians, and Whites.* J Am Dietetic Assoc. 1999, 99(10):1275-7
12. Baier, M, et al. *Validity of self-reported colorectal cancer screening behavior.* Cancer Epi, Biomarkers, and Prevention. 2000, 9(2) 229-32