ASPO

American Society of Preventive Oncology

13th Annual Meeting

Hyatt Regency–Bethesda, Bethesda, MD March 20–21, 1989

MASTER AGENDA

Monday, March 20

MORNING

Registration
7:30 am - 6:00 pm

Welcome
8:15 am - 9:00 am

Poster session
9:00 am - 6:00 pm

Presentations: Selected Maneuvers in Disease Prevention
9:00 am - 11:45 am

Lunch
11:45 am - 1:15 pm

AFTERNOON

Presented Papers
1:15 pm - 2:15 pm

Presentations: Behavioral and Social Maneuvers in Cancer Prevention
2:15 pm - 5:30 pm

EVENING

Business Meeting
5:30 pm - 6:00 pm

Reception
6:30 pm - 7:30 pm

Banquet
"Mapping the Human Genome: Implications for Cancer Prevention"
Thomas B. Shows, Ph.D.
7:30 pm - 10:00 pm

Tuesday, March 21

MORNING

Registration
7:30 am - 5:30 pm

Poster Session
9:00 am - 5:30 pm

Distinguished Achievement Award
8:00 am - 8:30 am

Presentations: Etiology of Breast Neoplasia
8:30 am - 11:15 am

Presented Papers
11:15 am - 12:15 am

AFTERNOON

Presented Papers
1:30 pm - 2:30 pm

Presentations: Developments in Chemoprevention for Breast Cancer
2:30 pm - 5:30 pm

EVENING

Workshop: Methodologic Issues in Cancer Chemoprevention: The Sequencing of Clinical Trials
6:30 pm - 8:00 pm

PROGRAM AND

SELECTED PAPERS

13th Annual Meeting of the

American Society of Preventive Oncology

March 20-21, 1989

Hyatt Regency
Bethesda, Maryland

Program Chairpersons: George Roush, M.D.
Ross Prentice, Ph.D.
Lillian Gigliotti, Ph.D.

Sponsored by: American Society of Preventive Oncology
National Cancer Institute

ASPO

The **American Society of Preventive Oncology** is an active and growing organization that is striving to:

- promote the exchange and dissemination of information and ideas relating to cancer prevention and control;
- identify and stimulate research areas in cancer prevention and control;
- foster the implementation of programs in cancer prevention and control.

The Executive Committee and Council members listed below are interested in hearing from prospective and current members.

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Daniel G. Miller, M.D.

The **ASPO National Office** is located at the University of Wisconsin. For information or assistance contact Carrie Fassil, Executive Secretary, 1300 University Avenue, Room 7645, Madison, WI 53706, (608)263-6919.

ANNOUNCEMENTS

MESSAGES

Contact Carrie Fassil at the ASPO registration desk if you expect or wish to leave a message.

BANQUET

If you plan to attend the banquet and have not pre-registered, contact Carrie Fassil at the ASPO registration desk as soon as possible.

WORKSHOP ATTENDANCE

If you plan to attend the evening workshop on Tuesday, March 21, please sign the attendance sheet at the ASPO registration desk as soon as possible.

SPECIAL ACKNOWLEDGEMENT

The ASPO Executive Committee offers special thanks to Drs. George Roush, Lillian Gigliotti and Ross Prentice, program chairpersons, for their tireless efforts in arranging this meeting.

AGENDA

Monday, March 20

7:30 am - 6:00 pm
Ballroom Foyer

REGISTRATION

9:00 am - 6:00 pm
Waterford/
Lalique Room

POSTER SESSION

8:15 - 8:30 am
Waterford/
Lalique Room

WELCOME
Thomas London, M.D., President-Elect, ASPO
Fox Chase Cancer Center, Philadelphia, PA

8:30 - 9:00 am

PRESIDENT'S ADDRESS: "The Natural History of Testicular Cancer: Embryogenesis, Dysgenesis and Carcinogenesis"
David Schottenfeld, M.D.

9:00 - 11:45 am

SYMPOSIUM: Selected Maneuvers in Disease Prevention: The Balance Between Cancer and Non-cancer Outcomes

Moderator: Ross Prentice, Ph.D.

Dietary Fat Reduction
Maureen Henderson, M.D.

Cholesterol Lowering
Salim Yusaf, M.D.

Discussant
David Byar, M.D.

Monday, March 20

9:00-11:45 am (continued)

REFRESHMENT BREAK

Retinoids
Thomas Moon, Ph.D.

Tamoxifen
Richard Love, M.D.

Discussant
Meir Stampfer, M.D.

Panel Discussion

11:45 am - 1:15 pm

LUNCH

1:15 - 2:15 pm

PRESENTED PAPERS
Moderator: Alfred Neugut, M.D.

2:15 - 5:30

SYMPOSIUM: Behavioral and Social Maneuvers in Cancer Prevention

Moderator: Lillian Gigliotti, Ph.D.

Smoking Litigation
Richard Daynard, J.D., Ph.D.

Tobacco, Taxation and Health
Eugene Lewit, Ph.D.

Discussant
Anne-Marie O'Keefe, J.D., Ph.D.

Monday, March 20

2:15 - 5:30 pm
(continued)

REFRESHMENT BREAK

Socioeconomic Factors in Cancer Control for Black Americans
Claudia Baquet, M.D., M.P.H.

Socio-Demographic Variables Associated with Delay Among Black and White Breast Cancer Patients
Diana Bransfield, Ph.D.

Discussant
Michele Forman, Ph.D.

Panel Discussion

5:30 - 6:00 pm
Waterford/ Lalique Room

BUSINESS MEETING

6:30 - 7:30 pm
-1 Foyer

RECEPTION

7:30 - 10:00 pm
Cabinet/ Judiciary Room

BANQUET

"Mapping the Human Genome: Implications for Cancer Prevention"

Thomas B. Shows, Ph.D.

Tuesday, March 21

7:30 am - 5:30 pm
Ballroom Foyer

REGISTRATION

9:00 am - 5:30 pm
Waterford/
Lalique Room

POSTER SESSION

8:00 - 8:30 am
Waterford/
Lalique Room

DISTINGUISHED ACHIEVEMENT AWARD

Presentation: *David Schottenfeld, M.D.*
Awardee Address: *Alfred G. Knudson, M.D., Ph.D.*
Fox Chase Cancer Center

8:30 - 11:15 am

SYMPOSIUM: Etiology of Breast Neoplasia: Hypothesis Development

Moderator: Guy Newell, M.D.

Emerging Epidemiologic Hypotheses
Louise Brinton, Ph.D.

Oncogenetic Studies: Hypotheses and Gene Mapping
Mary Claire King, Ph.D.

Estradiol Metabolism
Jack Fishman, Ph.D.

REFRESHMENT BREAK

Electric Power and Breast Cancer Risk
Richard Stevens, Ph.D.

Parenchymal Patterns and Breast Cancer Risk
Norman Boyd, M.D.

Discussant
Nicholas Petrakis, M.D.

Tuesday, March 21

11:15 am-12:15 pm — **PRESENTED PAPERS**

12:15 - 1:30 pm — **LUNCH**

1:30 - 2:30 pm — **PRESENTED PAPERS**

2:30 - 5:30 pm — **SYMPOSIUM: Developments in Chemoprevention for Breast Cancer**

Moderator: George Roush, M.D.

Eicosanoids and Omega-3 Fatty Acids
Rashida Karmali, Ph.D.

Difluoromethyl Ornithine
Ajit Verma, Ph.D.

Micronutrients
Walter Willett, M.D.

REFRESHMENT BREAK

A Randomized Trial of a Retinoid Analogue
Alberto Costa, M.D.

Discussant
Peter Greenwald, M.D.

6:30 - 8:00 pm — **WORKSHOP: Methodologic Issues in Cancer Chemoprevention: The Sequencing of Clinical Trials**

Rodger Winn, M.D.
Gary Goodman, M.D.
Waun K. Hong, M.D.
Frank Meyskens, Jr., M.D.

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Walter Willett, MD
Harvard University
Boston, Massachusetts

Rodger Winn, MD
MD Anderson Cancer Center
Houston, Texas

Salim Yusaf, MD
National Cancer Institute
Bethesda, Maryland

SELECTED PAPERS

1. Efficacy of Fecal Occult Blood Screening. PA Newcomb, RG Norfleet, TS Surawicz, BE Storer, University of Wisconsin Clinical Cancer Center, 420 North Charter Street, Madison, WI 53706.

2. Risk Factors for Ocular Melanoma in the Western United States. EA Holly, PhD, MPH, DA Aston, VMD, MPH, DK Ahn, PhD, JJ Kristiansen, MS. Northern California Cancer Center and Stanford University, 1301 Shoreway Road, Suite 425, Belmont, CA 94002.

3. Relationship of Pulmonary Function to Lung Cancer in the MRFIT Trial. L Kuller, MD, DrPH, J Ockene, PhD, E Meilahn, MPH, K Svendsen, MS, Department of Epidemiology, Pittsburgh, Pennsylvania 15261.

4. A Randomized Community Trial for Smoking Cessation. Terry F. Pechacek for the Community Intervention Trial for Smoking Cessation (COMMIT) Research Group Smoking, Tobacco, and Cancer Program, National Cancer Institute, 9000 Rockville Pike, Bethesda, Maryland 20892-4200.

5. Evaluation of an Intensive Breast Self-Examination Training Program. J Mahloch, RN, E Paskett, PhC, M Ross-Price, MPH, and M Henderson, MD, Fred Hutchinson Cancer Research Center, 1124 Columbia St. MS-W202, Seattle, Washington 98104.

6. Predictors of Adherence to Mammography Screening. C Lerman, PhD, B Rimer, DrPH, M Keintz, MPH, PF Engstrom, MD, Fox Chase Cancer Center, 430(A) Rhawn Street, Philadelphia, PA 19111.

7. Physician Behavior, Beliefs, Knowledge, Skills: Implications for Breast Cancer Screening (BCS). ME Costanza, MD, RS Barth, MEd, HL Greene, MD, JG Zapka, ScD, UMass Medical School, 55 Lake Avenue N, Worcester, MA 01655.

8. Selenium As a Chemopreventive Agent: Recent Experience. LC Clark, MPH, PhD, GF Combs, PhD, BW Turnbull, PhD.

9. Do Different Histologic Types of Breast Cancer Have Different Risk Factors? PL Horn, PhD, Northern California Cancer Center, 1420 Harbor Bay Pkwy, Suite 260, Alameda, CA 94501, and WD Thompson, PhD, Yale University School of Medicine.

10. Counseling to Control Cancer: Individualizing Probabilities for Breast Cancer in White Females. JJ Mulvihill, MD, MH Gail, MD, LA Brinton, PhD, C Schairer, MS, SB Green, MD, and DP Byar, MD, National Cancer Institute, Bethesda, Maryland 20892.

11. Inhibition of Human Skin Ornithine Decarboxylase Activity by Oral Alpha-Difluoromethylornithine. CL Loprinzi, MD, RR Love, MD, MS, TM Therneau, PhD, AK Verma, PhD, Mayo Clinic, 200 First Street, SW, Rochester, Minnesota 55905 and Wisconsin Clinical Cancer Center, 600 Highland Avenue, Madison, Wisconsin 53792.

12. Chromosome Sensitivity to Bleomycin-Induced Mutagenesis in Patients with Upper Aerodigestive Cancers. MR Spitz, MD, JJ Fueger, MA, TC Hsu, PhD, SP Schantz, MD, GR Newell, MD, The University of Texas M.D. Anderson Cancer Center, 1515 Holcombe Boulevard, Houston, Texas 77030.

These abstracts will be published in the journal
Preventive Medicine

EFFICACY OF FECAL OCCULT BLOOD SCREENING. P.A. Newcomb, R.G. Norfleet, T.S. Surawicz, B.E. Storer, University of Wisconsin Clinical Cancer Center, 420 North Charter Street, Madison, WI 53706

Occult blood testing is widely advocated as a simple and effective early detection technique for colorectal cancer. However, the efficacy of this test has not yet been demonstrated [1]. Two experimental evaluations are currently ongoing [2,3], but valid results from these studies will not soon be forthcoming. We conducted a case-control study of the efficacy of occult blood testing in reducing colorectal cancer mortality among the membership of a Wisconsin health maintenance organization, The Greater Marshfield Community Health Plan (GMCHP). The medical records of GMCHP members (combined hospital and clinic records) who died from colorectal cancer were reviewed for early detection activities and characteristics influencing colorectal cancer risk. For comparison, men and women who were of similar ages as the cases and enrolled in the GMCHP at the time of the cases' diagnosis were randomly selected from the enrollment files. Preliminary results (n=156) indicate that the frequency of occult blood screening (primarily from single guaiac tests) was similar between colorectal cases (41%) and controls (45%). However, controls were significantly more likely to have a history of screening sigmoidoscopy (31%) than were cases (11%). These preliminary findings suggest that occult blood screening may be of limited value in reducing colorectal cancer mortality; in contrast, routine sigmoidoscopy may prove to be an effective approach for the control of this disease.

REFERENCES

1. Simon, J.B. Occult blood screening for carcinoma. Gastroenterology, 88:820-837 (1985).
2. Winawer, S.J., Andrews, M., Flehinger, B., et al. Progress report on controlled trial of fecal occult blood testing for the detection of colorectal neoplasia. Cancer, 45:2959-2964 (1980).
3. Gilbertson, V.A., McHugh, R., Schuman, L., et al. The earlier detection of colorectal cancers: A preliminary report on the results of the occult blood study. Cancer, 45:2899-2901 (1980).

RISK FACTORS FOR OCULAR MELANOMA IN THE WESTERN UNITED STATES. **EA Holly, PhD, MPH, DA Aston, VMD, MPH, DK Ahn, PhD, JJ Kristiansen, MS.** *Northern California Cancer Center and Stanford University, 1301 Shoreway Road, Suite 425, Belmont, CA 94002.* Melanomas of the uveal tract comprise nearly all primary intraocular malignancies in adults, yet risk factors for the disease remain obscure.[1] We conducted a study of ocular melanoma among 410 cases and 870 controls in the western United States to test the hypothesis that occupation,[2] environment, hormones,[3] and phenotypic characteristics play a role in the etiology of this disease . Study results suggested that the risk of ocular melanoma was increased for women with blue eyes (relative risk=2.2, p=0.002) or green, gray or hazel eyes (3.6, p<0.001). For women with live births, the risk decreased with an increase in number of live births (1-2 births, 0.47, p=0.003; 3-4 births, 0.40, p< 0.001; 5 or more births, 0.35, p=0.008). Results for men suggested an increased risk of ocular melanoma among subjects with green, gray or hazel eyes (1.7, p=0.05) or with blue eyes (2.1, p=0.002); with tendency to sunburn after 1/2 hour noon-time sun exposure (burn with tanning, 1.9, p=0.02, burn with little tanning, 2.6, p<0.001, burn with no tanning, 3.4, p<0.001); with increasing years of exposure to ultraviolet light (1 to 5 years, 2.1, p=0.27, 6 or more years 7.3, p=0.04); or with snow blindness, welding burn or sunburn of the eye (6.1, p=0.008). Additional risks for men suggested an association with work as chemists, chemical engineers or chemical technicians (7.7, p=0.004); as sailors, ships' officers or fishermen (3.7, p=0.01); work in the health fields (3.5, p=0.003); and with exposure to welding or occupation as welder (1.9, p=0.02).

REFERENCES

1 Tucker MA, Shields JA, Hartge P, et al. Sunlight exposure as risk factor for intraocular malignant melanoma. N Eng J Med 313, 789-792 (1985).

2 Albert DM, Robinson NL, Fulton AB, et al. Epidemiological investigation of increased incidence of choroidal melanoma in a single population of chemical workers. Int Ophthalmol Clin 20, 71-92 (1980).

3 Holly EA, Weiss NS, Liff JM. Malignant melanoma in relation to exogenous hormones and reproductive factors. J Natl Cancer Inst 70, 827-831 (1983).

RELATIONSHIP OF PULMONARY FUNCTION TO LUNG CANCER IN THE MRFIT TRIAL. L. Kuller, MD, DrPH, J. Ockene, PhD, E. Meilahn, MPH, K. Svendsen, MS, Department of Epidemiology Pittsburgh, Pennsylvania 15261.

We have evaluated the relationship between quintiles of FEV_1 and lung cancer mortality among 6,075 cigarette smokers in the Multiple Risk Factor Intervention Trial. There were no lung cancer deaths among non-cigarette smokers. Smokers in the lowest quintile of FEV_1 were 7 times more likely to die of lung cancer than those in the highest two quintiles, $P \leq 0.001$ for linear trend. The association of FEV_1 and lung cancer remained after adjusting for measures of smoking dose such as thiocynate levels, age began smoking, type of cigarette, number of cigarettes smoked per day, height and alcohol consumption. The relationship of FEV_1 to lung cancer was also not confounded by duration from measurement to lung cancer death or by history of symptoms of chronic bronchitis. The FEV_1 is probably the best measure of lung cancer risk among smokers and probably can be used to identify very high risk populations.

REFERENCES

1. Peto, R., Speizer, F.E., Cochrane, A.L., et.al. The relevance in adults of air-flow obstruction, but not of mucus hypersecretion, to mortality from chronic lung disease. American Review of Respiratory Disease, 128, 491-500 (1983).
2. Tockman, M.S., Anthonisen, N.R., Wright, E.C., et.al. Airways obstruction and the risk for lung cancer. Annals of Internal Medicine, 106, 512-518 (1987).
3. Skillrud, D.M., Offord, K.P., Miller, R.D. Higher risk of lung cancer in chronic obstructive pulmonary disease. Annals of Internal Medicine, 105, 503-507 (1986).

A RANDOMIZED COMMUNITY TRIAL FOR SMOKING CESSATION

Terry F. Pechacek for the Community Intervention Trial for Smoking Cessation (COMMIT) Research Group
Smoking, Tobacco, and Cancer Program, National Cancer Institute, 9000 Rockville Pike, Bethesda, Maryland 20892-4200

COMMIT is a $42.5 million effort of the National Cancer Institute (NCI) to develop and test a community-based intervention protocol which can be disseminated nationwide to meet the NCI's Year 2000 goals. Heavy smokers (smoking 25 or more cigarettes per day) are emphasized due to their greater cancer risk and difficulty in quitting. The trial design includes 11 matched pairs of North American communities. Following the baseline survey, one site from each pair was selected randomly in May 1988 to receive the four-year intervention protocol. Activities will include community-wide (media campaigns, policy initiatives) and individually focused (physician advice, self-help and clinic options, and a telephone referral network) methods coordinated into semi-annual community-wide cessation events. Community boards and task forces will plan events and implement the protocol. Statistical analyses will emphasize mean community pair differences in quit rates among both the heavy and light-to-moderate smoker cohorts. The study will have 90% or greater power to detect a 10% mean paired difference (e.g., 25% vs. 15%) in cohort quit rate at $p<0.05$ 1-sided. Changes in community smoking prevalence will be assessed at the end of the trial. The evaluation plan also will monitor cessation program activity, newspaper coverage of smoking, policy changes, and health professional counseling in all 22 sites. The presentation will focus on trial design, intervention methods, evaluation strategies, and present status.

EVALUATION OF AN INTENSIVE BREAST SELF-EXAMINATION TRAINING PROGRAM. J. Mahloch, RN, E. Paskett, PhC, M. Ross-Price, MPH, and M. Henderson MD, Fred Hutchinson Cancer Research Center, 1124 Columbia St. MS-W202, Seattle Washington 98104.

Breast self-examination (BSE) has been recommended by the American Cancer Society and is accepted by most physicians as a means of early detection of breast cancer [1] although its efficacy in terms of mortality has not been proven. Unfortunately, only 34 to 39 percent of women perform BSE on a routine basis, and even fewer perform BSE competently [2]. Work in progress [3] suggests that the quality of BSE is more likely to have a negative association with mortality than frequency. As part of their participation in a large-scale randomized prevention trial, women received an intensive BSE training program. A total of 625 women received this BSE training, which consisted of one-on-one teaching by a nurse. A booster session was conducted 12 months later, and to date, 196 women have completed this session. Information on barriers to BSE practice, frequency, and the nurse's assessment of BSE performance was collected at both visits. In addition, the ability of a sample of women to detect breast lumps was evaluated objectively using specially designed breast models. Analysis of the data from the 196 women who completed both visits indicate that: 1) BSE frequency increased significantly ($p=0.0001$) from visit 1 to visit 2; 2) this intensive BSE training program resolved barriers to BSE practice in 75% of women who had a barrier; 3) over 80% of the women performed BSE competently, according to observer assessment; 4) booster sessions improved BSE skills in regular practicers; and 5) women with good BSE technique had good lump detection ability ($p=.01$), whereas frequency had no effect on lump detection ability. Implications of these results are discussed.

REFERENCES

1. American Cancer Society. How to examine your breasts. 1977, American Cancer Society, Inc.
2. Joseph JG, Simpson JS, MacDonald CE, Unsworth CL, Carpenter LM. Breast self-examination in urban population: estimate of prevalence and quality of performance. NZ Med J 1986; 99:156-159.
3. Newcomb PA, Weiss NS, Scholes D. Efficacy of breast self-examination. Am J Epidemiol 1987; 126:752.

PREDICTORS OF ADHERENCE TO MAMMOGRAPHY SCREENING.

C. Lerman, Ph.D., B. Rimer, Dr.P.H., M. Keintz, M.P.H., P. F. Engstrom, M.D., Fox Chase Cancer Center, 430(A) Rhawn Street, Philadelphia, PA 19111.

Despite the well-documented success of mammography, utilization rates remain low (1-3). The present study was designed to identify factors which influence mammography utilization. Telephone interviews were conducted with 600 randomly selected women who were offered free mammograms from their Health Maintenance Organization. Women who complied with mammography were compared to noncompliers with regard to demographic factors, knowledge, health beliefs and behavior. Noncompliers with mammography were more likely to believe that mammograms are inconvenient and are unnecessary in the absence of symptoms ($p<.001$). They were also more worried about radiation ($p<.05$), and were more likely to report that their physician had told them not to have a mammogram ($p<.05$). Compliers, on the other hand, were more likely to be white, married, and to have a family history of breast cancer ($p<.05$). They also believed that breast cancer can be cured if found early ($p<.04$) and perceived that their physician endorses mammography ($p<.0001$). These data suggest that, even when cost barriers are removed, other significant barriers remain. These include access barriers, knowledge deficits, and a lack of a strong physician recommendation. Health education interventions should be directed both at women and at their physicians. Support-NCI Grant CA34856.

REFERENCES

1. Tabar, L., Dean, P. B. The control of breast cancer through mammography screening, in "The Radiologic Clinics of North America" (E. A. Sickles, Ed.), W. B. Saunders Company, Philadelphia, 1987.
2. Gallup Organization. "A 1986 Survey of Awareness and Use of Mammograms." Gallup Organization, Princeton, 1987.
3. Howard, J. Using mammography for cancer control: an unrealized potential. CA 37(1), 33-48 (1987).

PHYSICIAN BEHAVIOR, BELIEFS, KNOWLEDGE, SKILLS: IMPLICATIONS FOR BREAST CANCER SCREENING (BCS). ME Costanza, MD, RS Barth, MEd, HL Greene, MD. JG Zapka, ScD, UMass Medical School, 55 Lake Avenue N, Worcester, MA 01655.

Traditional BCS programs generally reflect a passive role for practicing physicians. (1)This is a critical error. (2)We surveyed 1184 women in two New England metropolitan areas. 85% said they would get a screening mammogram in the next year IF their primary care physician (PCP) recommended it. To evaluate the potential for PCP advocacy of BCS, we studied attitudes, beliefs, knowledge, skills and behavior with respect to BCS. PCPs were surveyed by a 27 item mail questionnaire. Of the 116 PCPs (61%)who responded, 55% recommended annual screening mammogram for women 50-75; 93% performed annual breast exams on this group, 12% were strongly concerned about radiation exposure, 15% believed patient discomfort was significant, 5% were not confident of their skill in breast exam. >50% had no formal reminder system to trigger annual breast exam or mammography. To evaluate breast exam and counselling skills, we offered PCPs a private one hour instruction with a patient surrogate who evaluated them with a 77 item checklist. 37% of 82 PCPs participated. Findings included: 20% incomplete exam on the second breast, only 57% of PCPs explained that mammography could detect lumps before they could be felt. Patient concerns were handled less than 50% of the time. e.g. only 29% of PCPs discussed pain/discomfort. In translating the benefits of BCS to the office setting, there remains significant areas for physician education and improvement, in knowledge in skills, and in developing an effective office practice for BCS.

REFERENCES

1. Howard, J. Using Mammography for Cancer Control; an Unrealized Potential. CA 37, 33-49 (1987)
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Selenium As A Chemopreventive Agent: Recent Experience. L. C. Clark, M.P.H., Ph.D., G. F. Combs, Ph.D., B. W. Turnbull, Ph.D.

We will present current perspectives on the use of selenium as a chemopreventive agent based on our experience with selenium in an ongoing cancer chemoprevention trial. This trial is a placebo controlled double blind randomized clinical trial for the prevention of Non-Melanoma skin cancer in a high risk population of 1,100 patients with over 1,600 person years of observation. Our experience will include information on the safety of the selenium supplement, the patients response to the Se supplement and the appropriateness of the trial's patient population for testing the primary scientific hypothesis that improving Se status will reduce the incidence of new skin cancer. The appropriateness of the trial's patient population will be examined by calculating the incidence of new squamous and basal cell carcinoma based on the initial plasma Se status of randomized patients after adjusting for potential confounders.[1] It will also examine the issue of randomizing patients at too high a risk and it's effect on the strength of the observed associations. This approach is important for confirming the validity and generalizability of a chemoprevention trial when the time to observable treatment effect is unknown.

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DO DIFFERENT HISTOLOGIC TYPES OF BREAST CANCER HAVE DIFFERENT RISK FACTORS? P.L. Horn, PhD, Northern California Cancer Center, 1420 Harbor Bay Pkwy, Suite 260, Alameda, CA 94501, and W.D. Thompson, PhD, Yale University School of Medicine.

One approach to further understanding breast carcinogenesis is to identify meaningful subgroups of breast cancer patients for which distinct disease etiologies exist. The clinical and prognostic behavior of lobular breast cancer differs from that of nonlobular cancer. Evidence of etiologic heterogeneity was examined using this histologic distinction. Information on risk factors was obtained from the Connecticut component of the Cancer and Steroid Hormone Study (1), a case-control study which interviewed 890 breast cancer cases, ages 20 to 54, diagnosed between December 1980 and December 1982, and 877 population controls. Information on tumor histology was obtained from the Connecticut Tumor Registry. 15% of cases had lobular carcinoma. The two previous studies which have examined this histologic distinction have concluded that nulliparity was associated with nonlobular cancer while late age at first birth was associated with lobular cancer (2,3). These findings were not replicated here. The protective effect that has been observed for high parity was found to be limited to those women developing nonlobular breast cancer (OR=0.7, 95% CI: 0.5-0.9 for 4+ births vs. 1-3 births; OR=1.1, 95% CI: 0.7-1.6 for lobular cancer; ratio of ORs=1.5, 95% CI: 1.0-2.4). While being premenopausal was associated with a significantly increased risk of both lobular (OR=2.4, 95% CI: 1.5-3.7) and nonlobular cancer (OR=1.3, 95% CI: 1.1-1.6), the risk for lobular carcinoma was significantly stronger (RCR=1.8, 95% CI: 1.1,2.8). The few investigations to date have found different factors associated with lobular and nonlobular breast cancer but the findings are not consistent between studies. Since this approach may provide clues that will help us to further understand breast carcinogenesis and since histologic information is available in most studies, this issue warrants further investigation.

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COUNSELING TO CONTROL CANCER: INDIVIDUALIZING PROBABILITIES FOR BREAST CANCER IN WHITE FEMALES. J. J. Mulvihill, MD, M. H. Gail, MD, L. A. Brinton, PhD, C. Schairer, MS, S. B. Green, MD, and D. P. Byar, MD, National Cancer Institute, Bethesda, Maryland 20892.

One guideline for controlling cancer through genetics is to counsel persons at high risk (1); this strategy assumes that reasonable estimates of a person's risk can be made. To refine an earlier approach for counseling women at risk for breast cancer (2), we prepared individualized estimates of the probability of developing breast cancer from the data on 2,852 cases and 3,146 controls from the Breast Cancer Detection Demonstration Project (BCDDP) (3); unconditional logistic regression yielded relative risk estimates for various combinations of four major risk factors: number of first-degree relatives with breast cancer, number of prior breast biopsies, and ages at menarche and first livebirth. Individualized relative risk estimates were combined with age-specific absolute risk estimates for the entire BCDDP population to project individualized absolute risk over specific time intervals. Knowing this refined estimate of the absolute risk may motivate women at high risk to undertake careful surveillance or consider prophylactic mastectomy or chemoprevention.

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INHIBITION OF HUMAN SKIN ORNITHINE DECARBOXYLASE ACTIVITY BY ORAL ALPHA-DIFLUOROMETHYLORNITHINE. CL Loprinzi, M.D., RR Love, M.D., M.S., TM Therneau, Ph.D., AK Verma, Ph.D., Mayo Clinic, 200 First Street, SW, Rochester, Minnesota 55905 and Wisconsin Clinical Cancer Center, 600 Highland Avenue, Madison, Wisconsin 53792.

Inhibition of ornithine decarboxylase activity (ODC) by drugs such as alpha-difluoromethylornithine (DFMO) inhibits carcinogenesis in multiple animal tumor model systems (3). In order to determine whether relatively low doses of orally administered DFMO could inhibit human tissue ODC activity, we gave 13 patients oral DFMO doses of 0.25, 0.5, 1.0, or 3.0 gm/M^2/d. ODC was measured in 4 mm skin punch biopsies (2,4) prior to DFMO and then weekly for 4 weeks during DFMO administration. When compared to baseline (pre DFMO) values, ODC levels were decreased 30% ($p=0.4$), 43% ($p=0.10$), 60% ($p=0.004$), and 84% ($p<0.0001$), respectively in patients receiving DFMO doses of 0.25, 0.5, 1.0, and 3.0 gm/M^2/d. There was no consistent pattern for ODC levels to rise or fall during the four weeks of DFMO therapy. These data demonstrate that DFMO doses many-fold lower than the maximally tolerated dose from human phase I study (1), can significantly inhibit human skin ODC and they provide further rationale for the continued evaluation of DFMO as a human cancer chemoprevention agent.

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CHROMOSOME SENSITIVITY TO BLEOMYCIN-INDUCED MUTAGENESIS IN PATIENTS WITH UPPER AERODIGESTIVE CANCERS. M.R. Spitz, MD, J.J. Fueger, MA, T.C. Hsu, PhD, S.P. Schantz, MD, G.R. Newell, MD, The University of Texas M.D. Anderson Cancer Center, 1515 Holcombe Boulevard, Houston, Texas 77030.

Defective DNA repair capability, measured by enumerating mutagen-induced chromosomal lesions, might explain variable host susceptibility to the action of environmental carcinogens (1). We compared sensitivity to bleomycin-induced chromsome damage in 75 patients with previously untreated upper aerodigestive tract malignancies with that in 62 healthy control subjects. Data on tobacco and alcohol use were derived from a detailed, self-administered cancer risk factor questionnaire (2). Forty-five patients and 13 controls were sensitive to bleomycin-induced mutagenesis (average breaks/cell >0.8). Odds ratios (OR) for sensitivity were significantly elevated at all sites (OR = 10.3 for pharyngeal cancers, 8.0 for laryngeal cancers, and 3.8 for oral cavity cancers). On logistic regression analysis, chromosome sensitivity remained a strong and independent risk factor after adjustment for potential confounding from age, sex, and tobacco and alcohol use (OR = 4.3, confidence limits = 2.0, 10.2). Despite the small study size and design constraints, the strength of the association with chromosome sensitivity is impressive and suggests a promising avenue for further research. The preventive implications of a precise marker for carcinogen sensitivity are manifold.

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SELECTED POSTERS

These abstracts will be published in the journal
Preventive Medicine

A FOUR YEAR EXPERIENCE WITH AN AMBULATORY PRIMARY AND SECONDARY SCREENING INTERVENTIONS FOR COLORECTAL CANCER CONTROL. J.I. Hughes, MD, G. Jackson, MD., Cancer Prevention Center, Kelsey-Seybold Foundation, 7000 Fannin, Houston, Texas, 77030, Virginia Heckel, MPH (third author)

Colorectal cancer is the most common digestive tract cancer and the second most common cancer in the United States. The overall incidences and mortality rates have not changed or declined in the past two decades, in part due to the lack of effective programs for cancer control, vis-a-vis prevention and early detection. In 1984, a free standing ambulatory center for primary and secondary prevention of colorectal cancer was established. A total of 2132 patients have been screened. Each patient completed a lengthy health questionnaire containing information on lifestyle, detailed family history and occupational exposure. Primary prevention was accomplished by a consultation with a nurse screener/patient educator to make recommendations for dietary and lifestyle modification. All patients received this intervention. Risk factors for colorectal cancer determined the type of screening tests (stool Hemoccult, flexible sigmoidoscopy, long colonoscopy, and barium enema) that were performed. Conclusion: 2132 patients received primary prevention information. Secondary prevention revealed 364 neoplastic polyps, 512 non-neoplastic polyps and 21 colon cancers (12 Dukes's A, 5 Duke's B, 2 Duke's C, 2 Duke's D). Follow-up studies are being designed to evaluate the impact of each of these interventions in our study population.

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BREAST CANCER AND ADENOSINE DIPHOSPHATE RIBOSYL TRANSFERASE (ADPRT) IN WHITE BLOOD CELLS.

G. Roush, MD, R. Pero, PhD, M. Osborne, MD, M. Halper, MPH, and D.G. Miller, MD. Preventive Medicine Institute-Strang Clinic, 55 E 34th St and Memorial-Sloan Kettering Cancer Center, 424 E 68 St, NY,NY.

Reduced ADPRT activity in white blood cells reflects oxygen radical status and is associated with colorectal cancer and pre-cancer in non-smoking men (1,2). This study tests whether ADPRT is associated with breast cancer. Venous blood from Memorial Breast Clinic patients was taken to PMI-Strang Laboratory and assayed for ADPRT, as in prior methods (3). In the 52 non-smoking women, ADPRT values below the median were associated with breast cancer (2-sided $p<0.1$). The association persisted after considering 14 different covariables, including reproductive factors, stage at cancer diagnosis, and symptoms in benign breast disease controls. The adjusted odds ratio between the cancer and ADPRT below the median was 4.3 (95% confidence limits:1.1-18.0, 2-sided $p=0.042$). Compared to the highest ADPRT quintile, those in the lowest ADPRT quintile had an adjusted odds ratio for breast cancer of 11.2 (2-sided p across quintiles=0.029). Reduced ADPRT is associated with breast cancer and may predict high risk for occurrence of this malignancy.

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α-DIFLUOROMETHYLORNITHINE (α-DFMO) AS A CHEMOPREVENTION AGENT: DOSE RELATED OTOTOXICITY. M. Croghan, M.D., A. Booth, RN, M. Aicken, Ph.D., F. Meyskens, M.D. Dept. of Medicine, Family and Community Medicine and AZ Cancer Center, 1501 N. Campbell Ave, Tucson, AZ 85724.

α-DFMO is an inhibitor of ornithine decarboxylase which has many potential uses for both the prevention and treatment of a variety of neoplasms. We and others have recognized ototoxicity as a potential limiting complication of DFMO administration for chemoprevention studies. We evaluated sequential audiograms from 59 patients receiving high doses of DFMO for metastitic melanoma. Eighteen patients received DFMO alone; 41 received DFMO in combination with α2b-interferon. Oral total doses ranging from 2gm/m^2 to 12gm/m^2 were given in three divided daily doses. Total doses ranged from 84gm/m^2 to 1390gm/m^2 (administered over periods from 2 to 50 weeks) and were correlated with clinical effects and audiometric changes. By regression analysis, total DFMO dose received was correlated with decreases in hearing threshold at multiple frequencies [500 hrz ($p \leq .0001$), 1000 hrz ($p \leq .0001$), 4000 hrz ($p \leq .0001$), 8000 hrz ($p \leq .0001$)]. Overall, patients with normal baseline audiograms (threshold < 30 db) demonstrated more hearing loss than those with abnormal (threshold $>= 30$ db) baseline audiograms ($p = .001$). Using a regression on log dose, corrected for baseline hearing loss, the amount of hearing loss detected was shown to increase in a curvilinear fashion which plateaued with cumulative dose of DFMO. Based on our findings, a cumulative oral DFMO dose of 220gm/m^2 would be required to cause an average 10 db hearing loss by standard audiometric testing. These data would indicate that low doses of DFMO, such as those proposed for prevention trials, could be given for long periods of time without inducing significant ototoxicity.

AN INNOVATIVE COMPUTERIZED CANCER RISK ASSESSMENT PROGRAM. S. Lippman, MD, T. Bassford, M.D., P. Gordon, MD, C. Weatherford, L. Sandmann, F. Meyskens, MD, M.D. Anderson Cancer Center, 1515 Holcombe Blvd., Houston, TX 77030 and Arizona Cancer Center, Tucson, AZ 85724.

In an effort to improve compliance with cancer prevention measures, we developed a computerized quantitative cancer risk assessment program which provides a uniquely effective appraisal tool for quantitating cancer risk. The questionnaire is close-ended, easily completed by the patient within 5-15 minutes, and appraises risk factors only for those malignancies for which quantifiable relative risks are known through well-controlled epidemiologic studies (1,2). The IBM-compatible format permits easy quantitation by laser scanning and computer analysis. This program quantitates risks arising from interacting independent factors and estimates the effects of primary prevention interventions (1-3). The program has 3 components: Part I is a printout of site-specific relative risks. Part II discusses modifiable risk factors and identifies specific high risk patients requiring intensified screening or prevention measures (1-3). Part III lists age and sex-specific ACS screening guidelines and the NCI dietary recommendations (3). This 3-part printout is sent to the patient's primary care physician to assist the integration of cancer prevention measures into routine office practice.

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BREAST CANCER SCREENING PERCEPTIONS AND BEHAVIORS OF LATINO WOMEN: IMPLICATIONS FOR TARGETED INTERVENTIONS. JG Zapka, ScD, I Torres, MS, RS Barth, MEd, ME Costanza, MD. UMass Medical School and School of Public Health, Arnold House, Amherst, MA 01003.

In order to design culturally sensitive interventions (1) which are feasible within a community health center setting, this study was undertaken to a) better understand the knowledge, beliefs and screening behavior of Latino women and b) document mammogram referral patterns of physicians. The women were aged 45-75 years, mostly Medicaid eligible, and primarily Puerto Rican. Data were collected from two focus groups (one comprised of Health Center clients and one of elderly community women organized through Centro Pan Americano), and a personal interview of 155 female Health Center clients. Data concerning referrals were collected from the health center's referral log and compliance with referrals checked with medical records.

The focus groups highlight information needs (e.g confusion about term "mammogram"), several attitudes and beliefs which are potentially mutable with educational intervention (e.g. fear of the "aparatico", the machine or literally, "the thing"). The interview assesses the relative importance of cognitive, belief, sociodemographic, health history, medical care use and media variables and their association to the 3 cancer screening technologies. Data on mamography screening referrals indicate a 34% non-compliance rate.

The implication of the findings for interventions will be outlined (e.g. use of the "ejemplo" theme in project materials, physician in-reach and managerial intervention to reinforce screening behaviors). Findings will be compared to those of a community survey of 1184 women, largely white, of diverse economic background and to the limited data available from previous research (2,3) N.B. Reviewers please see Attachment A.

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EDUCATIONAL METHODS IN A COMMUNITY CANCER SCREENING CENTER

Joan Hall-Feinberg, LCSW Mark Renneker, M.D.

The Cancer Education and Prevention Center at Merritt Peralta Medical Center in Oakland, California, provides low-cost cancer screening services as a means of providing comprehensive cancer education. Each patient is provided an individual health plan for reducing cancer risk. Physical examination is utilized as more than just a means for screening cancer but also to teach self-examination methods.

Video sigmoidoscopy is used as a method to teach patients about their digestive system and diet, and also to teach flexible sigmoidoscopy to primary care physicians in the community. Also, medical students, residents and faculty members from University of California at San Francisco are trained in our cancer education methods.

All women are asked to review their breast self examination (BSE) techniques as part of having a mammogram. For women whose physician has not examined their breasts in the previous 3 months, individual breast exams and BSE instruction is provided.

Emphasizing education increases the amount of time spent with each patient and thus adds to the cost of the service. However, we have found ways to make this financially feasible.

VALIDITY OF REPORTED BREAST SELF-EXAMINATION PRACTICE. P.A. Newcomb, S.J. Olsen, T.S. Surawicz, R.R. Love, University of Wisconsin Clinical Cancer Center, 420 North Charter Street, Madison, WI 53706

Breast self-examination (BSE) is an intuitively attractive and widely accepted technique for the early detection of breast cancer. However, the efficacy of BSE in reducing breast cancer mortality has not yet been demonstrated, perhaps due, in part, to inconsistencies in the definition of BSE practice. Both frequency and proficiency must be considered in any evaluation of BSE [1]. Unfortunately, because of the nature of BSE, all evaluation of BSE practice will be necessarily indirect. Before self-reports of BSE performance can be meaningfully interpreted, they must be standardized and validated.

To investigate the validity of self-reported practice, we evaluated the practice of 81 women aged 47-65 years who participated in a controlled trial of a breast cancer chemopreventive agent and reported they practice BSE. Subjects were asked to describe their current BSE practice. The method of assessing proficiency was modelled on the NCI's National Breast Survey [2] and expanded to include the recommended examination steps and positions. Women were also presented with a breast model (HEALTHEDCO) embedded with lumps of varying sizes and depths and instructed to report all lumps. There was no relationship between the number of lumps detected and the self-reported competency score ($p = 0.36$). No factors were identified that modified the association between palpation and self-report. In this study, self reported score was associated with education and time spent doing BSE. Number of lumps palpated was associated with education and increasing age. The results of this study suggest that the two approaches are not comparable. Future studies must continue to validate the evaluation of BSE to determine the effectiveness of educational efforts and, ultimately, the efficacy of BSE.

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DIFFERENCES IN CANCER SURVIVAL BETWEEN BLACKS AND WHITES IN AN HMO.

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Blacks have poorer survival after cancer diagnosis than do whites for several cancers including breast, bladder, prostate, lung and colon (1). This white survival advantage is evident across most stages of disease. Access to health care and socioeconomic status may play a role in differential survival between blacks and whites (2,3). In order to control for access to health care and treatment, this study examined survival among patients diagnosed with cancer between 1978 and 1984 who were members of the Kaiser Permanente Medical Care Program, a prepaid HMO in northern California. Data on vital status were obtained from the San Francisco-Oakland SEER Registry which conducts annual patient follow-up. Survival analyses were conducted using the Cox proportional hazards regression, stratified by stage of disease and adjusting for a number of potential confounding factors. For some sites and stages survival differences between blacks and whites were not observed. However, significantly poorer survival was found for blacks diagnosed with localized bladder cancer (RR=2.6, 95% CI: 1.0-6.9), while blacks diagnosed with localized lung cancer had significantly better survival (RR=0.4, 95% CI: 0.2-1.0). Since findings were not consistent across cancer sites or stages and a number of the Cox models violated the proportional hazards assumption, different statistical approaches and control for a measure of social class/poverty status based on census block of residence will be used in further analyses.

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LONGITUDINAL EVALUATION OF A TESTICULAR CANCER CURRICULUM FOR ADOLESCENTS.

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Although testicular cancer (TC) is the most frequently occurring solid tumor in males age 18 to 40, little is known about the most effective means to present TC and testicular self-examination (TSE) education (6) and longitudinal evaluations are nonexistent. In the first phases of a 3 year public school project sponsored by the ACS, pretest data had shown that, although 75% of 1300 tenth grade males had a recent physical, only 28% had heard of TC, none knew how to perform TSE, and most felt anxious and ineffective about its discovery. Six months after training with a TC/TSE curriculum 42% of subjects knew all TC symptoms, 54% knew how to perform TSE (.3% controls) and 58% currently perform TSE (2). Following the development of a TC/TSE videotape for the final phase of the project, original control subjects were trained and an 18 month followup was conducted for original trained subjects. Similar to our initial results, 38% of original controls knew the symptoms of TC 6 months after training, 48% knew how to do TSE (.3% prior to training) and 43% reported that they currently practice TSE. For the original trained group there was a persistent effect of training 18 months after intervention, with only minimal decrease in knowledge of TC and TSE and self-reported TSE performance. For these subjects, 39% still knew TC symptoms, 58% knew how to perform TSE and 48% said they were still doing TSE. For both original controls 6 months post training and original trained 18 months post training, no increase occurred in anxiety about TC and more positive attitudes were reported about TC, its discovery through TSE, and recovery from TC. Self-reported physician utilization remained constant for all groups throughout the study. Both the control group replication of our initial findings and the longitudinal evaluation of original trained subjects strongly support the efficacy of this educational intervention.

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FORMATIVE ANALYSIS FOR COMMUNITY-BASED APPROACHES TO DIET-RELATED CANCER RISK: A STRATEGY FOR AUDIENCE SEGMENTATION. J. Hertog, MA, J. Finnegan, PhD, J. Potter, MD, PhD, R. Mullis, RD, PhD, B. Rooney, MPH, K. Viswanath, MA, Division of Epidemiology, School of Public Health, University of Minnesota.

The study developed an audience-segmentation approach to target a community-based lifestyle campaign seeking to reduce diet-related cancer risk in a rural western Minnesota community (pop. 20,000). A randomly drawn cross-sectional survey was conducted during March-May, 1988 (N = 377) to develop an understanding of food attribute preferences, eating patterns, community and social dynamics surrounding food purchase, preparation, and consumption, and knowledge and beliefs concerning diet-related health risks. The survey included two pre-tested scales that permitted segmenting the target audience (adults, age 25-69) based on the primary campaign objective: eating pattern change. Drawing from social learning theory, the scales operationalized dimensions of self-efficacy in "ease of making eating pattern changes," and "the extent to which eating pattern change makes a difference to one's health." Individuals thus were placed into one of four groups: 1) those scoring high on both dimensions; 2) those scoring low on ease of change but high on "change makes a difference"; 3) those scoring high on ease of change but low on "change makes a difference"; and 4) those scoring low on both dimensions. In general, women, the better-educated, those holding professional jobs, and those more involved in their community were significantly more likely to score high on "change makes a difference." Men, the less-educated, and those less involved in the community were more likely to score low. On "ease of making changes," those older, without children at home, homemakers and retired persons were more likely to score high. In contrast, those younger, working for pay, with children living at home were more likely to score low. This categorization allows a) the development of specific nutrition-change messages which may be targeted appropriately, and b) more efficient choice of communication channels. For instance, Group 2), with an above-average concentration of professional women with children who rate the health of their diet low will likely respond to strategies that save or at least do not increase time spent buying and preparing foods; and those that assist in reducing family stress levels surrounding spouses' and children's food preferences. Newspaper inserts or ads would probably be a better use of funds than daytime tv here. Movement among the categories should also provide a useful outcome measure for population studies where part of an intervention/education strategy aims at making change more salient and providing skills to facilitate change in eating habits.

FAMILIAL FACTORS ASSOCIATED WITH PRIMARY MALIGNANT BRAIN TUMORS. M. Wrensch, MPH, PhD, and G. Barger, MD, Department of Epidemiology and International Health, University of California, San Francisco, California, 94143-0560.

Evidence for familial aggregation of primary malignant brain tumors (PMBT) with other cancer sites and with other neurologic disorders is equivocal (1). We compared family medical histories of 77 men with histologically confirmed PMBT of astrocytic origin to family medical histories of their wives. Health histories of 892 cases' and 719 wives' relatives (parents, sibs, nieces and nephews) were obtained through interview. Cases' relatives were more likely to have cancer than wives' relatives ($p=.06$); the excess cancers among cases' relatives were primarily breast cancer (odds-ratio [OR]=2.4;$p=.14$), and lung cancer (OR=4.0;$p=.10$). Cases were more likely than wives to have a mentally retarded relative (OR=4.6;$p=.12$). Overall, 10% of PMBT cases came from families with multiple cancers or neurologic disorders. These familial associations of PMBT with breast and lung cancers taken together with recent cytogenetic findings (2) and environmental (e.g., cigarette smoking and occupational) associations (3) suggest useful etiologic hypotheses to pursue in future studies of these debilitating and rapidly fatal tumors.

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Participation in a Colorectal Cancer Screening Program.
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Factors that influence stool blood test performance are not well understood (1). It is known that different approaches to target population accrual are associated with different levels of test performance (2). This study was conducted to learn more about colorectal screening participation and how screening sponsorship affects stool blood test performance. 504 men and women 50 years of age or older were selected randomly from age-eligible members of an individual practice association (IPA) HMO. A telephone survey was completed with 419 (83%) subjects. Phone survey data were sociodemographic background, health beliefs, social support, and screening experience. Interviewed subjects were allocated randomly to a control and study group. A stool blood test packet, including three stool blood tests, and a screening-office authored cover letter, instructions for using the tests, and educational information were mailed to the control group. An identical packet was sent to the study group, except written materials were authored by the subject's primary physician office. Prospective stool blood test performance was tracked in a central registry. Logistic regression analysis (n=419) showed prospective test performance was not influenced significantly by differential sponsorship. However, further analysis revealed that test performance (n=403) was strongly related to having done the test in the past, OR=9.0 (95% CI 4.9-16.7), and the view that the subject's physician saw stool blood testing as important, OR=1.9 (95% CI 0.9-3.8). Age (60+ vs <60), and the subject's favorable view of testing were the only other significant predictors when past performance was not included in the model (OR = 1.8 and 1.4 respectively).

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PLASMA LIPID-BOUND SIALIC ACID IN PATIENTS WITH COLORECTAL ADENOCARCINOMA AND POLYPS OF KNOWN HISTOLOGY. **S Shahangian, PhD, JI Hughes, MD, HA Fritsche Jr, PhD, RS Foemmel, PhD, N Katopodis, MS.** The University of Texas M. D. Anderson Cancer Center, 1515 Holcombe Boulevard/Box 73, Houston, TX 77030, Vercellino Gastrointestinal Cancer Institute, Kelsey-Seybold Foundation, Houston, TX 77030, and Dianon Systems, Inc., Stratford, CT 06497.

Lipid-bound sialic acid (LSA) was measured in 62 healthy individuals and prior to polypectomy in 48 patients with colorectal polyps (21 patients with hyperplastic, 19 with adenomatous, 6 with villoglandular and 2 with villous polyps) prior to polypectomy. LSA was also assayed before surgery in 14 patients with colorectal adenocarcinomas (4 with Duke stage A, 6 with Duke stage B and 4 with Duke stage C). The mean value of plasma LSA for smokers was significantly greater than the mean LSA value for nonsmokers in healthy subjects ($p = 0.0001$) and polyp patients ($p = 0.026$). Patients with either villoglandular ($p = 0.049$ and $p = 0.0072$) or villous ($p = 0.022$) polyps had prepolypectomy LSA values which were significantly greater than those of respective healthy controls grouped according to their smoking status. Patients with villoglandular polyps had significantly greater LSA values than those with hyperplastic ($p = 0.0010$) or adenomatous ($p = 0.019$) polyps. Patient with villous polyps had significantly greater ($p = 0.037$) LSA values than those with hyperplastic polyps. There were no significant differences ($p > 0.050$) between the mean plasma LSA values of the patients with first occurrence of their polyps versus those with recurrent polyps. Taking all polyp patients together, polypectomy did not result in any statistically significant ($p = 0.26$) decrease in plasma LSA. Plasma LSA values were significantly greater in colorectal cancer patients than in healthy subjects: Duke stage A ($p = 0.044$), stage B ($p < 0.000050$) and stage C ($p = 0.041$). Surgery in cancer patients significantly ($p = 0.011$) caused a decrease in plasma LSA values. Plsama concentration of LSA may be useful in the diagnosis and monitoring of patients with premalignant polyps and those with colorectal adenocarcinoma.

Fecal Occult Blood Screening In the Elderly.

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Information published to date is meager regarding the value and practicality of colon cancer screening in the elderly (1). To gain perspective, we analyzed the results of a fecal occult blood testing (FOBT) program for asymptomatic enrollees over age 65 in our HMO. In a one year period, 1086 individuals (mean age 73, range 65-92) were tested by a standard hemoccult method. Forty-three were positive, and they were evaluated with colonscopy as the primary test. Colon cancer was detected in three - two Dukes A lesions in 78 year olds, and one B_2 in a 66 year old. Adenomas were found in 15 others. Six of 43 were unable to undergo evaluation due to the inter-current development of other major disease. The rates of slide positivity (4%) and the detection of adenomas (35%) or carcinomas (7%) are comparable to those in both younger populations at large and within our organization (2,3). We conclude that the results of FOBT screening are similar for older and younger groups, but that the elderly require additional consideration of their overall health status. Reduced mortality has yet to be proven for any group.

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A Cancer Prevention/Detection Dilemma. Balanced 1:17 Translocation in patient with three PRIMARIES: Three Generations.
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At age 22, a female patient developed a neck mass subsequently diagnosed as lymphoproliferative neoplasm. Treated with mantel irradiation T.D.4500R, she achieved a complete remission. At age 25, a left breast biopsy showed fibrocystic disease. At age 30, she presented with neck nodules diagnosed as thyroid CA 1972. Evaluation in 1983, demonstrated increasing firmness of left breast with retraction. Biopsy showed infiltrating ductal adenocarcinoma with positive axillary nodes. Mirror biopsies of the right breast were negative. Family history: Mother, 68 - colon adenocarcinoma. Paternal uncle - tumor, unknown primary. Paternal cousin ALL. A peripheral blood chromosomal analysis performed on the patient showed 46xx t 1;17 (q12;p11). Balanced 1:17 translocation. Karyotypes performed on patient's mother and the patient's teenage asymptomatic daughter showed the identical pattern. Clinically, the family history fits into the BSLA 1,2,3 syndrome (breast, sarcoma, leukemia/lymphoma/ adenocarcinoma) (1 & 2). The karyotype found in the family appears new and is present in three generations. Of note, are recent onogene assignment to chromosomes 1 and 17 (3 & 4). Prevention measures are planned for asymptomatic at risk third generation individual. The question of sensitivity to even the low radiation dose of screening manuevers is raised.

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MAMMOGRAPHY SCREENING HISTORY OF WOMEN AT INCREASED RISK OF BREAST CANCER. V. Vogel, MD, MHS, J. Lord, J. Feuger, MA, D. Graves, MPH, R. Winn, MD, and G. Peters, MD, FACS, M. D. Anderson Cancer Center, 1515 Holcombe Blvd., Box 501, Houston, Texas 77030.

Five hundred one women from Dallas County, Texas who participated in the American Cancer Society 1987 Texas Breast Screening Project (TBSP) were selected because of a self-reported family history of breast cancer (cases). Of these cases, 24% reported an affected mother, 20% an affected sister, 2% an affected daughter, and the remainder reported other relatives with breast cancer. They were matched by income and age with 501 randomly selected control women (no family history of breast cancer) from the same county. Ninety-two per cent of all women were white. While 32% of the controls reported ever having mammography prior to TBSP, only 35% of the cases ever had mammography. Of the cases who had prior mammography, 82% had only one or two exams. Both cases and controls cited lack of physician referral and cost as reasons for not having prior mammography. An equal proportion (92%) of cases and controls reported a knowledge of breast self-examination (BSE), but only 54% of women with a family history reported doing BSE more than 7 times a year. The self-perceived lifetime risk of breast cancer was not different among cases and controls, but significantly more cases reported family pressure to participate in TBSP than did controls (M-W $z=3.36$, $p=0.0008$). These data indicate that women at increased risk of breast cancer due to family history are being inadequately screened, and that the reasons for under-screening are related to risk perception and physician practices. Programs must be designed to improve screening compliance in these women who are at increased risk due to family history (2), and screening mammography must be made more accessible (1).

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HETEROSEXUAL TRANSMISSION OF HUMAN IMMUNODEFICIENCY VIRUS: THE PARADOX OF HIGH INFECTIOUSNESS AND INFREQUENT INTERCOURSE.

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Human immunodeficiency virus (HIV), the etiologic agent of AIDS, can be transmitted by direct inoculation or transfusion of infected blood, from mother to fetus or neonate, and particularly by vaginal or anal intercourse. Although numerous cross-sectional studies of homosexual men have shown that frequent anal intercourse and numerous sexual partners are strongly associated with an increased risk of HIV infection, two studies of the steady heterosexual partners of HIV-infected subjects have shown little or no relationship between HIV transmission and frequent vaginal intercourse. Two other such "couples" studies, including the one that we have conducted since 1984, actually show an inverse association, that is less frequent intercourse associated with a higher likelihood of heterosexual transmission. This paradox appears to be a result of strong interactions between clinical condition, markers of HIV infectiousness such as HIV antigenemia or severe T4-cell deficiency, and frequency of intercourse. These findings suggest possible improvements in programs to reduce HIV transmission rates. They also suggest that, although the proportion of highly infectious individuals may be increasing, HIV incidence rates may remain low as those most infectious have intercourse less often.

FACTORS AFFECTING THE USE OF MAMMOGRAPHY AMONG BLACK WOMEN. J.R. Bloom, Ph.D., K. Grazier, Dr.P.H., W.A. Hayes, Ph.D. and F. Hodge, Dr.P.H., School of Public Health, University of California, Berkeley, CA 94720 and Northern California Cancer Center, P.O. Box 2030, Belmont, CA 94002

Our objective was to determine the influence of cost, safety, physician and patient related factors in the utilization of mammography in asymptomatic women. The sample consisted of 661 Black women who participated in a two-stage household interview in two inner cities. Fewer than 10% refused a mammogram when recommended; only a third of the sample thought it was risky. Logistic regression was used to determine the independent effects of the key variables. Neither health insurance, having income below the poverty line, nor having an annual physical were significant predictors. While age was the single most important predictor of having a mammogram (four-fold increase from age 40-70), women who practice BSE were almost twice as likely to have one at any age. The results are discussed in terms of recent publicity about the ineffectiveness of BSE in reducing cancer mortality.

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USING FOCUS GROUPS TO DEVELOP CULTURALLY SENSITIVE CANCER PREVENTION MATERIALS: THE FORSYTH COUNTY CERVICAL CANCER PREVENTION PROJECT. M. Dignan, Ph.D., M.P.H., L. Young, Ph.D., Department of Family and Community Medicine and Department of Psychiatry, Bowman Gray School of Medicine of Wake Forest University, Winston-Salem, NC 27103

The Forsyth County Cervical Cancer Prevention Project is an NCI funded public health education program in Forsyth County, North Carolina, designed to reduce mortality from cervical cancer by increasing the proportion of minority women who obtain Pap smears at appropriate intervals and return for follow-up care when necessary. Because of the need to develop educational materials that would motivate the needed behavior change, a methodology was needed to develop a thorough understanding of the values, needs, and interests of black women in Forsyth County, North Carolina. Focus groups were used to help develop this understanding. Focus groups are a commonly used tool in marketing research (1). The usefulness of focus groups for educational materials development lies in their ability to elicit statements of knowledge, attitudes and reactions to education unrestrained by the intrusions of academics or health professionals (2). Ten focus groups were conducted between November, 1987 and October, 1988. The groups ranged in size from eight to 15 members. Recruitment was carried out to assure representativeness of educational levels, age, and experience with gynecologic care. Participants were excluded if they had previous diagnosis of cancer or were employed in a health care profession or industry. The focus groups were guided to react to the following broad topics: cancer as a disease, experience with local health care, and understanding of cancer screening. Fear and fatalism were the predominant top-of-mind reactions to cancer as a disease. The groups felt that despite the best efforts of physicians, there was little that could be done to avoid death. Such reactions were based on personal experiences. Local health care providers and institutions were rated highly by the focus groups, although they were not though to be successful at preventing or treating cancer. Finally, nearly all participants reported having had Pap smears, although few were aware of the relationship between the test and early detection of cancer. In general, understanding of the value of screening as means for early detection cancer was showed room for improvment.

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RELATIONSHIP OF RADON EXPOSURE IN HOMES AND LUNG CANCER.

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The purpose of this study was to investigate the relationship between high Radon exposure in households and lung cancer in the Reading Prong of Pennsylvania. The age-adjusted death rates due to lung cancer were compared in the Reading Prong and other areas in Pennsylvania and the United States. Second, we evaluated the number of lung cancer deaths in homes with high versus low levels of Radon within the Reading Prong. Death rates due to lung cancer are not elevated in the Reading Prong. For example, in 1970-79 the age-adjusted death rate from lung cancer was 61.3 per hundred thousand for Pennsylvania and 53.9 in Berks County for white men. We identified 4.035 lung cancer deaths over 10 years in the counties in the Reading Prong and a similar number of colon cancer deaths. We matched these deaths with 363 houses with high radon levels, equal to or greater than 0.4 working levels and 363 houses with low radon levels less than 0.01 working levels. Three lung cancers matched these houses, one in the high, and two in the low radon homes. Evaluation of the high radon houses and their occupants noted relatively young age, low prevalence of smoking and relatively recent construction of these homes. There does not appear to be an epidemic of lung cancer in the Reading Prong.

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ADENOCARCINOMA OF THE CERVIX: SIMILARITIES BETWEEN RISK FACTORS IN ADENOCARCINOMA AND SQUAMOUS CELL CARCINOMA OF THE UTERINE CERVIX. M. Koch, MD, L. Honore, MD, L. Brown, MD, Cross Cancer Institute and Department of Pathology, University of Alberta.

The incidence of cervical adenocarcinoma has increased (1). This trend has been related to the use of oral contraceptives (2). In order to verify this hvpothesis a retrospective study was carried out by mailing questionnaires to 88 patients with adenocarcinoma diagnosed in Alberta from 1980 to 1985 and for each of them 3 patients with squamous cell cancer matching their year of birth and year of diagnosis. The questionnaire included questions on other risk factors like age at menarche, age at first intercourse, sexually transmitted diseases, parity, smoking, family history of cancer and detailed questions on birth control methods used. For oral contraceptives the information requested included name of drug, date of first and last dose taken as well as reason for cessation. In order to help more accurate recall on oral contraceptives used, pictures of the different pills were included in the questionnaire. The comparison between the 47 adenocarcinoma cases and 136 squamous cell cancer cases that returned completed questionnaires was done for individual risk factors by T-test and for combined factors by multiple regression. None of the factors showed statistically significant differences between the two groups.

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