



AMERICAN SOCIETY OF PREVENTIVE ONCOLOGY

*Carcinogenesis
Ecology*

*Human Behavior
Economics*

*Screening & Diagnosis
Epidemiology & Biometry*

AMERICAN SOCIETY OF PREVENTIVE ONCOLOGY

THIRD ANNUAL MEETING

THURSDAY AND FRIDAY

MARCH 8th and 9th, 1979

THE BILTMORE
BOWMAN ROOM

NEW YORK CITY



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The American Society of Preventive Oncology was formed to promote and foster the exchange and dissemination of ideas relating to the prevention of cancer. In addition, a major purpose of the Society is to identify problems in cancer prevention which may require corrective action or intervention and to foster the implementation of such programs. The Society provides a unique forum which has not been emphasized in the clinically-oriented oncologic societies. Its presence as a multi-disciplined organization also recognizes the interdependence of complex biomedical and societal factors that must be embraced if scientific discovery is to be translated into effective policy. Our active membership now includes 350 members from the disciplines of epidemiology, biostatistics, clinical oncology, experimental research, economics and health education. The proceedings of each conference are published and available to the membership and the wider community of health professionals. Our present activities are concerned with professional training and education, but a major objective will be for the Society to provide consultation and leadership in developing policies and programs for research institutions and regulatory bodies that will further opportunities for cancer prevention and control.

The Third Annual Meeting of the American Society of Preventive Oncology is being co-sponsored by the Memorial Sloan-Kettering Cancer Center. The two-day meeting will consist of plenary speakers, panel discussions and submitted papers for scientific sessions concerning the six areas of concern of the Society: Carcinogenesis, Primary Prevention, Screening and Diagnosis, Epidemiology and Biometry, Economics and Health Education. Topics to be covered include: Chemoprevention of Cancer; Assessment of Carcinogenic Risk; The Nature of Susceptibility to Cancer, and Cancer and the Workplace. The meeting has been certified for 15 hours of Category I Continuing Medical Education Credits.



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PROGRAM PARTICIPANTS THIRD ANNUAL MEETING AMERICAN SOCIETY OF PREVENTIVE ONCOLOGY ---

Roy E. Albert, M.D.
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National Institute of Environmental Health Sciences
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Johns Hopkins University School of Hygiene and Public Health
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Office of Public Health
State of New York Department of Health
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* President-Elect, ASPO



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American Cancer Society, Inc.
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Maryce Jacobs, Ph.D.
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Professor and Chairman
Department of Epidemiology and Preventive Medicine
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Martin Lipkin, M.D.
Head, Gastrointestinal Research Laboratory
Memorial Hospital for Cancer and Allied Diseases
New York City

Congressman Andrew Maguire
Democrat--New Jersey (7th Congressional District)
Bergen County

Anthony B. Miller, M.B.
Director
National Cancer Institute of Canada
Epidemiology Unit
University of Toronto
Toronto, Canada

Robert W. Miller, M.D.
Chief, Clinical Epidemiology Branch
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Daniel G. Miller, M.D.
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President, ASPO
New York City



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New York University Medical Center
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Rulon Rawson, M.D.
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I. Bernard Weinstein, M.D.
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Director of Division of Environmental Sciences
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Columbia University College of Physicians and Surgeons
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John H. Weisburger, Ph.D.
Vice President for Research
American Health Foundation
Naylor Dana Institute for Disease Prevention
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THURSDAY, MARCH 8th
BILTMORE HOTEL
BOWMAN ROOM

7:30 - 8:30

Registration - North Lobby

8:30 - 8:35

Welcoming Remarks

Dr. Daniel Miller, President

8:35 - 9:15

Keynote Address: The Biomedical Research and
Training Act as a Means for Furthering
Preventive Oncology

Congressman Andrew Maguire

9:15-10:30

Symposium I: Inhibition of Carcinogenesis

Dr. Martin Lipkin, Chairman

Introduction: Dr. Martin Lipkin

Inhibition of Chemical Carcinogenesis:

Dr. Lee Wattenberg

Inhibition of MAM-Induced Colon Tumorigenesis

by Pyrazole: Role of Dehydrogenase Enzyme

Activity in Carcinogenesis: Dr. Morris Zedeck

Effect of an Antioxidant on Adenomas in

Familial Polyposis: Dr. Jerome DeCosse

Panel Discussion

10:30-10:45

COFFEE BREAK

10:45-12:30

Etiology and Chemoprevention of Stomach Cancer:

Dr. John Weisburger

Chemoprevention of Nitrosamine Formation in

the Intestine: Dr. Steven Tannenbaum

Effects of Selenium on Chemical Carcinogens:

Dr. Maryce Jacobs

Inhibition of Carcinogenesis by Feeding Diets

Containing Soybeans: Dr. Walter Troll

Future Perspectives: Dr. Rulon Rawson

Panel Discussion

12:30- 2:00

LUNCH

2:00- 3:00

Presidential Address: The Nature of Susceptibility
to Cancer

Dr. Daniel Miller

Introduction: Dr. Nathaniel Berlin

Spontaneous & induced carcinomas
1/3 angiodysplasia

42

THURSDAY, MARCH 8th (continued)

3:00- 4:00

Current Status of Screening for Lung, Breast
and Colorectal Cancer

Dr. Anthony Miller, Chairman

Lung: Dr. Robert Fontana

Breast: Dr. Anthony Miller

Colorectum: Dr. Sidney Winawer

\$12⁰⁰ 1/2 - 4111 Screening
Technique: 40

4:00- 5:15

Presentation of Submitted Papers (see attached)

Dr. Lawrence Green, Chairman

Health Education

Screening

6:00 - 7:00

Reception - Madison Room

7:00

Standing Committee Meetings *

A. Constitution and Bylaws

Suite 'R'

B. Membership and Nominating

Suite 'S'

C. Program

Suite 'T'

* Committee meetings open to all members.

ASPO

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FRIDAY, MARCH 9th

7:30 - 8:30

Registration - North Lobby

8:30- 9:15

Graduate Education of Physicians in Preventive Oncology

Dr. David Schottenfeld, Chairman

Dr. Richard Bakemeier

Dr. Robert Miller, Discussant

Dr. Genrose Copley, Discussant

9:15-10:00

Mechanisms of Carcinogenesis

Dr. I. Bernard Weinstein

10:00-10:15

COFFEE BREAK

10:15-12:30

Symposium II: Assessment of Carcinogenic Risk

Dr. Norton Nelson, Chairman

The Use of Laboratory Tests for the Estimation of Cancer Risks: Dr. Richard Griesemer
The Use of Epidemiological Data in the Assessment of Cancer Risk: Dr. Stephen Brown
Mathematical Models in Humans and Laboratory Animals and Their Use in Cancer Risk Assessment: Dr. Alice Whittimore
Risk Assessment in Federal Regulatory Agencies: Dr. Roy Albert

12:30- 1:30

LUNCH -Executive Committee Luncheon- Suite 'R'

1:30- 2:15

Cancer Associated with the Work Environment: Possibilities for Prevention

Dr. Peter Greenwald, Chairman

Dr. Marvin Schneiderman

Dr. Peter Greenwald, Discussant

Dr. Norton Nelson, Discussant

Dr. Cuyler Hammond, Discussant

Dr. Margaret Sloan, Discussant

2:15- 5:15

Presentation of Submitted Papers (see attached)

Dr. Irving Kessler, Chairman

Epidemiology, Carcinogenesis

5:15 - 6:00

Business Meeting (Election of Officers)

Dr. Nathaniel Berlin, Chairman

Memorial Sloan-Kettering Cancer Center, 1275 York Avenue, New York, New York 10021

? need spec lecture in
year II

NW - has a screening clinic

1/2 Nelson
head neck
prostate
melanoma

procedures not done
prostate
breast - tamoxifen
skin biopsy

Major Problem Areas in
Ed. Harvey
Carcinology
Early dx
Epidemiology
Radiation Oncology
Psychosocial Aspects
Rehabilitation
Health Maintenance
Mgmt

Epidemiology & Biometry
Health Maintenance

Mathematical Spectrometry
Must be considered
of multifactorial nature
of cancer causation

Cancer risk assessment - not 2nd



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THURSDAY, MARCH 8th

PRESENTATION OF SUBMITTED PAPERS: HEALTH EDUCATION AND SCREENING

Dr. Lawrence Green , Chairman

- 4:00 - 4:15 Outreach for Cervical Cancer Screening
S. Lundahl, E. A. Sawada, M.D., et al
*Comprehensive Cancer Center of the Johns Hopkins Hospital
and Maryland State Department of Health and Mental Hygiene*
- 4:15 - 4:30 Use Effectiveness of the "Pap" Test
C. E. Lawrence, Ph.D. and S. Durgerian
New York State Department of Health, Albany, New York
- 4:30 - 4:45 An Empirical Investigation of Relationships
Among Constructs in the Health Belief Model
G. R. Morrow, Ph.D. and J. McCusker, M.D.
University of Rochester Cancer Center, Rochester, New York
- 4:45 - 5:00 Factors Related to the Use of Cancer Early
Detection Techniques in a Population with
a Personal Physician
J. McCusker, M.D. and G. R. Morrow, Ph.D.
University of Rochester Cancer Center, Rochester, New York
- 5:00 - 5:15 Effect of Breast Self-Exam Practices and
Physician Examinations on Extent of Disease
at Diagnosis
E. M. Smith, Ph.D. and A. M. Francis
*University of Washington and Fred Hutchinson Cancer Research
Center, Seattle, Washington*

FRIDAY, MARCH 9th

PRESENTATION OF SUBMITTED PAPERS: EPIDEMIOLOGY, CARCINOGENESIS,
SCREENING AND DIAGNOSIS

Dr. Irving Kessler , Chairman

- 2:15 - 2:30 Evaluating Genetic Risks Associated with Occupational
Exposures: The Utility of Data Regarding Reproductive
Outcomes
P. A. Buffler, Ph.D., S. M. Wood, L. Suarez
*University of Texas Health Sciences Center, School of
Public Health, Houston, Texas*

Memorial Sloan-Kettering Cancer Center, 1275 York Avenue, New York, New York 10021

FRIDAY, MARCH 9th

- 2:30 - 2:45 Mutagenic Activity of Nipple Aspirates of Breast Fluids. A Preliminary Report.
N. L. Petrakis, M.D., C. Maack, Ph.D., et al
University of California School of Medicine, San Francisco, Calif.
- 2:45 - 3:00 Vitamin A and Lung Cancer
C. Mettlin, Ph.D., S. Graham, Ph.D. and M. Swanson
Roswell Park Memorial Institute, Buffalo, New York
- 3:00 - 3:15 Mammographic Parenchymal Patterns and Risk Factors for Breast Cancer
V. L. Ernster, Ph.D., S. T. Sacks, Ph.D. and C. A. Peterson, M.D.
University of California School of Medicine, San Francisco, Calif.
- 3:15 - 3:30 Epidemiological Factors Bearing on the Laterality of Breast Carcinoma
R. T. Senie, M.A., P. P. Rosen, M.D. and D. Schottenfeld, M.D.
Memorial Hospital, New York City
- 3:30 - 3:45 The Tumor Registry: An Instrument in Cancer Prevention
M. G. McC. Curnen, M.D.
Columbia University School of Public Health, New York City
- 3:45 - 4:00 Analysis for the Benefits of Mammographic Screening for Breast Cancer to Women Under Fifty Years of Age
N. Dubin, Ph.D.
New York University Medical Center, New York City
- 4:00 - 4:15 Errors in Medical Reasoning: A Case Study of Mammography
D. M. Eddy, M.D.
Stanford University, Stanford, California
- 4:15 - 4:30 Utilization of a Bladder Cancer Simulation Model for Screening Strategy Assessment
L. B. Ellwein, Ph.D. and G. H. Friedell, M.D.
Science Applications, Inc., La Jolla, California and St. Vincent Hospital, Worcester, Massachusetts
- 4:30 - 4:45 Delay in the Diagnosis of Breast Cancer and Status of Axillary Nodes
P. E. Burns, M.D., S. Ghitter, et al
Cross Cancer Institute, Edmonton, Alberta, Canada
- 4:45 - 5:00 The Relationship Between Cigarette Smoking and Lung Cancer Incidence in Allegheny County, Pennsylvania
G. B. Weinberg, M.P.H., L. H. Kuller, M.D. and C. K. Redmond, Sc.D.
University of Pittsburgh Graduate School of Public Health, Pittsburgh, Pennsylvania
- 5:00 - 5:15 Serendipity or Coincidence? A New Osteosarcoma/Malformation Syndrome
S. H. Schuman, M.D. and W. E. Burton, D.M.D.
Medical University of South Carolina, Charleston, South Carolina

ABSTRACTS OF PRESENTED PAPERS

Outreach For Cervical Cancer Screening. S. Lundahl, E. A. Sawada, M.D., E. Sheer, R.N., H. Block, B. Stump, M.D., M. Zelinski, R.N., Comprehensive Cancer Center, The Johns Hopkins Hospital, Maryland State Dept. of Health and Mental Hygiene & Harford County Health Dept., Baltimore, Maryland.

Cancer screening, to be most cost beneficial, must reach those persons considered to be at highest risk for developing a particular cancer. It is known that women at highest risk for developing cervical cancer are those women who have never had a Pap test or haven't had one in a number of years, and/or belong to one of the following socio-demographic groups: low income, post-menopause, minority races, sexually active at an early age with multiple partners. The women who are defined as high risk also tend to be "hard to reach" because: 1) they don't regularly use preventive health services; and 2) they don't respond to conventional means of communication that most health agencies use to inform the population of the services that are available.

A comprehensive outreach plan targeted for women at high risk of developing cervical cancer was an integral component of the Harford County Health Dept. Cervical Cancer Screening Project funded by the Div. of Cancer Control's contractual funds for statewide cervical cancer screening from the NCI (Contract # N01-CN-55166). Outreach strategies included: publicity, community organization, professional information and referral, and word of mouth. Specific activities will be described.

The evaluation component was a simple record-keeping procedure. Each patient was asked by the clinic staff how she heard about the program. Her answer, considered to be the most salient outreach source, was recorded on the standard report form containing other information about the patient. Evaluation data include cross-tabulation of high risk factors with each outreach strategy. Results, evaluation, data and recommendations for new programs and programs currently in operation will be presented.

Target HR pls.

Best public info
Add in back paper

Best community
Senior citizens groups

Best info information
Public Health Nurses

Best word of mouth
African (not a reference)

USE EFFECTIVENESS OF THE "PAP" TEST

Charles E. Lawrence, Ph.D.
New York State Department of Health
Albany, New York

Sally Durgerian, B.S.
New York State Department of Health
Albany, New York

In spite of the fact that 60% of women ages 40 - 69 have had a "PAP" test within the last year and 80% within the last three years cervical cancer mortality remains embarrassingly high. This phenomenon may result either from the failure to screen women at highest risk or from a failure of the "PAP" test as it is practiced, to detect cases early. In order to determine the extent to which each of these factors may have contributed to cervical cancer mortality, we have conducted a retrospective epidemiologic study of "PAP" testing among cervical cancer cases.

Prior histories of "PAP" testing were obtained for each cervical cancer case from patient records and the records of the region's major cytology screening laboratories. The data show that, although the level of "PAP" testing does appear to have been lower among invasive cervical cancer cases than in the general population, a surprisingly high proportion of these cases had a negative "PAP" test within a short interval prior to diagnosis.

We conclude that the sensitivity of the "PAP" test as it is practiced in the field has been overestimated. Our results suggest the need for a careful reevaluation of the use effectiveness of "PAP" testing, and an extensive retrospective study of conditions that lead to false negative tests.

11/48 cases of invasive cervical cancer had ⊖ PAP in last year

17/48 had ⊖ PAP in last 3 years.

20/48 had ⊖ PAP in last 5 years.

Why: {early studies on younger women cervix accessible; older ♀ cervix ↑.

An Empirical Investigation of Relationships Among Constructs in the Health Belief Model. G. R. Morrow, Ph.D. and J. McCusker, M.D., University of Rochester Cancer Center, Rochester, NY.

Research on determinants of health seeking behavior has largely been guided by, or subsumed within, the conceptual framework called the Health Belief Model (HBM). Relationships between individual constructs or structural elements of the HBM have been researched; there has been, however, no adequate investigation of the structural relationships within the model itself. For example, while the bivariate relationships of such HBM constructs as "Cues to Action" and "Perceived Threat of Disease" to the outcome of "Likelihood of Taking Recommended Preventive Health Action" have been investigated, the HBM structure that hypothesizes that the "Cues" operate through "Perceived Threat" has not.

The interrelationships of the HBM constructs to oncologic preventive and early detection health behaviors were studied in a sample of 403 teachers and administrators in two upstate NY school districts. Multiple variables based on previous literature were used to operationally define each HBM construct. Among conclusions supported by path analytic results were that: 1) "Perceived Threat" is less central a determinant of "Preventive Health Action" than the HBM theorizes; 2) there may be greater interrelationships among structural elements than previously theorized or shown; 3) social and psychological factors, even taken in combination, have generally weak associations to oncologic preventive health behaviors.

Along with theoretical and methodological implications, these findings have applicability to intervention programs that seek to alter oncologic preventive behaviors by modification of single HBM elements such as providing increased "Cues to Action."

FACTORS RELATED TO THE USE OF CANCER EARLY DETECTION TECHNIQUES IN A POPULATION WITH A PERSONAL PHYSICIAN.

Jane McCusker, M.D., Dr. P.H. and Gary Morrow, Ph.D.,
University of Rochester, Rochester, New York.

This study aimed to investigate the relationship of socio-demographic, health care and attitudinal variables to the use of techniques of early detection of cancer in a socio-economically homogeneous, largely white, employed middle class population.

543 teachers and administrators in two suburban Rochester school districts were surveyed to collect information on sociodemographic variables, health care variables (health status, source of health care, use of early detection techniques, "preventive orientation" of physician, satisfaction with care) and other attitudes and beliefs including some based on the Health Belief Model.

Almost all the population had a personal physician: 56% reported checkups at least annually and 40% of the women practiced BSE at least monthly. Both frequency of checkups and BSE practice were related to the "preventive orientation" of the physician, to satisfaction with care, and to the belief that checkups are worthwhile. In addition, increased frequency of checkups was related to sex (female), higher income and perceived accessibility of care and frequency of BSE was related to health concern.

The results suggest that, in individuals with a personal physician, the most important determinants of the use of cancer early detection techniques are related to qualities of the physician-patient relationship, including demonstration of the physicians concern with the importance of early detection.

if MD/nurse demonstrate
BSE => 1 patient

VIP What LMD

1/2 pt 13 had visited 110 2 banks before.

Effect of Breast Self-Exam Practices and Physician Examinations on Extent of Disease at Diagnosis.
E. M. Smith and A. M. Francis, Univ. of Wash. and Fred Hutchinson Cancer Research Center, Seattle, WA 98195.

To determine the relation between breast self-exam (BSE) practices and physician examinations on the extent of breast cancer at diagnosis, a sample of 350 SEER breast cancer cases from the Cancer Surveillance System in Seattle, Washington, were interviewed during 1977-78. It has been suggested that tumors detected by routine BSE or physician exam are more likely to be diagnosed at an earlier stage, which ultimately should result in higher survival rates than by those found accidentally. Method of detection was evaluated for its effect on extent of disease as measured by size of tumor, lymph node involvement, stage, and histological type. The data also provided an opportunity to evaluate the influence of patients' social-demographic characteristics on BSE and physician exams: age, race, education-occupation. Because there is suggestion that younger women - premenopausal - have histologically different, faster growing tumors, than do postmenopausal women, this effect was analyzed for its consequences on the extent of disease and examination practices as well.

Problems associated with studying BSE practices among cancer cases will be discussed together with results.

MUTAGENIC ACTIVITY OF NIPPLE ASPIRATES OF BREAST FLUIDS. A PRELIMINARY REPORT. N.L. Petrakis, M.D., C. Maack, Ph.D., R. Lee, B.S. and M. Lyon, M.S. Department of Epidemiology and International Health, University of California School of Medicine, San Francisco, California. (Supported by USPHS Grant CA 13556-07)

A variety of exogenously derived substances are secreted into breast fluids of adult nonlactating women. This secretory activity may provide the mechanism whereby initiating and promoting chemical substances can reach the breast epithelium (N.L. Petrakis, NCI Monograph 47:161-164, 1977). In the present study breast fluids were tested by the Ames salmonella mutagenesis test to determine if mutagenic substances are present.

Breast fluid samples were collected from women by employing a nipple aspirator. The samples were assayed for mutagenic activity both with and without microsomal S-9 activation employing several tester strains according to methods developed by Ames. A "positive" Ames test was recorded if the number of revertant colonies was at least 2 or more standard deviations above the mean number of spontaneous revertants of the controls.

Approximately 6.5% (18 of 276) of breast fluid samples tested had revertant colony levels significantly elevated above the controls. Preliminary attempts to relate positive tests to clinical, epidemiologic and social characteristics of the women suggest that positive tests may be related to middle age, higher income, and age at last pregnancy.

The nature and origin of the observed mutagenicity is unknown but may be derived from ingested or inhaled exogenous sources or be produced endogenously within the ductal system. These preliminary findings offer support for our hypothesis that the epithelium of the nonlactating adult human breast is exposed to potential carcinogens.

VITAMIN A AND LUNG CANCER. Curtis Mettlin, Ph.D.,
Saxon Graham, Ph.D. and Mya Swanson, B.A. Roswell Park
Memorial Institute, Buffalo, New York

To examine the role of dietary vitamin A in the etiology of lung cancer retrospective dietary and smoking data were gathered by interview from 292 males with lung cancer and 801 control patients with non-respiratory, non-neoplastic diseases at Roswell Park Memorial Institute, Buffalo, New York. A computed index of vitamin A intake was used to differentiate cases from controls. Lung cancer cases were found to have lower values than controls on an index of vitamin A intake. The reduced risk associated with vitamin A was most evident among heavier smoking men. Here, a dose-response relationship increasing to a relative risk of 2.4. for low values of the index was observed. Frequency of daily milk drinking was found to be lower among cases. Lower relative risk was found for frequent carrot consumption among heavy smokers. These findings are consistent with evidence from animal studies on the inhibition of tumor incidence by retinoids and with previous findings in prospective and retrospective epidemiologic studies.

Says

6 Studies

in pattern with

all by - unless the whole suggested

MAMMOGRAPHIC PARENCHYMAL PATTERNS AND RISK FACTORS FOR BREAST CANCER. Virginia L. Ernster, Ph.D., Susan T. Sacks, Ph.D., and Carrell A. Peterson, M.D., University of California School of Medicine, San Francisco, CA.

Mammography has been proposed as a screening device for identifying women at high risk of breast cancer on the basis of breast parenchymal patterns. The classification scheme which has received most attention includes 4 patterns of increasing breast duct prominence, ranging from N₁ (normal) to P₁, P₂ and DY (dysplasia). This study was designed 1) to test the claim that women who later develop breast cancer are more likely than controls to be classed into the P₂ and DY categories, and 2) to determine whether breast parenchymal patterns are related to known epidemiologic risk factors for breast cancer. The initial screening mammograms of 102 women who subsequently developed breast cancer were compared with those of 204 controls, 2 for each case matched on age and race, drawn from the same screening population. Mammograms of the noncancerous breast were used for each case. Case and control mammograms were intermixed and then read and classified by parenchymal type by a single radiologist. Parity status and family history of breast cancer were recorded for each woman. We found that cases and controls were similarly distributed by parenchymal type, and that the majority of women fell into what have been considered the high risk categories (P₂ and DY). Nulliparous women and women with a family history of breast cancer were much more likely than parous women and women with no family history, respectively, to fall into the P₂/DY categories. These results were very similar between cases and controls and suggest that earlier reports of increased cancer risk occurring among women in the P₂/DY categories may be based on a spurious association which fails to take into account such confounding variables as parity status and family history of breast cancer. Mammography for the sole purpose of assessing baseline parenchymal patterns may not be useful for predicting breast cancer risk.

DISTRIBUTION OF INCIDENCE CASES AND CONTROLS BY
BREAST PARENCHYMAL PATTERN

Parenchymal Pattern	Cases	Controls
N ₁	31.8%	27.3%
P ₁	9.1	14.4
P ₂	15.2	11.4
DY	43.9	47.0
Total	<u>100.0</u>	<u>100.0</u>

(odds ratio of P₂/DY pattern associated with cases compared to controls, analysis for matched triplets = 1.03)

PROPORTION OF INCIDENCE CASES AND CONTROLS WITH
P₂/DY BREAST PARENCHYMAL PATTERN BY PARITY STATUS

Parity Status	Cases	Controls
Nulliparous	87.5%	87.5%
Parous	52.0%	54.3%

PROPORTION OF INCIDENCE CASES AND CONTROLS WITH
P₂/DY BREAST PARENCHYMAL PATTERN BY FAMILY HISTORY
OF BREAST CANCER

Family History	Cases	Controls
Positive	69.6%	70.6%
Negative	53.5%	55.2%

EPIDEMIOLOGICAL FACTORS BEARING ON THE LATERALITY
OF BREAST CARCINOMA

Ruby T. Senie, M.A., Paul Peter Rosen, M.D., and
David Schottenfeld, M.D.

A study of the laterality of female breast carcinoma among patients with unilateral tumors treated at Memorial Hospital for Cancer and Allied Diseases between October 1976 and June 1978 confirmed the previously observed predominance of carcinoma in the left breast. This series of 980 revealed a left/right ratio of 1.3. 548 patients, 55.8% of those women diagnosed with unilateral disease, were affected on the left. Numerous pathological and epidemiological factors known to be related to the incidence of breast carcinoma were investigated in the total population and the subgroups formed by the breast affected in an effort to identify specific features associated with laterality. Some of the variables studied were religion, level of education, marital status, place of birth, family history, and blood type. Left sided breast carcinoma was associated with menarche after age 13. Taller patients were found to be more frequently affected on the left ($P < .05$). The fact that no significant correlation was observed with regard to weight at diagnosis or the Quetelet index suggests that some aspect of growth or maturation may have a bearing on the laterality of breast carcinoma.

THE TUMOR REGISTRY - AN INSTRUMENT IN CANCER PREVENTION
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The usefulness of a Tumor Registry is well known to epidemiologists but not to most clinicians even though the latter are the main providers of clinical data.

This paradoxical situation results from the fact that physicians are traditionally trained in the art of history-taking and physical examination but not in the organization and management of data. Because of the complexity and hazards of many new modalities of cancer treatment, clinicians are increasingly in need of registries or data systems to assist them in the care and follow-up of patients. Furthermore, with chronic diseases increasing, the nature of medical practice has shifted to long-term care of patients thus requiring continuity in recording medical information. A growing concern for primary and secondary prevention of cancer is developing among providers of health care; this preventive aspect of medicine also requires collection and analysis of relevant data. New etiological insights are still coming from bedside observations which the physician is frequently the only person to witness and record.

The purpose of this paper is to describe a newly developed training program in cancer data organization and management for medical, paramedical and public health students and professionals at Columbia University. The main thrust of the program is to formulate questions concerning the long-term management of cancer patients and epidemiological studies. Data for answering these questions need to be identified. The course also covers the organizational and technical aspects of data structuring and management.

This training program represents an innovative multidisciplinary effort with participation by clinicians, epidemiologists, environmental and computer scientists and tumor registry staff. Criteria for evaluating the usefulness of this program are being developed and will be discussed.

ANALYSIS OF THE BENEFITS OF MAMMOGRAPHIC
SCREENING FOR BREAST CANCER TO WOMEN UNDER
FIFTY YEARS OF AGE. Neil Dubin, Ph.D., New
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The benefits of mammographic screening for breast cancer to women under fifty years of age are analyzed by means of a probabilistic model developed by the author. The model is applied to previously unpublished data, provided by the HIP (Health Insurance Plan of Greater New York) breast cancer screening project, permitting a more precise stratification by age than in previous analyses. The predicted numbers of breast cancer cases and deaths well describe those actually observed. A decrease in the probability of dying of breast cancer, as well as an increase in life expectancy, is predicted for those women diagnosed by screening; however, the magnitude of the benefit to the entire screened population depends upon the assumptions made regarding the radiation risk attributable to the mammographic procedure itself.

ERRORS IN MEDICAL REASONING: A CASE STUDY OF MAMMOGRAPHY.
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A comprehensive review of the published literature on the use of mammography to screen for breast cancer and to perform differential diagnosis of patients with breast signs and symptoms reveals that many authors have made errors in the interpretation of data and the drawing of conclusions. The errors take many forms that include (1) the ignoring of important factors when drawing conclusions, (2) the drawing of conclusions that are unjustified by the data presented, (3) incorrect experimental designs, (4) incorrect statistical analyses, (5) incorrect economic analyses, and (6) the confusing of probabilities. For example, one author wrote that "In women with proved carcinoma of the breast, in whom mammograms are performed, there is no x-ray evidence of malignant disease in approximately one out of five patients examined. If then, on the basis of a negative mammogram, we are to defer biopsy of a solid lesion of the breast, then there is a one in five chance that we are deferring biopsy of a malignant lesion."¹ The author has incorrectly equated the probability of a negative x-ray in a woman with cancer, with the probability of cancer in a woman with a negative x-ray. It is impossible to tell the extent to which these errors in reasoning affect the quality and cost of medical care, but they raise questions about the process by which important clinical decisions are made.

1. HEC: Mammography in its Proper Perspective, Surg. Gynec. Obstet. 134:97-98, 1972.

UTILIZATION OF A BLADDER CANCER SIMULATION MODEL FOR SCREENING STRATEGY ASSESSMENT. Leon B. Ellwein, Ph.D. and Gilbert H. Friedell, M.D. Science Applications, Inc., La Jolla, CA and St. Vincent Hospital, Worcester, MA.

A computerized simulation model was developed and its application as a planning tool demonstrated by analyzing various bladder cancer screening strategies. The computerized model includes both the disease process and all interventions relevant to management of the cancer problem: the development and progression of the disease; screening, diagnosis and therapeutic interventions; post-treatment disease persistence or recurrence; follow-up; etc. Preliminary model based analyses are used to propose a cytologic screening strategy that has the potential for a reduction of bladder cancer mortality by one-half in a normal risk population. The associated increase in life span (median age at death) among those being diagnosed is on the order of one extra year. Impact on cost and quality of life indicators, such as the change in the expected number of cystectomies, is reviewed. The potential for significant favorable impact suggests that critical review of the subjective model inputs be undertaken to determine the extent to which results are sensitive to input changes representative of the range of expert opinion.

DELAY IN DIAGNOSIS OF BREAST CANCER AND STATUS OF AXILLARY NODES. P.E. BURNS, M.D.; S. GHITTER, B. Sc.; A.W. LEES, M.D.; M. GRACE, Ph.D. CROSS CANCER INSTITUTE, EDMONTON, ALBERTA, CANADA.

The study investigated the effect of medical or patient delay in diagnosis of breast cancer on tumor size and axillary node status. Since breast self examination could reasonably be expected to reduce delay, its relationship to tumor size and axillary node status was also examined. The study sample consisted of 671 northern Albertan women with breast cancer who attended the Cross Cancer Institute between 1971 and 1976 and for whom the relevant dates to judge delay in diagnosis were available. Two hundred and seventy-four had histologically proven positive axillary nodes at the time of biopsy, while 397 had no node involvement at histological examination. Delay up to 12 months resulted in a steady increase in the proportion of women presenting with positive axillary nodes ($p < 0.01$) and the proportion with large tumors (greater than 5 cm. diameter) ($p < 0.02$). Of particular interest is the influence of relatively short delays of 1 to 3 months on these two factors, this probably being related to the detection of fast growing tumors during this period. Conversely, delay of between 13 and 40 months showed a reversed trend which was possibly a result of the detection of slow growing tumors.

Breast self examiners had proportionately smaller tumors than did non-breast self examiners ($p < 0.05$) and thus the chance of axillary node involvement was reduced.

The evidence presented suggests that watching a lump for even short periods of time is to be discouraged as should the lump be a cancer the prognosis is worsened by two factors, namely size and axillary node status. Education of women and the medical profession would help reduce the delay time significantly.

THE RELATIONSHIP BETWEEN CIGARETTE SMOKING AND LUNG CANCER INCIDENCE IN ALLEGHENY COUNTY, PENNSYLVANIA. Gene B. Weinberg, M.P.H., Lewis H. Kuller, M.D. and Carol K. Redmond, Sc.D. University of Pittsburgh, Graduate School of Public Health, Pittsburgh, PA.

This study relates observed differences in lung cancer incidence and mortality rates between geographic areas of Allegheny County to expected differences in exposure to cigarette smoke in white males 35 years of age and older. The results of the Third National Cancer Survey have shown substantial variations in lung cancer incidence rates within the Pittsburgh SMSA. Two areas showing over a two-fold difference in age-adjusted rates for white males (129.5 compared to 63.7 per 100,000) were selected for study. The consistency of the difference in risk over time was established using incidence and mortality data from other years. Estimates of smoking experience by age group were determined in the two areas by survey sampling methods of white males 35 years of age and older by telephone interview. Detailed interviews were conducted of present and past smoking experience. Information was also obtained on length of residence and occupation. The findings show the area with the higher lung cancer rates (within Pittsburgh City) also has a significantly greater proportion of males currently smoking and who ever had smoked cigarettes compared to the more rural area in the suburbs. The difference in the proportion of current smokers by age group is: ages 35-44, 24.3%; ages 45-54, 22.7%; ages 55-64, 21.6%; ages 65 and older, 17.6%. The demographic characteristics of the two areas were also examined. The area within the City of Pittsburgh is a low socioeconomic area with a high proportion of workers employed in the steel industry as operatives and laborers. Whereas the area in the suburbs with the low lung cancer risk is upper middle class with a high proportion of workers employed in professional and managerial positions.

SERENDIPITY OR COINCIDENCE? A NEW OSTEOSARCOMA/MALFORMATION SYNDROME. Stanley H. Schuman, M.D. and William E. Burton, D.M.D. Medical University of South Carolina, Charleston, SC.

Facial resemblance of two unrelated girls requiring amputations in 1975-76 triggered investigation of the following similarities:

1. craniofacial dysplasia
2. genitourinary anomalies requiring surgery
3. audiovisual defects
4. familial neoplasia, especially breast cancer
5. absence of consanguinity

Additional kindreds and fibroblast study are needed. Theory would suggest a subset of osteosarcoma cases with DNA-repair defects, characteristic developmental anomalies, and possible tumor-specific cytological characteristics.

The midface syndrome includes micrognathia, arched palate, crowded teeth, small low set ears, narrowed auditory canals and prominent "beak-like" nose.