

ANNUAL REPORT

DEPARTMENT OF EPIDEMIOLOGY

July 1, 1968 - June 30, 1969

Highlights of the Year

The continued development of the Department's involvement in Health Services Research has been rewarding.

There has been substantial progress toward the development of courses specifically tailored to the needs of other departments within the School. In the past year, Epidemiology of Population was designed and offered. This year, Environmental Epidemiology provided a similar interest area for students in Environmental Sciences and Engineering.

In May, the Department acted as host for the Second Annual Meeting of the Society for Epidemiologic Research which attracted approximately 200 epidemiologists primarily from the United States, and also members from Canada, Argentina and Israel.

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## DEPARTMENT OF EPIDEMIOLOGY

July 1, 1968 - June 30, 1969

I. ORGANIZATIONA. FULL-TIME FACULTY

John C. Cassel, M.B.B.Ch., M.P.H., Professor and Chairman  
Evelyn L. Anderson, M.P.H., Research Associate  
Caroline Becker, M.D., Assistant Professor  
Richard Carter, M.D., Assistant Professor  
Frank Cordle, M.P.H., Research Associate  
Joan C. Cornoni, M.P.H., Instructor  
Claude W. Drake, D.D.S., M.P.H., M.S., Assistant Professor  
John T. Fulton, D.D.S., Professor  
Barbara S. Hulka, M.D., M.P.H., Assistant Professor  
C. David Jenkins, Ph.D., Associate Professor  
Berton H. Kaplan, Ph.D., Associate Professor  
Edward G. McGavran, M.D., M.P.H., Professor  
Abdel R. Omran, M.B.B.Ch., Dr. P.H., Associate Professor  
Ralph C. Patrick, Ph.D., Associate Professor  
Philip S. Spiers, Ph.D., Assistant Professor  
Cecil Slome, M.B.Ch., Dr.P.H., Associate Professor  
Gordon Stewart, M.D., Professor  
Herman A. Tyroler, M.D., Professor  
A. Wouter Voors, M.D., Dr.P.H., Assistant Professor  
Stephen J. Zyzanski, Ph.D., Assistant Professor

B. PART-TIME FACULTY

Hilliard D. Estes, M.D., M.P.H., Adjunct Associate Professor  
Curtis G. Hames, M.D., Visiting Associate Professor  
Siegfried Heyden, M.D., Priv. Docent, Adjunct Associate  
Professor  
Vaun A. Newill, M.D., Adjunct Associate Professor  
Carl M. Shy, M.D., Dr.P.H., Adjunct Assistant Professor  
David H. Stoddard, M.D., M.S., Adjunct Associate Professor  
Joe D. Wray, M.D., M.P.H., Adjunct Associate Professor

C. OTHER FULL-TIME PERSONNEL

Brian Butcher, Laboratory Room Supervisor  
Lindsay Cleveland - Research Associate  
Joan Curtis - Research Associate

H. Max Drake - Research Associate  
 Wendy AM French - Secretary  
 Marilyn Goodman - Research Associate  
 Rena Headen, Key Punch Operator  
 Mary Johnson - Research Assistant  
 Violet Krall - Secretary  
 Jo Maready - Research Associate  
 Gloria Martin - Key Punch Operator  
 Kathy McNulty - Secretary  
 E. Jay Miller - Research Associate  
 Harriet Miller - Research Associate  
 Eva Morris, Secretary  
 Lilley Oey, Research Associate  
 Sandra Saaed - Research Associate  
 Shirley Thompson - Research Associate  
 Lucille Turner - Laboratory Assistant  
 Susan K. Varga - Statistical Aid  
 Judy Venning - Clerk  
 Betty Warren - Secretary  
 Linda Warren - Secretary  
 Linda Workman - Secretary

D. OTHER PART-TIME PERSONNEL

Sylvia Barclay - Typist  
 Robert Blair - Research Assistant  
 Harriet Herrin - Programmer  
 Celia Looney - Secretary  
 Carol Newman - Programmer  
 Abbey Steele - Typist  
 Nancy Ward - Typist  
 Carol Wiggs - Research Assistant

E. SUMMARY OF PERSONNEL

<u>Full-Time Faculty</u>	<u>Part-Time Faculty</u>	<u>Other Full-Time Personnel</u>	<u>Other Part-Time Personnel</u>
20	7	24	8

TOTAL: 59

## II. BUDGETS AND GRANTS

<u>SOURCE</u>	<u>PERSONNEL</u>	<u>FELLOW- SHIPS</u>	<u>NON- SALARY</u>	<u>RESEARCH AND/OR TRAINING</u>	<u>OVERHEAD</u>	<u>TOTAL</u>
NIH	14,185		2,315	Training	1,320	17,820
NIH	47,300	2,936	9,569	Training	4,737	64,542
NASA	20,900		16,147	Research	6,977	44,024
NIH	33,000	33,005	7,954	Training	5,533	79,492
NIH	26,500	33,250	4,236	Training	4,735	68,721
Health Manpower	3,750		13,960	Training	1,256	18,966
Health Manpower	17,793		4,334	Research	4,425	26,552
AAGP	13,716		13,459	Research	4,592	31,767
RTI	7,600		944	Teaching		8,544
National Health Institute	19,800		6,790	Research	6,629	33,219
American Heart	7,320		1,680	Research	900	9,900
University	77,482		2,550	Teaching		80,032
Rhodes	42,409		4,800	Research Training		47,209
General Research	21,033					21,033
Total	352,788	69,191	88,828		41,104	551,821

SUMMARYTOTAL FUNDS

University Funds	80,032
Rhodes Funds	47,209
General Research	21,033
Department Grants	403,547

### III. PHYSICAL FACILITIES

Currently sixteen full-time faculty members are occupying thirteen research training offices in Rosenau Hall and one office in the Carolina Population Center. Four faculty members are sharing two offices. With the anticipation that at least two new faculty members will join the Department in the coming year, four additional offices will be required in order to relieve current crowding and to provide adequate space for new faculty.

Laboratory and data-handling areas remain housed in the same space as in previous years, even with the increased use of these areas.

### IV. INSTRUCTIONAL ACTIVITIES

During the current year there have been 26 students majoring in the field of epidemiology. Two of these students will complete the requirements for the MSPH degree by August, 1969. One of these students will complete the requirements for the MPH degree by June, 1969, and 6 by August, 1969. Three of these students have completed their work for the Ph.D. degree and will receive the degree in June, 1969. Five students have finished all course work for the Ph.D. degree, are working on their dissertations, and plan to receive their degrees in August, 1969.

Number of Courses Given. . . . .	.19
Number of Majors in Department . . . . .	.26
MSPH. . . . .	2
MPH . . . . .	7
MS. . . . .	1
Dr.P.H. . . . .	6
Ph.D. . . . .	10
Total Enrollment in Department Courses . . . . .	484

#### A. Enrollment of major students:

Fall, 1968 (2 MSPH, 6 MPH, 1 MS, 6 Dr.P.H., 10 Ph.D.) . . . . .	.25
Spring, 1969 (2 MSPH, 7 MPH, 1 MS, 6 Dr.P.H., 10 Ph.D.) . . . . .	.26
Summer, 1969 (estimated: 2 MSPH, 5 MPH, 1 MS, 6 Dr.P.H., 8 Ph.D.) . . . . .	.22
Men (1 MSPH, 6 MPH, 6 Dr.P.H., 3 Ph.D.) . . . . .	.16
Women (1 MSPH, 1 MPH, 1 MS, 7 Ph.D.) . . . . .	.10
Undergraduate. . . . .	0
Graduate (2 MSPH, 7 MPH, 1 MS) . . . . .	.10
Doctoral (6 Dr.P.H., 10 Ph.D.) . . . . .	.16

## Place of Residence:

North Carolina . . . . .	7
Southern States . . . . .	7
Alabama . . . . .	.1
District of Columbia . . . . .	.1
Georgia . . . . .	.2
Missouri . . . . .	.1
Virginia . . . . .	.2
Other States . . . . .	8
California . . . . .	.1
Colorado . . . . .	.1
Illinois . . . . .	.1
Massachusetts . . . . .	.1
Michigan . . . . .	.1
Montana . . . . .	.1
New Mexico . . . . .	.1
Pennsylvaniz . . . . .	.1
Other Countries . . . . .	4
Afghanistan . . . . .	.1
France . . . . .	.1
United Arab Republic . . . . .	.2

## Courses offered in the Department of Epidemiology and enrollment:

<u>Course Number</u>	<u>Title</u>	<u>Enrol- ment</u>
140	Problems in Epidemiology	18
141	Problems in Epidemiology	2
160	Principles of Epidemiology	172
161	Epidemiology in Population Dynamics and Family Planning	45
162	Epidemiology in Environmental Health	17
168	Behavioral Science Measurement in Health Programs and Research	20
211	Epidemiology of Communicable Disease	19
260	Epidemiological Foundations for Disease Control Programs	17
261	Dental Epidemiology	5
262	Epidemiology of Program Acceptance	69
264	Culture and Health	12
265	History of Epidemiology	13
266	Epidemiological Investigation	18
300	Seminar in Epidemiology	22
315	Field Training in Epidemiology	4
360	Research in Epidemiology	15
361	Research in Epidemiology	1
393	Masters Thesis	11
394	Doctoral Dissertation	26

## B. Degrees estimated through August, 1969:

	Ph.D.	Dr.P.H.	MPH	MSPH	TOTAL
January					
June	3		1		4
August	5		6	2	13

- C. Students receiving less than one semester's instruction from faculty:

<u>Name of Course</u>	<u>Hours of Instruction</u>	<u>Number of Students</u>
Nurse Evaluation Program	40	26
Short Course in Health Administration in Program Evaluation	15	40
Principles of Public Health	40	26
Prevention of Dental Caries	20	12
Methods of Epidemiology for Environmental Health Personnel	10	30
Summer Medical Student Program in Population Epidemiology	30	3

- D. Students outside the Department of Epidemiology taking courses especially set up for them by our faculty:

<u>Name of Course</u>	<u>Hours of Instruction</u>	<u>Number of Students</u>
PALP 238	17	7
PALP 238	24	7
Epidemiology for 2nd year Medical Students	8	70
Man and His Environment for 3rd year Medical Students	2	40
EPID 162 for Environmental Science and Engineering Students	48	16
Population Seminar for Graduate Students and Faculty	9	70
Nutrition 240	22	8
PUBH 100	15	25

- E. Students from other universities receiving instruction set up for them at those universities:

<u>Name of Institution</u>	<u>Course or Class</u>	<u>Hours</u>	<u>Number of Students</u>
Duke University	Medical Students	4	75
Duke University	2nd year Medical Students	4	75
Institute of Rural Health, Gandhigram, India	Faculty Seminar	24	30

F. Students from other departments and schools in the University enrolled in regular Public Health courses in the School of Public Health:

<u>Course Number</u>	<u>Breakdown of Students</u>	<u>Hours</u>	<u>Number of Students</u>	<u>Total</u>
EPID 140	5-Graduate School	75	5	375
EPID 141	1-Graduate School	45	1	45
EPID 160	7-Graduate School	30	10	300
	1-N.C. State			
	1-Pharmacy			
	1-Business Admin.			
EPID 161	4-Graduate School	45	4	180
EPID 162	2-Graduate School	30	2	60
EPID 168	4-Graduate School	45	4	180
EPID 211	1-Graduate School	30	1	30
EPID 262	8-Graduate School	30	8	240
EPID 264	2-Graduate School	45	2	90
EPID 360	4-Graduate School	45	4	180
TOTALS		<u>420</u>	<u>41</u>	<u>1680</u>

V. DEPARTMENT ACTIVITIES IN THE GREATER UNIVERSITY

- Dr. Casse: Institute for Environmental Health Studies, Univ. of North Carolina, 1968-, Member of Advisory Board  
 Committee Division of Education and Research in Community Medical Care, Univ. of North Carolina, 1968-, Member - Advisory Board  
 Committee on Group Biology, Medical School Curriculum Review, Univ. of North Carolina, 1968-, Chairman
- Dr. Becker: Representative for School of Public Health on the Health Sciences Library Committee  
 School of Public Health Library - Reading Room Committee  
 School of Public Health Shop Committee
- Dr. Fulton: Interdepartmental Graduate Programs in Biology-- Finance Committee



- Dr. Hulka     Member, Faculty Council
- Dr. Kaplan    Member, University Committee to Study the Social  
                  Sciences
- Dr. Tyroler   Member of the Steering Committee - NASA  
                  Sustaining University Program in Space Science

VI. SERVICES TO STATE AND NATION

- Dr. Cassel    American Journal of Epidemiology, 7-1-67 - 6-30-70,  
                  Associate Editor  
                  Divisor of Environmental Health Sciences, Nat-  
                  ional Environmental Health Scientific Center,  
                  1966-, Consultant  
                  National Institute for Mental Health, 1965-,  
                  Consultant  
                  Office of Economic Opportunity, 1966-, Consultant  
                  Regional Medical Program Georgia, 1967-, Consultant  
                  Co-ordinator for Second Annual Meeting of the  
                  Society for Epidemiologic Research May 2-3, 1969  
                  U.S. Public Health Service (Cooperative Drug  
                  Study in Hypertensive Disease) 1967-, Consultant  
                  World Health Organization, 1966-, Consultant
- Dr. Becker    Co-ordinator for Second Annual Meeting of the  
                  Society for Epidemiologic Research May 2-3, 1969
- Dr. Fulton   National Advisory Public Health Training Council  
                  Editorial Board, A.M. Public Health Association
- Dr. Jenkins   Appointed member of the Editorial Board of Psycho-  
                  somatic Medicine, the Journal of the American  
                  Psychosomatic Society, March, 1969  
                  Chaired a Work-in-Progress Session at the Annual  
                  Meeting of the Society for Epidemiological  
                  Research  
                  Elected Delegate from the AHA Council on Epidemiol-  
                  ogy to the American Heart Association Assembly,  
                  March, 1969  
                  Elected Presiding Officer, Committee of Social  
                  and Behavioral Scientists, in the American  
                  Public Health Association, Nov. 1968 - Nov. 1969

Entries re- American Heart Association  
 Entries re- the journal: Psychomatic Medicine  
 Lecture to North Carolina Association of Health  
 Directors, June 6  
 Licensed as a Practicing Psychologist by North Caro-  
 lina State Board of Examiners of Practicing  
 Psychologists, March, 1969, (under new law)  
 Presiding Officer: Social and Behavioral Scientists  
 in APHA

- Dr. Tyroler Consultant to the National Center for Health Services  
 Research and Development, U.S.P.H.S. 1968-  
 Chairman, Ad Hoc Committee on End Results Evaluation  
 of Health Services  
 Member, Health Services Research Training Grants  
 Committee, U.S.P.H.S. 1967-  
 North Carolina Regional Medical Program: Epidemio-  
 logic Consultant 1967-, Member of the Board of  
 Directors 1968-, Member of the Executive Committee  
 1968-
- Dr. Voors Leader, participant or consultant in various research  
 projects undertaken by the Triangle Research  
 Institute under contract with the Federal Gov-  
 ernment

VII. RESEARCH PROJECTS

- Dr. Cassel Cardiovascular Disease Epidemiology - Evans County  
 Health Consequences of Rapid Culture Change  
 Health Services Research
- Mr. Corfle Health Services Research
- Dr. Becker Survey of Regulations for Food Handler (at State and  
 Local level)  
 Medical Expedition to Peten, Guatemala 1968
- Dr. Fulton Natural History of Dental Disease  
 Dental Manpower in North Carolina

- Dr. Huiká: Health Services Research  
Council Cancer Control
- Dr. Jenkins Behavioral Science Consultant to National Tuberculosis Association for Experimental Clinics Project  
Consultant: National TB and Respiratory Disease Association's "Experimental Clinics Project"  
Consultant: Western Collaborative Group Study and the Harold Brunn Institute, San Francisco  
Epidemiological and Psychological Consultant to the Western Collaborative Group Study (Cardiovascular) and The Harold Brunn Institute, Mt. Zion Hospital & Medical Center, San Francisco, California  
Principal Investigator: "Behavioral Factors in Coronary Heart Disease," funded by U.S.P.H.S.  
Principal Investigator: "Psychological Factors in Coronary Heart Disease Risk Factors," funded by the American Heart Association
- Dr. Kaplan Russell Sage Grant to study the place of social Psychiatry in the law curriculum  
Sociologist, Evans County Study of Cardiovascular Diseases
- Dr. Omran The Epidemiologic Transition. A continued project sponsored by the Carolina Population Center.  
Mental illness as a sequelae to scalp radiation.  
A continued project with New York University Medical Center.  
"The Population of Egypt: Problems and Prospects." A project in progress since 1968.  
"The Population of the Near East: Problems and Prospects." A project just approved by A.I.D.  
Tuberculosis in Panas Tuluk, South India. In collaboration with Gandhigram Institute of Rural Health and Family Planning.
- Dr. Spiers Lymphoblastic Leukemia of Childhood and Infectious Disease Models  
The Association of Fetal and Infant Mortality Rates with Birth Intervals
- Dr. Tyroler Principal investigator of a research program in health consequences of space age activity, 1965-

Dr. Voors      Infection surveillance of North Carolina Memorial  
                  Hospital  
                  Risk factor analysis of coronary heart disease (West-  
                  ern Cooperative Group Study)

Dr. Zyzanski    Research Study: behavioral factors associated  
                  with serum lipids  
                  Research Study: behavioral factors in coronary  
                  heart disease

VIII. PUBLICATIONS

Dr. Cassel      Use of Vital and Health Records in Epidemiologic Research. A Report of the U.S. National Committee on Vital and Health Statistics. National Center for Health Statistics, Series 4, No. 7, Department of Health, Education, and Welfare, Public Health Service. (Contributor) 1968.

Dr. Hulka      (With Irene Pace.) "Why Pelvic Examinations in Cervical Cancer Screening?" American Journal of Public Health, 58:10 (October, 1968), 1854-1863.

Dr. Jenkins    (With S.J. Zyzanski.) "Dimensions of Belief and Feeling Concerning Three Diseases: Poliomyelitis, Cancer, and Mental Illness." Behavioral Science, 13 (September, 1968), 372-381.

(With R.H. Rosenman, and S.J. Zyzanski.) "Cigarette Smoking: Its Relationship to Coronary Heart Disease and Related Risk Factors in the Western Collaborative Group Study." Circulation, 38 (December, 1968), 1140-1155.

(With C.G. Hames, S.H. Zyzanski, R.H. Rosenman, and M. Friedman.) "Psychological Traits and Serum Lipids: I. Findings From the California Psychological Inventory." Psychosomatic Medicine, 31 (March, 1969), 115-128. (Supported in part by AHA-NCHA Grant, 68-668.)

(With A.W. Voors, G.T. Stewart, R.R. Gutekunst, and C.F. Moldow.) "Respiratory Infection in Marine Recruits: Influence of Personal Characteristics." American Review of Respiratory Disease, 98 (November, 1968), 801-809.

(With A.W. Voors, M.W. Rytel, W.E. Pierce, and G.T. Stewart.) "Prediction of Sickness in Naval Recruits by Minnesota Multiphasic Personality Inventory Scores." American Review of Respiratory Disease, 99 (1969), 420-425.

Dr. Kaplan    Issue editor. Organizations and Development. Administrative Science Quarterly, 13:3 (December, 1968), 370-542.

"Organizations and Development," (editorial). Administrative Science Quarterly, 13:3 (December, 1968), 368-369.

"Commentary on Organizations and Development. Administrative Science Quarterly, 13:3 (December, 1968), 484-490.

"A Non-Weberian Model of Bureaucracy: The Case of Development Bureaucracy." Administrative Science Quarterly, 13:3 (December, 1968), 471-483.

(With P. Goethals.) "U.N.C. Medical Anthropology Program." Proceedings of the Southern Anthropological Society, 1 (1968).

"The Natural History of a Law and Social Psychiatry Program." Research Previews, UNC Institute of Research in Social Science, (April, 1968).

Dr. Omran

"Epidemiological Aspects of Health and Population Dynamics." Bulletin, Gandhigram Institute of Rural Health and Family Planning, IV:1 (April, 1969).

(With R.E. Albert.) "Follow-up Study of Patients Treated by X-Ray Epilation for Tinea Capitis: I. Population Characteristics, Posttreatment Illness, and Mortality Experience." Archives of Environmental Health, 17 (December, 1968).

(With R.E. Albert, E.W. Brauer, N.C. Cohen, H. Schmidt, D.C. Dove, M. Becker, R. Baumring, and R.L. Bauer.) "Follow-up Studies of Patients Treated by X-Ray Epilation for Tinea Capitis: II. Results of Clinical and Laboratory Examinations." Archives of Environmental Health, 17 (December, 1968).

"Iran, Future Problem - Present Action." Mid-East: A Middle East North African Review, III:5 (September-October, 1968).

(With Carolina Population Center Staff, Dr. Moyo Freymann, editor.) "Approaches to the Human Fertility Problem." Prepared for the United Nations Advisory Committee on the Application of Science and Technology to Development, (October, 1968).

"Epidemiology and Population Theory." Bulletin, Gandhigram Institute of Rural Health and Family Planning, IV:2 (April, 1969), 1-20.

"The Epidemiologic Transition." Bulletin, Gandhigram Institute of Rural Health and Family Planning, IV:2 (April, 1969), 21-61.

"The Health Theme and Family Planning." Bulletin, Gandhigram Institute of Rural Health and Family Planning, IV:2 (April, 1969), 62-77.

Dr. Tyroler "Epidemiologic Studies Using a Papago Indian Population Register." Population Index, (July, 1967).

(With H.L. Smith.) "Epidemiology and Planning for the North Carolina Regional Medical Program." American Journal of Public Health, 58:6 (June, 1968), 1058-1067.

(With E. Boyle, C. Thompson.) "Prevalence of the Sickle Cell Trait in Adults of Charleston County, S.C." Archives of Environmental Health, 17 (December, 1968), 891-898.

Dr. Voors "A Computer Application of Knox's Test of Clustering." Institute of Statistics Mimeo Series, No. 564, University of North Carolina, (1968).

(With G.T. Stewart.) "Biomathematical Analysis of Mycoplasmal Infection in Marine Recruits." American Review of Respiratory Diseases, 97 (1968), 515-523.

(With G.T. Stewart.) "The Statistical Analysis of Staphylococcal Infection in Hospital Patients in Relation to Use of Antibiotics and Other Factors." Journal of Hygiene, Cambridge, 66 (1968), 175-183.

(With G.T. Stewart, R.R. Gutekunst, C.F. Moldow, and C.D. Jenkins.) "Respiratory Infection in Marine Recruits--Influence of Personal Characteristics." American Review of Respiratory Diseases, 98 (1968), 801-809.

(With G.T. Stewart, C.D. Jenkins, R.R. Gutekunst, and C.F. Moldow.) "Determinants of Sickness in Marine Recruits." American Journal of Epidemiology, 89 (1969), 254-263.

(With M.W. Rytel, C.D. Jenkins, W.E. Pierce, and G.T. Stewart.) "Prediction of Sickness by MMPI Scores in Naval Recruits." American Review of Respiratory Diseases, 99 (1969), 420-425.

(With E.L. Hill, R.O. Lyday, Jr., J.N. Pyecha, J.B. Hallan, J.T. Ryan, and C.N. Dillard.)  
National Emergency Health Preparedness Study Including the Development and Testing of a Total Emergency Health Care System. Research Triangle Institute final report R-OU-332, Research Triangle Park, North Carolina, (1968).

Dr. Zyzanski (With C.D. Jenkins.) "Dimensions of Belief and Feeling Concerning Three Diseases, Poliomyelitis, Cancer, and Mental Illness: A Factor Analytic Study." Behavioral Science, 13 (1968), 372-381.

(With C.D. Jenkins and R.H. Rosenman.) "Cigarette Smoking: Its Relationship to Coronary Heart Disease and Related Risk Factors in the Western Collaborative Group Study." Circulation, 38 (December, 1968), 1140-1155.

(With C.D. Jenkins, C.G. Hames, R.H. Rosenman, and M. Friedman.) "Psychological Traits and Serum Lipids: Findings from the California Psychological Inventory." Psychosomatic Medicine, 31 (March, 1969), 115-128.

#### IX. SCIENTIFIC PAPERS PRESENTED

Dr. Jenkins (With R.H. Rosenman, M. Friedman, and R. Straus.) "Coronary Heart Disease in a Five-Year Prospective Study." Paper presented at the American Heart Association Meetings, Miami Beach, Florida, November 19-20, 1968.

"Psychological Traits and Serum Cholesterol: A Study in Behavioral Epidemiology." Paper presented in session on "Epidemiologic Studies of Cardiovascular Disease: Developments and Problems," at the meetings of the American Public Health Association, Detroit, Michigan, November 11, 1968.

(With S.J. Zyzanski, R.H., and M. Friedman.) "Recent Developments in Defining and Measuring Behavioral Risk Factors in Coronary Heart Disease." Paper presented at the American Psychosomatic Society Annual Meeting, Cincinnati, Ohio, March 28, 1969.



(With S.J. Zyzanski.) "Behavioral Science Frontiers in Medicine and Public Health." Paper presented at the School of Public Health, Tulane University, New Orleans, Louisiana, March, 1969.

(With S.J. Zyzanski, and R. H. Rosenman.) "Progress Toward Validation of a Computer Scored Test for the Coronary-Prone Behavior Pattern." Paper presented at the AHA Conference on Cardiovascular Epidemiology, New Orleans, Louisiana, March 4, 1969.

"The Epidemiology of Public Response." Paper presented at Sixth Annual Immunization Conference, sponsored by the National Communicable Disease Center, Atlanta, Georgia, March 13, 1969.

Dr. Kaplan "The Variety of Forms of Religious Adaptation to Urbanization." Paper presented at the Duke Symposium on Religious Continuity and Change in the South, January, 1969.

Dr. Omran "The Epidemiologic Transition: A Conceptual Model of the Epidemiology of Population Change." Paper presented at the Second Annual Meeting of the Society for Epidemiologic Research, Chapel Hill, North Carolina, May, 1969.

Dr. Tyroler "Social Factors in the Epidemiology of Air Pollution." Paper presented for a course on "Medical and Biological Aspects of Air Pollution," at the National Air Pollution Control Administration, Research Triangle Park, North Carolina, April 17, 1969.

"Blood Pressure, Serum Cholesterol, and Weight in Relation to Possession of the Sickle Cell Trait in Charleston County, South Carolina, Heart Study." Paper presented at the Conference on Cardiovascular Disease Epidemiology, New Orleans, Louisiana, March 4, 1969.

Dr. Voors "Quantitative Evaluation of a Cervical Cytology Screening Program." Paper presented at a Work-in-Progress Session of the Annual Meeting of the Society for Epidemiologic Research, Chapel Hill, North Carolina, May, 1969.

"The Nature of the Exposure Leading to Surgical Hospital Infection." Paper presented at the Annual Meeting of the Society for Epidemiologic Research, Chapel Hill, North Carolina, May, 1969.

X. FACULTY APPOINTMENTS AND RESIGNATIONS

Appointments:

Mr. Frank Cordle, Research Associate in Epidemiology, December 1, 1968.

Dr. Claude Drake, Assistant Professor of Epidemiology (with a joint appointment in the School of Dentistry), August 1, 1968.

Resignations:

Dr. Richard Carter, Assistant Professor of Epidemiology, July, 1968.

Dr. Gordon Stewart, Professor of Epidemiology, July, 1968.

XI. NEEDS AND DIRECTION OF DEVELOPMENT

Program development in the Department of Epidemiology has continued in the general area of a multi-disciplinary approach to the current major health problems--local, national and international. The area of more recent development is in Health Services Research, which involves activities in the Regional Medical Program and the American Academy of General Practice study, in addition to the Health Service Research Center.

A new research and training area of the Department has been in the field of Environmental Epidemiology. This approach strives to combine the bio-medical factors, the physical-chemical factors, the behavioral-social factors with the principles and methodological approach of epidemiology and biostatistics.

It is anticipated that development will occur simultaneously in these three general areas.