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TITLE: Pharmacists as Health Educators and Risk Communicators in the Prevention of Prostate Cancer

PRINCIPAL INVESTIGATOR: Dr. Cynthia A. Warrick

CONTRACTING ORGANIZATION: Howard University Washington, DC 20059

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PREPARED FOR: U.S. Army Medical Research and Materiel Command Fort Detrick, Maryland 21702-5012

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Pharmacists as Health Educators and Risk Communicators in the Prevention of Prostate Cancer

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Fort Detrick, Maryland 21702-5012

This report contains colored photos

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The purpose of this study is to determine if and how pharmacists can play a significant part in the prevention of prostate cancer. The study is divided into three phases. Phase 1 (Year 1) involved the identification of community pharmacists who are willing to serve as health educators on prostate cancer in the community-pharmacy setting. A cover letter, two questionnaires and stamped return addressed envelopes were mailed to 150 randomly selected pharmacies in the Washington, D.C. area (D.C. and P.G. County Maryland). Additionally, pharmacies located in predominantly African American zipcodes were also mailed questionnaires to make a total of 192. Pharmacists who respond to the survey and indicate a willingness to become prostate cancer health educators, will be chosen to participate in phases II and III of the study. Following the initial mailing, 24 surveys were returned. Follow-up phone calls, pharmacy visits, and a second mailing of 50 produced a total return of Ninety-one (91) questionnaires. Out of the 91 returned surveys, 31 pharmacists indicated they would participate in the prostate cancer education/training program. These pharmacists will be contacted to participate in Phase 2 of the project.
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Introduction

The research study, "Pharmacists as Health Educators and Risk Communicators in the Prevention of Prostate Cancer" is a prostate cancer education for prevention project. The principle investigator is Cynthia Warrick, Assistant Professor, Department of Clinical & Administrative Pharmacy Sciences, School of Pharmacy, Howard University. This study proposes to define how pharmacists can play an integral role in the early detection and prevention of prostate cancer. The specific aims of this research study are: 1. To identify community pharmacists who are willing to serve as health educators and risk communicators on prostate cancer; 2. To design a program to educate and train pharmacists in risk communication and prostate cancer; and 3. To design a format whereby pharmacists are able to perform health education on prostate cancer in the community pharmacy setting. This study will be conducted in three phases: Phase I is the development, administration, and evaluation of a survey instrument that will assess pharmacists' willingness to counsel on prostate cancer, their present knowledge about prostate cancer, their interests in education programs on prostate cancer, and the feasibility of conducting public education in the community pharmacy setting. Phase II is the design, pilot testing, and evaluation of a prostate cancer education and communication program that will be used to educate pharmacists on prostate cancer and how this information should be communicated to the public. It will involve videotaped lectures that can be viewed through television and computer formats. Phase III is the design, testing, and evaluation of the prostate cancer implementation program. This part of the study consists of a Workgroup that will design how the program should be implemented in the pharmacy for maximum effectiveness and feasibility. It involves the design of an educational videotape that will be shown to the public during the counseling session. The workgroup will also design the educational materials that will be distributed to the public. All media products will be designed to reflect sensitivities to cultural diversity. It is expected that the products of this study would be utilized in a national effort on prostate cancer prevention.

Body

The Phase 1 tasks identified in the approved Statement of Work included:

Task I: Survey Plan, Months 1-9:
- Identify students and faculty that will participate in the study
- Design survey instrument
- Test survey instrument
- Develop sampling frame
- Select random sample of pharmacies
- Mail survey instrument
- Follow-up phone calls
- Receipt of surveys
- Evaluate survey
- Report on Phase I
The principal investigator (PI) identified 2 students, 1 clerical staff person, 1 faculty researcher/consultant, and 1 prostate cancer consultant to assist with accomplishing the Phase 1 tasks. Dr. Anthony Wutoh designed the prostate cancer survey instrument. The survey instrument consisted of 29 questions. The first 10 questions were true/false and were designed to assess the pharmacists' current awareness regarding prostate cancer. Questions 11 through 19 were designed using a Likert scale and consisted of questions to assess the pharmacists' perception of barriers and benefits to prostate cancer education and counseling. Questions 20 through 29 queried information about the pharmacists' demographic data and the pharmacy settings.

Research students, Anthony Emekalam and Zakia Corria, gathered the pharmacy and demographic data for Washington, DC, and Prince George's County, Maryland. They contacted the Maryland and D.C. State Boards of Pharmacy for pharmacy location information. They contacted the State health departments to collect prostate cancer data. For Maryland, they were only able to get county level data, however, for the District of Columbia, they collected prostate cancer incidence by zipcode. Demographic data from the 1990 Census, for the District and P.G. County, were obtained from the U.S. Bureau of Census website. All of the data collected on the pharmacies and demographics were used to develop Excel databases. These data were entered into the ArcView GIS software program. This software enabled the spatial representation of the datasets. Maps created from the D.C. data can be found in the Appendix. The maps were used to target pharmacies that were located in African American predominant zipcodes, in order to ensure participation from pharmacists who served the most at-risk patients.

Mrs. Evelyn Llamas is the clerical assistant for this project. She ordered all of the supplies for the project, assisted with the mailing, and she handled all of the university accounting procedures for payroll and accounts payable.

The 192 questionnaires were mailed on January 12, 2001, with an expected response to occur by January 26, 2001. After 3 weeks, only 24 surveys were returned by mail. The research students followed-up the mailing with telephone calls, telephone surveys, and on-site pharmacy visits beginning on February 15. A second mailing was conducted on March 15. A total of 91 questionnaires had been returned; one of the questionnaires, however, did not have any answers marked. Out of the 91 responses, 31 of the pharmacists polled indicated that they would like to participate in the prostate cancer education and training program. These pharmacists will be contacted in Phase 2.

In preparation for Phase 2, Pat Sims, a prostate cancer specialist, was contracted to develop the content for the prostate cancer educational lecture. She was only able to complete half of the assignment, and her remaining duties in Phase 1 and Phase 2 have been taken over by the Howard University School of Pharmacy Oncology Fellow, Dr. Kimberly Dinh. Dr. Dinh will continue the development of the lecture where Ms. Sims left off.

**Preliminary Study Findings**

There were ninety (90) respondents to the questionnaire. However, several respondents did not answer every question provided. The demographic characteristics of the sample are listed in Table 1 in the Appendix.
Perception Variables

Perceived benefits of providing prostate cancer information represents the degree to which respondents believe there are positive outcomes of providing prostate cancer information to their patients. Perceived benefits were measured through five questionnaire items using Likert-style statements with responses ranging from Strongly Agree to Strongly Disagree. Strongly agree responses are valued at one and strongly disagree responses are valued at five. The perceived benefits scale was summed over the five items, with a possible score range of 5 to 25. A lower score indicated a greater perceived benefit of providing prostate cancer information. The Cronbach’s Alpha Coefficient for this scale was determined to be 0.8511, supporting that this was a very reliable scale.

Perceived barriers of providing prostate cancer information represents the degree to which respondents believe there are barriers associated with providing prostate cancer information to their patients. Perceived barriers were measured through four questionnaire items using Likert-style statements with responses ranging from Strongly Agree to Strongly Disagree. Strongly agree responses were valued at one and strongly disagree responses were valued at five. The perceived benefits scale will be summed over the five items, with a possible score range of 4 to 20. The Cronbach’s Alpha Coefficient for this scale was determined to be 0.7431, supporting that this was a very reliable scale.

Variables Assessed in the statistical analyses included:
Gender, Ethnicity, Age, Number of Years in practice, education, number of pharmacists staffing the store, number of technicians staffing the store, type of pharmacy, whether Disease State Management programs are offered in the pharmacy, perceived benefits of providing prostate cancer information, perceived barriers of providing prostate cancer information, and knowledge of prostate cancer

Bivariate Analyses

Knowledge Score
In bivariate analyses, knowledge of prostate cancer information was not significantly related to any demographic characteristic, or either of the perception scales (Benefits or Barriers).

Perceived benefits of providing prostate cancer information score (Benefits)

In bivariate analyses, the following variables were significant predictors of Benefits:

<table>
<thead>
<tr>
<th>Variable</th>
<th>Category Score (Benefits)</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Disease State Management Programs offered in the pharmacy</td>
<td>Yes 10.4</td>
<td>0.022</td>
</tr>
<tr>
<td></td>
<td>No 8.2</td>
<td></td>
</tr>
<tr>
<td>Race (Black versus Non-Black respondents)</td>
<td>Black 8.3</td>
<td>0.011</td>
</tr>
<tr>
<td></td>
<td>Non Black 10.5</td>
<td></td>
</tr>
<tr>
<td>Gender (Male versus Female)</td>
<td>Male 7.9</td>
<td>0.005</td>
</tr>
<tr>
<td></td>
<td>Female 10.5</td>
<td></td>
</tr>
<tr>
<td>Barriers</td>
<td>Continuous</td>
<td>0.0001</td>
</tr>
</tbody>
</table>

A lower score indicated a greater perceived benefit of providing prostate cancer information.
Perceived barriers of providing prostate cancer information (Barriers)

In bivariate analyses, the following variables were significant predictors of Barriers:

<table>
<thead>
<tr>
<th>Variable</th>
<th>Category Score (Benefits)</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Benefits</td>
<td>Continuous</td>
<td>0.0001</td>
</tr>
</tbody>
</table>

Multiple Regression Analyses

Multiple regression models were developed to assess significant predictors of prostate cancer knowledge, Barriers, and Benefits in a regression model (Forward regression method).

**Knowledge**

There were no significant predictors of prostate cancer knowledge.

**Benefits**

The following variables remained in the forward regression model for Benefits:

<table>
<thead>
<tr>
<th>Variable</th>
<th>R Square</th>
<th>Adjusted R Square</th>
<th>Beta</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td>.112</td>
<td>.100</td>
<td>2.985</td>
<td>.0001</td>
</tr>
<tr>
<td>Ethnicity (Black vs. Non Black)</td>
<td>.224</td>
<td>.203</td>
<td>-2.561</td>
<td>.003</td>
</tr>
<tr>
<td>Prescription Volume (&gt;200 prescriptions vs. &lt;199 prescriptions daily)</td>
<td>.267</td>
<td>.236</td>
<td>-1.901</td>
<td>.022</td>
</tr>
<tr>
<td>Disease State Management Programs (Yes vs. No)</td>
<td>.311</td>
<td>.272</td>
<td>-1.745</td>
<td>.037</td>
</tr>
</tbody>
</table>

Interpretation: The most significant predictor of perceived benefits of providing prostate cancer information was gender, as male pharmacists perceived greater benefits for providing information than female pharmacists. Similarly, black pharmacists perceived greater benefits of providing prostate cancer information to their patients than non-black pharmacists. Pharmacists in stores with a daily prescription volume greater than 200 perceived greater benefits of providing prostate cancer information than pharmacists in stores with a daily prescription volume less than 200. Finally, pharmacists who were in stores that did not provide Disease State Management Programs perceived greater benefits for the provision of prostate cancer information than pharmacists who were in stores that did provide Disease State Management Programs.

**Barriers**

There were no significant predictors of Barriers to providing prostate cancer information.

Key Research Accomplishments

- Pharmacy Databases for Washington, DC and P.G. County Maryland
- GIS for Pharmacy Databases in Washington, DC and P.G. County Maryland
- Prostate Cancer Data for Washington, DC and P.G. County Maryland
Reportable Outcomes

- Presentation to Faculty of the University of Texas School of Public Health, Houston, TX, 3/22/2001.

Conclusions

Phase 1 of the "Pharmacists as Health Educators and Risk Communicators in the Prevention of Prostate Cancer" was successful in completing all of the Tasks in the approved statement of work. It is anticipated that Phase 2 will also progress on schedule. The accomplishments in Phase 1 are currently being documented in a proposal to TAP Pharmaceuticals to evaluate the pharmacists' education project as well as other prostate cancer preventive interventions. An abstract has also been submitted for presentation at the CDC Cancer Conference scheduled for September 2001 in Atlanta, GA. If successful, these activities will be reported in the next annual report.

The findings in Phase 1 of this study concluded that pharmacists are willing to participate as health educators and risk communicators in the prevention of prostate cancer. Pharmacists also believe that by providing this information to their patients that they will be providing benefits. One-third of the pharmacists that responded to the survey indicated a willingness to participate in the development of the education/training program (Phase 2) of the project.

So what does this Mean? The results indicate pharmacists recognize that by becoming experts on prostate cancer, they can provide a valuable service to their patients and community. This project will serve as a model for national distribution of prostate cancer education for community pharmacists.

References

No new references were utilized.

Appendices

Table 1 – Study Characteristics
Table 2 – Study Variables
Maps
- 1989 Median Income by Zipcode, Washington, DC
- 1989 Median Income by Zipcode, DC Pharmacy Locations
- 1999 DC Population by Zipcode, DC Pharmacy Locations
- 1999 Prostate Cancer in White Males by Zipcode, Wash., DC
- 1999 Prostate Cancer in Black Males by Zipcode, Wash., DC
C.V. for Dr. Anthony Wutoh
C.V. for Dr. Cynthia Warrick
APPENDIX

Table 1. Demographics Characteristics (N=100)

<table>
<thead>
<tr>
<th></th>
<th>Frequency</th>
<th>Percent</th>
<th>Mean ± SD</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Gender</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>50</td>
<td>54.9%</td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>39</td>
<td>42.9%</td>
<td></td>
</tr>
<tr>
<td>Did not respond</td>
<td>1</td>
<td>1.0%</td>
<td></td>
</tr>
<tr>
<td><strong>Ethnicity</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Black (Non-Hispanic)</td>
<td>55</td>
<td>60.4%</td>
<td></td>
</tr>
<tr>
<td>White (Non-Hispanic)</td>
<td>26</td>
<td>28.6%</td>
<td></td>
</tr>
<tr>
<td>Hispanic</td>
<td>2</td>
<td>2.2%</td>
<td></td>
</tr>
<tr>
<td>Asian/Pacific Islander</td>
<td>4</td>
<td>4.4%</td>
<td></td>
</tr>
<tr>
<td>Native American/Alaska Native</td>
<td>1</td>
<td>1.1%</td>
<td></td>
</tr>
<tr>
<td>Other/Did not respond</td>
<td>2</td>
<td>2.2%</td>
<td></td>
</tr>
<tr>
<td><strong>Education</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bachelor's Degree (B.S. Pharmacy)</td>
<td>63</td>
<td>69.2%</td>
<td></td>
</tr>
<tr>
<td>Doctorate (Pharm.D.)</td>
<td>19</td>
<td>20.9%</td>
<td></td>
</tr>
<tr>
<td>Doctorate (Ph.D.)</td>
<td>3</td>
<td>3.3%</td>
<td></td>
</tr>
<tr>
<td>Other/Did not respond</td>
<td>5</td>
<td>5.5%</td>
<td></td>
</tr>
<tr>
<td><strong>Prescription Volume of the store</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Less than 50 prescriptions daily</td>
<td>3</td>
<td>3.3%</td>
<td></td>
</tr>
<tr>
<td>50-99 prescriptions daily</td>
<td>8</td>
<td>8.8%</td>
<td></td>
</tr>
<tr>
<td>100-199 prescriptions daily</td>
<td>45</td>
<td>49.5%</td>
<td></td>
</tr>
<tr>
<td>200-299 prescriptions daily</td>
<td>19</td>
<td>20.9%</td>
<td></td>
</tr>
<tr>
<td>Greater than 300 prescriptions daily</td>
<td>10</td>
<td>11.0%</td>
<td></td>
</tr>
<tr>
<td>Did not respond</td>
<td>5</td>
<td>5.5%</td>
<td></td>
</tr>
<tr>
<td><strong>More than one pharmacist staffing during busy periods</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>32</td>
<td>35.2%</td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>48</td>
<td>52.7%</td>
<td></td>
</tr>
<tr>
<td>Sometimes</td>
<td>9</td>
<td>9.9%</td>
<td></td>
</tr>
<tr>
<td>Did not respond</td>
<td>1</td>
<td>1.1%</td>
<td></td>
</tr>
<tr>
<td><strong>Number of technicians staffing during busy periods</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>None</td>
<td>6</td>
<td>6.6%</td>
<td></td>
</tr>
<tr>
<td>One</td>
<td>50</td>
<td>54.9%</td>
<td></td>
</tr>
<tr>
<td>More than One</td>
<td>33</td>
<td>36.3%</td>
<td></td>
</tr>
<tr>
<td>Did not respond</td>
<td>1</td>
<td>1.1%</td>
<td></td>
</tr>
<tr>
<td><strong>Type of Pharmacy</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chain Pharmacy</td>
<td>37</td>
<td>40.7%</td>
<td></td>
</tr>
<tr>
<td>Privately owned Community Pharmacy</td>
<td>28</td>
<td>30.8%</td>
<td></td>
</tr>
<tr>
<td>Food Store Pharmacy</td>
<td>9</td>
<td>9.9%</td>
<td></td>
</tr>
<tr>
<td>Other/Did not respond</td>
<td>16</td>
<td>17.6%</td>
<td></td>
</tr>
<tr>
<td><strong>Does this pharmacy conduct Disease State Management Programs</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>34</td>
<td>37.4%</td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>55</td>
<td>60.4%</td>
<td></td>
</tr>
<tr>
<td>Did not respond</td>
<td>1</td>
<td>1.1%</td>
<td></td>
</tr>
<tr>
<td><strong>Age of Pharmacist (years)</strong></td>
<td></td>
<td></td>
<td>43.7 ± 9.60</td>
</tr>
</tbody>
</table>
Table 2. Study Variables (N=90)

<table>
<thead>
<tr>
<th>Study Variables</th>
<th>Frequency</th>
<th>Percent</th>
<th>Mean ± SD</th>
<th>Reliability</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Knowledge Score</strong> (Ten true/false items) Possible scores could range from 0 to 10.</td>
<td></td>
<td></td>
<td>7.90 ± 1.3</td>
<td></td>
</tr>
<tr>
<td><strong>Perceived benefits of providing prostate cancer information</strong> (5 items) Possible scores could range from 5 (Strongly Agree) to 25 (Strongly Disagree). Lower scores indicated greater perceived benefits) Based upon 86 complete responses</td>
<td></td>
<td></td>
<td>9.0 ± 3.91</td>
<td>0.8511</td>
</tr>
<tr>
<td><strong>Perceived barriers of providing prostate cancer information</strong> (4 items) Possible scores could range from 4 (Strongly Agree) to 20 (Strongly Disagree). Lower scores indicated greater perceived barriers. Based upon 71 complete responses</td>
<td></td>
<td></td>
<td>13.72 ± 3.94</td>
<td>0.7431</td>
</tr>
</tbody>
</table>

*These variables were measured on a 5-point Likert-type scale anchored by (1) strongly agree and (5) strongly disagree.
1999 DC Population by Zipcode & Pharmacies
1999 Prostate Cancer in White Males by Zipcode
Washington, DC

Proswm1.shp

- 0 - 7
- 8 - 18
- 19 - 27
- 28 - 74
- 75 - 115
1999 Prostate Cancer in Black Males by Zipcode
Washington, DC

Probsm.shp
- 0 - 20
- 21 - 96
- 97 - 142
- 143 - 196
- 197 - 338
CURRICULUM VITAE

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BALTIMORE, MD 21203
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awutoh@howard.edu or awutoh@hotmail.com

EDUCATION:
1990-1996 University of Maryland, Graduate School
   Baltimore, Maryland
   Doctor of Philosophy: Pharmacy Practice & Administration
   Minor Area of Study, Pharmacoepidemiology,
   Dissertation Title: The role of sociodemographic variables on access to ganciclovir
   and foscarnet therapy for AIDS patients in the treatment of Cytomegalovirus retinitis

1996-(Sum.) Johns Hopkins University, School of Public Health
   Baltimore, Maryland
   Outcomes Research (Summer Program in Epidemiology)

1987-1990 University of Maryland, School of Pharmacy
   Baltimore, Maryland
   Bachelor of Science: Pharmacy

1982-1987 University of Maryland, Baltimore County
   Catonsville, Maryland
   Bachelor of Arts: Biochemistry

EXPERIENCE:
1996-Present ASSISTANT PROFESSOR, Co-Program Director: Center of Excellence
   Department of Clinical and Administrative Pharmacy Sciences,
   College of Pharmacy, Nursing, & Allied Health, Howard University. Washington, D.C.
   Graduate School of Arts & Sciences, Howard University. Washington, D.C.

   -Responsibilities include instruction of undergraduate and professional
   and graduate students, development of research program, public service, and
   publication in refereed journals. Other responsibilities include
   participation in College, as well as University-wide committees.

1994-1996 PROJECT DIRECTOR
   Center for AIDS Services Planning and Development, AIDS Administration
   Maryland Department of Health and Mental Hygiene. Baltimore, Maryland

   - Responsibilities included data base management, the development of analytic
   files, coordination of research activities of various staff members, and the
   development and analysis of research activities.
1990-1996  PEDIATRIC STAFF PHARMACIST
University of Maryland Medical System
Baltimore, Maryland

- Experience in centralized/decentralized/night pharmacy services. Responsibilities included monitoring drug usage emphasizing appropriate medication utilization and cost effectiveness, daily medication cart checking, staff inservices, discharge counseling, medication preparation and dispensing, drug information and pharmacokinetics.

1993-1994  GRADUATE POLICY INTERN (Volunteer)
United States Senate Special Committee on Aging
Washington, District of Columbia

- Responsibilities included researching the impact of health care reform on the pharmaceutical and biotechnology industries, assessing the cost differences between branded and generic pharmaceuticals, and evaluating the economic impact of prescription drug prices on the elderly.

HONORS AND AWARDS:

Howard University Excellence Award Outstanding Pharmacy Faculty (1998)
Howard University Merit Award (1997, 1998, 1999)
University of Oklahoma Faculty Leadership Institute Fellow (1996)
Rho Chi Honor Society (1992)
Outstanding Young Men of America (1990)
Lois Young Thomas Scholarship Guild (1990)
Alpha Phi Alpha Man of the Year (1985)
SGA Senator of the Year (1984)

PROFESSIONAL AFFILIATIONS:

Journal of Pharmacy Teaching: Reviewer, 2000
Journal of the National Medical Association: Reviewer 2000
Clinical Therapeutics: Reviewer 1997
Federal Ryan White Act, Title I and Title II Grant Reviewer 1997-1998
Maryland AIDS Drugs Assistance Program (MADAP) Advisory Board 1995 -
American Pharmaceutical Association 1991 -
American Society of Health System Pharmacy 1992 -
National Pharmaceutical Association 1990
Maryland Society of Hospital Pharmacists 1990 - 1993
Maryland Pharmacist Association 1990 - 1991
Maryland Higher Education Commission: Student Advisory Board 1988 - 1990
Alpha Phi Alpha Fraternity, Incorporated 1983 -

LICENSURE:

Registered in Maryland
TEACHING ACTIVITIES

**Drug Information & Toxicology** (Spring, 1999-2000) Ninety Pharm.D. students, responsibilities included lecturing, and advising students regarding grading, and developing examination questions.

**Drugs & the Elderly** (Spring, 1998-2000) Sixty Pharm.D. students, responsibilities included lecturing, and advising students regarding grading, and developing examination questions.

**Research in Clinical & Administrative Pharmacy** (Spring, 1998-2000) Five Pharm.D. Students; responsibilities included developing course, serving as course master, lecturing, management of attendance records, and advising students regarding grading, research projects, and research proposals.

**Drugs & Society** (Fall, 1996-2000) Eighty Pharm.D. students; responsibilities included developing course, serving as co-course master, lecturing, management of attendance records, and advising students concerning grading and examinations.

**Pharmacoepidemiology** (Spring, 1997-2000). Eighty Pharm. D. students; responsibilities included developing course, serving as co-course master, lecturing, management of attendance records, and advising students concerning grading and examinations.

**Pharmacy Management** (Spring, 1996-2000) Eighty-five Pharm.D. students; responsibilities included serving as course master, management of attendance records, and advising students concerning grading and examinations.

**Principles of Research** (Spring, 1997-2000) Sixty Pharm.D. students; responsibilities included lecturing, developing examinations questions, and advising students concerning grading and examinations.

**Pharmacy & US Health Care System** (Spring, 1997-2000) Seventy Pharm.D. students; responsibilities included lecturing, management of attendance records, and advising students concerning grading and examinations.

**Contemporary Pharmacy** (Spring, 1996-2000). Ninety Pharm.D. students; responsibilities included lecturing, management of attendance records, and advising students concerning grading and examinations.

**PUBLICATIONS**


PUBLICATIONS, CONTINUED


PUBLISHED ABSTRACTS

PUBLISHED ABSTRACTS, Continued


PRESENTATIONS


Wutoh AK. Guest Presenter: Faculty Mentoring in the School of Law. Howard University, School of Law. December 3, 1998.
PRESENTATIONS CONTINUED

Wutoh AK. Guest Lecturer: The establishment of a Faculty Mentoring Program in the Division of Nursing, Howard University. December 15, 1998.


Mackrill PL, Wutoh AK. "Empowerment: Doing more with less through implementation of a Nursing/Pharmacy liaison program." American Society of Hospital Pharmacists Midyear Clinical Meeting. Atlanta., December 1993.
PRESENTATIONS CONTINUED

Wutoh AK, Beardsley R. "PCATs; How well do they predict the academic success of pharmacy students?" Presentation to University of Maryland, School of Pharmacy Faculty. Baltimore, MD. September, 1993.


Speedie SM, Skarupa SJ, McNally D, Wutoh AK, Palumbo F. "Incidence of Inappropriate prescribing in an elderly population." Center on Drugs and Public Policy. Univ. of MD, School of Pharmacy. December, 1991

Wutoh AK. "Lead paint education and abatement program for landlords." Prepared for The Coalition Against Childhood Lead Poisoning. Balt. MD. 11/91

RESEARCH & FUNDING EXPERIENCE

11/00 – 11/01 “Protease inhibitor serum levels, adherence & resistance” Funded by a $73,600 contract from The CDC/Minority Health Professions Foundation. U50/CCU304522-10. Principal Investigator: Anthony K. Wutoh, Ph.D., R.Ph.

9/00 – 8/03 “The development of a Center of Excellence at Howard University, College of Pharmacy, Nursing, and Allied Health.” Funded by a $2,174,381 grant from DHHS, HRSA. 1 D34 HP04069-01. Project Director: Pedro Lecca, Ph.D., Co-Project Director: Anthony K. Wutoh, Ph.D.

5/2000 “Increasing the Entrepreneurial Experience in the Pharmacy Management Course. Funded by a $2,000 grant from National Collegiate Inventors and Innovators Alliance (NCIIA), Lemelson Foundation. Co-Principal Investigators: Anthony K. Wutoh, Ph.D., R.Ph., Bisrat Hailemeskel, Pharm.D.

01/00 – 12/01 “Seminars in Disease State Management for Pharmacy Students”. Funded by a $4,000 grant from the Fund for Academic Excellence at Howard University. Principal Investigator: Anthony K. Wutoh, Ph.D.

FUNDED PROJECTS, Cont.

03/99 - 3/2000 "Risk and treatment behaviors of older HIV+ patients". Funded by a $71,000 grant from The National Institute on Aging, National Institutes of Health (NIH). R03 AG16821-01 Principal Investigator: Anthony K. Wutoh, Ph.D.

01/99 - 12/99 "Current Issues in Alternative, Complimentary, and Natural (A-C-N) Medicines". Funded by a $3,000 grant from the Fund for Academic Excellence at Howard University. Co-Principal Investigators: Patricia Ayuk-Egbe, Pharm.D., Joseph Ofosu, Pharm.D., Anthony K. Wutoh, Ph.D.

03/98 - 3/99 “Student Research and participation at a National Pharmacy Meeting” The development of a Faculty Mentoring Program at Howard University. Funded by a $5,000 grant from the Fund for Academic Excellence at Howard University. Principal Investigator: Anthony K. Wutoh, Ph.D.

01/98 - 12/98 “The development of a Faculty Mentoring Program at Howard University” Funded by a $5,000 grant from the Fund for Academic Excellence at Howard University. Principal Investigator: Anthony K. Wutoh, Ph.D.

10/96-5/99 “The role of quality of life on medication compliance and survival of AIDS patients.” Funded by $26,800 grant from Howard University New Faculty Grants Program. Principal Investigator: Anthony K. Wutoh, Ph.D.

4/94 - 4/96 “The Role of Sociodemographic Variables on the Treatment of Cytomegalovirus (CMV) Retinitis in Maryland AIDS Patients”. Funded by $90,000 contract with Roche Bioscience (Syntex Inc.). Principal Investigator: Julia Hidalgo, Sc.D., Maryland AIDS Administration. Responsibilities included serving as project director, managing the daily operation of the project, directing epidemiologic, markov, and statistical analyses, creating data collection instruments, and preparing manuscripts for submission to peer review journals.

5/93 - 5/94 “PCATS; How well do they predict the academic success of pharmacy students?” Principal Investigator: Robert Beardsley, Ph.D. University of Maryland School of Pharmacy. Responsibilities included creation, and statistical analysis of data files, preparation of manuscripts, and presentation of results.

2/92 - 12/92 "Incidence of inappropriate prescribing of nonsteroidal antiinflammatory drugs in an elderly population." Funded by a $200,000 grant from AHCPR. Principal Investigator: Stuart Speedie, Ph.D. University of Maryland School of Pharmacy. Responsibilities included preparation of data files for analysis, statistical analysis, and preparation of manuscripts for submission to peer review journals.
PROPOSALS SUBMITTED, BUT NOT FUNDED

11/97  “A Cross-sectional study of medication use in older and elderly HIV+ patients. $70,000 proposal not funded by the Minority Health Professions Foundation. Co-Principal Investigators: Anthony K. Wutoh, Ph.D., Carolyn M. Brown, Ph.D.

8/96 - 1/97  “The impact of protease inhibitors on survival and costs of Medicaid enrollees with AIDS.” $100,000 proposal not funded by Merck Pharmaceutical Inc. Submitted in conjunction with Maryland AIDS Administration. Co-Principal Investigator: Anthony K. Wutoh, Ph.D. Julia Hidalgo, Sc.D., MPH, MSW


PROPOSALS APPROVED, BUT NOT FUNDED

11/97  “A Study of medication use in older HIV+ patients. $50,000 proposal submitted to the National Institutes of Health/National Institute on Aging. Co-Principal Investigators: Anthony K. Wutoh, Ph.D., Carolyn M. Brown, Ph.D.

PROPOSALS SUBMITTED, AND UNDER REVIEW

12/99  “HIV Management & Outcomes among HIV-infected older adults” $1,068,000 proposal submitted to the National Institutes of Health/National Institute on Aging. R01 AG18699-01. Co-Principal Investigator: Carolyn M. Brown, Ph.D.

11/99  “Older African-American’s HIV knowledge & risk behaviors” $70,000 proposal submitted to the National Institutes of Health/National Institute on Aging. R03 AG18638-01 Co -Principal Investigators: Veronica Clarke-Tasker, Ph.D., Carolyn M. Brown, Ph.D.
UNIVERSITY COMMITTEES

Search Advisory Committee for the Dean of the College of Pharmacy, Nursing, Allied Health Sciences 1998 (University Committee)
South Africa Primary Care Development Project: 1996 (University Committee)
Faculty Senate Committee on Appointments, Promotion, and Tenure: 1997- (Univ. Comm.)
International Health Planning Committee: 1996- (University Committee)
Continuing Education Committee 1998- (College Committee)
Faculty Representative; American Association of Colleges of Pharmacy: 1998 (College Committee)
Search Committee for the Chair of the Department of Clinical & Administrative Pharmacy Sciences 1997 (College Committee)
Collaborative Practice Committee 1997 (College/MD Board of Pharmacy)
Ad Hoc Committee to Develop Merger Leadership Statement: Chair 1996 (College Comm.)
Relationships with Foreign Colleges of Pharmacy: Chair 1996- (College Committee)
Financial Aid and Awards: Chair 1998- (College Committee)
Admissions 1996- (College Committee)
Ad Hoc Committee to Develop Joint Pharm.D.-M.B.A. Program: Chair 1998- (College Committee)
Urban Health Initiative: Chair 1996 (Departmental Committee)
CYNTHIA A. WARRICK

Education

B.S. Pharmacy, Howard University, Washington DC, 1975.


M.S. Public Policy, Georgia Institute of Technology, Atlanta Georgia, 1994.
- Georgia Tech Regents Scholarship, GTRI Research Assistant, Atlanta Environmental Priorities Project, Oak Ridge Fellowship ATSDR Atlanta, GA, Cable News Network(CNN) “Earth Matters” Intern

Ph.D. Environmental Science & Public Policy, George Mason University, Fairfax VA, 1999.
- George Mason University Graduate Fellowship, UNC-Chapel Hill Minority Health Data Institute Scholarship, Research Fellow University of Georgia Savannah River Ecology Lab, Oak Ridge Fellowship ATSDR Washington, DC

Awards & Honors

Leadership America, Leadership Texas, Outstanding Texan Recognition Texas Legislative Black Caucus, Outstanding Young Women of America, Who’s Who in the South & Southwest, Phi Theta Kappa Honor Society, Rho Chi Honor Society, Advisory Board Georgia Tech School of Public Policy

Associations & Committees


Teaching Experience

Dec 98 - present Assistant Professor, Howard University School of Pharmacy
Coordinate and teach courses in health policy, research design, environmental health.

Jan 95 - present Urban Environment Institute, Howard University Continuing Education
Develop environmental & HBCU faculty development programs that involve communities, political organizations, environmental groups, & industry. HBCU GIS Workshop, University of Ghana, Legon, West Africa, May 1999.

Jun 00 – Aug 00 Visiting Scientist, M.D. Anderson Cancer Center, Center for Research on Environmental Diseases, Smithville, Texas
Developed an environmental health seminar highlighting the Center’s research areas in Environmental Cancer Prevention that are applicable to healthcare professionals practices in South Central Texas.

Jun 99 - Dec 99 Visiting Scholar, EPA Office of Policy, Washington, DC
Directed Howard Student research assistant in project to determine the perception of EPA staff concerning environmental justice and public health issues.

Jan 95 - Aug 98 Faculty/Graduate Teaching Assistant, George Mason University
Taught undergraduate courses in Environmental Policy, and Public Policy Analysis. Coordinated the undergraduate internship program in Public & International Affairs.

Winter Break 1997-98 Faculty Director, The Washington Center for Internships & Seminars
Directed a two-week long academic internship program on environmental policy for 36 undergraduate juniors and seniors from five universities and colleges.

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Employment

Sep 94 - Sep 96  Agency for Toxic Substances & Disease Registry (ATSDR), Washington, DC
Sep 95 - Sep 96  GIS Research Intern, US Geological Survey, Reston, Virginia
Jan 95 - Aug 95  Graduate Research Assistant, George Mason University
Jan 94 - Aug 94  Division of Health Education, ATSDR, Atlanta, Georgia
Jan 93 - May 93  Indoor Environment Research Program, Georgia Tech Research Institute, Atlanta, GA
Oct 92 - Aug 94  Fort McPherson Out Patient Pharmacy, Atlanta, Georgia
Sep 92 - Dec 92  Cable News Network (CNN), Atlanta, Georgia
Aug 89 - May 92  Pharmacist, VA Medical Center, West Los Angeles, CA
Feb 84 - May 89  Owner-Operator, East San Antonio Medical Center Pharmacy, San Antonio, TX
Sep 80 - Mar 89  Consultant Pharmacist, Ella Austin Community Health Center, San Antonio, TX

Sponsored Research

$19,999  - NAAEE Urban Leadership Collaboratives Initiative. "GIS Mapping in At-Risk Communities."

$4,000  - Howard University Academic Excellence Grant. "GIS for Health Professions Faculty". A GIS training workshop for faculty in Nursing, Pharmacy, Medicine, Allied Health, Social Work, Sociology, and Engineering.

$12,000  - EPA Office of Policy - Visiting Scholar in Environmental Justice. Community health survey for Memphis Depot Superfund Site.

$224,187  - Army Medical Research Command. "Pharmacists as Health Risk Communicators in Prostate Cancer" training program for pharmacists.

$40,000  - Howard University New Faculty Award. The “Health Education & Pharmacists” project will use pharmacy students to develop a health curriculum for urban middle school youth, to help them develop more healthy behaviors.

$35,000  - Minority Health Professions Foundation/Agency for Toxic Substances and Disease Registry (ATSDR). "Mississippi Delta GIS Data Preparation Project".

Professional Papers


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Conference Presentations


EPA Review Panel on Children’s Environmental Health, October 2000, Washington, DC.


Inaugural Environmental Policy Conference, Ohio State University, “Case Studies of Environmental Justice Success”, April 16, 2001, Columbus, Ohio.

References

Available Upon Request