Connecting Pharmacy and Literacy: The North Carolina Medication Information Literacy Project

Julienne K. Kirk¹, Stacie Krick, Debra Futrell, Teresa Devora, Stephen M. Caiola, Elaine Mason², William T. Sawyer and Peter Gal

School of Pharmacy, University of North Carolina, Chapel Hill, NC 27514

The purpose of this study was to involve pharmacy students in a project designed to evaluate the comprehension of consumer-directed, over the counter (OTC) medication information. This project was conducted statewide in North Carolina and was coordinated through an alliance of the University of North Caroline at Chapel Hill School of Pharmacy and the North Carolina Area Health Education Centers (AHEC) Program. Two other goals of this project were to expose pharmacy students to research and provide collaborative experience for AHEC-based faculty. The project was implemented over a three-month period during the fall of 1998 and included completion of patient comprehension surveys. Each study participant read an example of OTC patient instructions. Afterwards, students asked questions directly related to the OTC information. Surveys of 878 participants were completed. A comprehension score was calculated based on eleven questions obtained from the participant response form. Comprehension scores ranged between 6.7 and 8.4 using a scale that was based on the eleven questions worth one point each. Students were also asked to provide feedback by survey regarding how participant selection was conducted and a debriefing session allowed for discussion about project experience and improvement. This study indicates that OTC medication instructions are difficult to interpret for many consumers, that student participation in a community research project is a useful learning experience, and that geographically dispersed faculty can conduct collaborative research.

INTRODUCTION

Health care systems today require that patients be able to read and understand medication information. Inadequate literacy skills can be a barrier to good health care. In general, individuals with the lowest literacy have poorer health, higher expenses for health care, more outpatient visits, and a greater likelihood of hospitalization than those with better-developed reading skills(1). The high rate of illiteracy in the United States was illustrated by the 1992 National Adult Literacy Survey (NALS), which examined reading skills of 26,000 adults(2). Extrapolating the NALS data, it is predicted in North Carolina that nearly 22 percent (1.1 million) of the state's residents demonstrate "level one functional literacy skills" (level one = lowest and level five = highest). These adults would likely have serious literacy difficulties and need significant instruction.

Functional health literacy is the ability to read and comprehend information on medication bottles, appointment slips, and other essential health-related materials required to function as a patient. A person's functional health literacy may be worse than their general literacy(3). The NALS did not specifically test health literacy. However, there have been a number of studies, which have addressed a patient's health literacy(4-6). Together, these studies found that many patients do not have adequate health literacy skills to function successfully in health care systems.

The marginally literate person can sound out a sentence, but may not be able to understand the meaning or be able to respond to written instructions. It has been reported that nearly 42 percent of hospitalized patients surveyed, were unable to

comprehend directions for taking medicine on an empty stomach(4). It is estimated that the average reading level of the American public is at seventh- to eighth-grade level. According to research, consumers need to read at the ninth-grade level to accurately interpret information on over-the-counter (OTC) medication labels(7).

In 1995, OTC and diagnostic agents amounted to over 20 billion dollars in sales for the United States(8). The majority of OTC sales are to the elderly, especially for cough and cold products. Safe and effective use of these products is not only dependent on adherence to directions, but to the understanding of warnings and contraindications that accompany the OTC product. Currently, this information varies in content and format on OTC product labels. The information is often written with language that is at a greater reading level than the reading ability of the consumer. Additionally, the print size, layout and design, and lack of diagrams may reduce readability. The end result is potential consumer misuse of OTC medications leading to an adverse effect or treatment failure. Comprehension of medication information, including preoperative instructions, consent forms and advance directives has been studied in various populations(4,6). However, we found no studies regarding comprehension of OTC medication information.

North Carolina is divided into nine Area Health Education

¹ Corresponding author address: Department of Family and Community Medicine, Wake Forest University School of Medicine, Medical Center Boulevard, Winston-Salem NC 27157-1084.

²Present address: West Virginia University Health Sciences Center.

Am. J. Pharm. Educ., 64, 277-283(2000); received 4/29/00; accepted 6/5/00.

Centers (AHEC) regions and each AHEC provides clerkship training for approximately 12 pharmacy students per year. The main objective of this project was to assess patient comprehension of an OTC medication insert, while jointly involving faculty and students in a meaningful research project on a statewide level. Equally important goals were to give students experience in administering a literacy survey regarding medication information, while exposing them to a process of conducting community-based research. A project was designed and implemented through the University of North Carolina at Chapel Hill School of Pharmacy and the North Carolina AHEC Program.

METHODS

The project was conducted in the fall semester of 1998. Each of the 117 full-time pharmacy students was asked and encouraged to survey 10 patients or customers in two out of three clerkship rotations (totaling 20 interviews per student) during a three-month period. A project packet, including guidelines for students, preceptors and AHEC faculty was developed and used for this project. Inclusion criteria included individuals who could speak English, were alert and oriented, and were 12 years of age or older. Prior to project implementation, students attended an orientation session in their AHEC, where data collection forms and instructions for the protocol were reviewed. In addition, AHEC faculty presented a complete simulated patient interview session. The Institutional Review Board at the University of North Carolina at Chapel Hill approved this study exempt, but a voluntary abbreviated informed consent statement was implemented. Students read the informed consent statement to each participant, which was then signed by the study participant or their parent.

Patients or customers were chosen for participation in this study by convenience. Many individuals were selected as they came into the pharmacy or clinics and the student preceptor was encouraged to help in participant selection. Student feedback regarding how individuals were selected for the study participation was collected (Appendix A). Demographic data were collected on all individuals approached. If the participant either could not read, did not have their reading glasses, or chose not to participate further, the student thanked the individual for their participation and the process ended. If the participant agreed to continue, then the comprehension survey was completed.

A commonly used OTC medication, Tylenol® Allergy/Sinus, was selected for use in this study. Information on the package insert was used in this project and was renamed Systemo[®] Allergy/Sinus (Appendix B). The medication information for Systemo" Allergy/Sinus was extracted directly from the Physician Desk Reference for Non-Prescription Drugs(9). Except for the font size, the information in Appendix B was exactly the same as contained in the OTC Tylenol® Allergy/Sinus package insert. The material to be read was divided into four general sections including medication instructions, indications, cautions and potential side effects. It was typed in 14 point Times New Roman font except for the last section, which was matched to the font size of a typical consumer box of Tylenol® Allergy/Sinus and typed at eight point Times New Roman. The reason the package insert was typed in a larger font size was to assure that participants could read the information for comprehension. The last section regarding directions for medication administration was typed in a similar font size found in the OTC package insert to eval uate only if the participant could read the small print size.

The students gave each participant the typed version of the Systemo® Allergy/Sinus insert. Once the participant completed reading each section, the students asked specific questions for that section and recorded answers on the participant response form. The participant was asked to read one section of the medication insert and the students recorded total reading time in minutes and seconds. Participants were allowed to refer back to the written information to locate answers to the questions, if necessary. This was incorporated to help alleviate any pressure the participant might feel if they were expected to remember everything from just one reading. Our purpose was to determine if they could understand and comprehend what they read, not if they could memorize what they read.

Students documented one answer on the participant response form that reflected the participant's response (Appendix C). Students did not read the possible choices except in certain sections that specifically indicated them to do so on the participant response form.

Comprehension scores for participants were calculated using questions from the participant response form. The participant response form used by students while conducting each survey contained questions specifically related to the OTC Systemo® Allergy/Sinus material including medication instructions, indications, cautions and potential side effects. Three questions involved the definition of a health care professional, dosing in a child and the print font size, which were not included in the analysis. The comprehension scores were based on the total number of the eleven questions answered correctly and each correct question was assigned a value of one.

When the process was completed for each participant, students also completed a questionnaire designed to facilitate student reflection and feedback regarding the project. AHEC faculty conducted a debriefing session with students at the end of the three months data collection period to gain feedback about the process and the students' experiences (Appendix D).

Frequency and percentage distributions were used to describe demographic and other characteristics of the study sample information with frequency data reported. One-way analysis of variance was used to examine differences in comprehension scores by characteristics of the participants. Student's t-test was used to evaluate independent groups divided by age less than and greater than 50 years of age.

RESULTS

A total of 975 participants were approached and 878 completed the entire study. A total of 22 participants elected not to take part in the study because they could not read by their report, 33 did not have their reading glasses and 37 chose not to participate. Fifty-two of 117 students (44.5 percent) collected data for this project. Participants surveyed included 543 women and 330 men along with five who did not specify gender. The age breakdown is provided in Table I. There was an even distribution among age classes with a small amount of participation for the 12 to 20 year old category. Education level is also provided in Table I, with most individuals surveyed having at least some high school education. Most of those surveyed saw a doctor once a year and 67.8 percent took a medicine of some kind on a daily basis (Table II). When asked about reading ability, the majority of participants (92.2 percent) thought they could read at least fairly well (Table III).

The results by age indicate that the highest scores were achieved in the 20 to 29 year age group and the lowest score

Table 1. Participant demographics

Percent	Age range
Under 20 years	5.0
20-29 years	18.3
30-39 years	13.4
40-49 years	14.6
50-59 years	16.9
60-69 years	16.0
70 years or older	15.7
Gender	
Male	39.6
Female	60.4
Education	
6th grade or less	4.1
7th, 8th, or 9th grade	8.0
10th, 11th, or 12th grade	41.0
Some college or graduated college	36.2
Some or completed graduate school	10.7

Table II. Doctor visits and medication use

Doctor frequency	Percent	
Weekly	3.3	
Monthly	17.3	
Every two months	14.3	
2-3 times per year	35.2	
Once a year	21.1	
Less than yearly	8.8	
Daily Rx medicine	67.8	

was obtained in the age group of greater than 70 years (Table IV). If the participant surveyed had greater than a 10th grade education, there was a statistically significant difference (P<0.05) in ability to answer questions correctly based on comprehension scores (Table IV). Analyses were done with regard to physician visits and comprehension scores. Higher scores were achieved for individuals who reported they saw a physician only once per year (Table IV). Self-perception of ability to read significantly correlated (P<0.05) with comprehension scores (Table III).

When the data were divided into those who were less than or equal to 50 years of age and those who were greater than 50 years, there was a statistically different (P<0.05) comprehension score (8.0 ± 1.7 versus 7.2 \pm 2.0, respectively) for each group. The Student's t-test was used to evaluate the two independent groups. There were no differences between comprehension scores related to gender among males by age, but females less than 50 years had comprehension scores that were higher (P<0.05) than those 50 years or greater (8.1 ± 1.6 versus 7.3 ± 1.9 , respectively). In addition, the Participant Response Sheet (Appendix C) included a question regarding difficulty, if any, in reading the smaller print contained in the directions for medication use (Appendix B). A total of 19.6 percent of participants indicated that they had some difficulty and 4.4 percent responded that they had a lot of difficulty reading this section.

Each student completed a one-page survey on each participant (n=975) regarding information about the person selected to participate in the study (Appendix A). Forty-one percent of the responses indicated that the person seemed approachable, 16 percent indicated the person was convenient to approach. Most of the student responses (78 percent) revealed that the participant was positive and helpful with the study process. Based on the student interview, most (82 percent) thought the

Table III. Participant responses of reading ability

Questions and responses	Percent	Comprehensive score ^a	
How would you describe your	_	-	_
ability to read?			
Very well	64.5	8.0 ± 1.6	
Fairly well	27.7	7.0 ± 2.1	
With difficulty	6.1	5.6 ± 2.0	
I cannot read at all	1.6		
How would you describe your			
ability to understand what			
you read?			
I understand most everything			
I read	91.3	7.7 ± 1.8	
Usually I have trouble			
understanding what I read	8.7	6.0 ± 2.8	
^a Mean ± standard deviation			

Table IV. Mean comprehension scores with standard deviations (SD)

	Comprehension score
Age range	
Under 20 years	7.5 ± 1.8
20-29 years	8.4 ± 1.5
30-39 years	7.9 ± 1.7
40-49 years	8.0 ± 1.7
50-59 years	7.6 ± 1.9
60-69 years	7.2 ± 1.8
70 years or older	6.7 ± 2.3
Education	
6th grade or less	4.7 ± 2.8
7th to 9th grade	5.7 ± 2.1
10th to 12th grade	7.4 ± 1.9
College	8.1 ± 1.5
Graduate	8.7 ± 1.1
Physician Visits	
Weekly	6.8 ± 2.0
Monthly	7.5 ± 2.1
Every 2 Months	7.1 ± 2.2
2-3 Times Per Year	7.7 ± 1.8
Once Per Year	8.0 ± 1.6
Less Than Yearly	8.2 ± 1.5

participant would comply with consumer medication information. In addition, there were 42.3 percent (22/52) of student debriefing questionnaires (Appendix D) were completed. A total of 95 percent of students indicated that the project made them more aware of the issues surrounding literacy. One AHEC center did not participate in the study and four AHEC sites had a low student participation rate.

DISCUSSION

The information obtained in this study shows that it is feasible for pharmacy students to conduct research and become exposed to the issue of patient literacy. Only 44.5 percent of potential students participated in this project. The overall response rate by students was, in part, influenced by AHEC faculty encouragement. Some faculty supported and encouraged students to complete this project, while others did not. In other situations, students could not identify appropriate patients because of the type of rotation they were completing during a particular month (e.g., intensive care unit). The results from the student reaction and action survey (Appendix A) indi-

[Original] Indications: Provide effective temporary relief of runny nose, sneezing, itching of the nose or throat, and itchy, watery eyes due to hay fever or other respiratory allergies, nasal and sinus congestion, and sinus pain and headaches.

Flesch-Kincaid = 20.4, Gunning-Fog Index = 23.3

[Revised] Uses: Temporarily relieves runny nose, sneezing, itchy nose and throat. Also, relieves itchy, watery eyes due to hay fever or other lung allergies. May relieve nasal and sinus congestion and sinus pain and headaches.

Flesch-Kincaid = 9.4, Gunning-Fog = 10.5

Fig. 1. Revised over-the-counter example instructions.

cated that the students chose potential study participants based on the person seeming approachable. The majority found the research easy to implement. We achieved the primary goals of exposing pharmacy students to data collection, as well as targeting an awareness regarding the issue of literacy through this project. Further research in this setting would include the possibility of course credit to encourage participation and assessment of the students' performance. In light of the overall low student participation in half of the AHEC sites, we would encourage full faculty participation from the onset of the pro-

Each AHEC was also asked to hold a debriefing session (Appendix A) with the students to determine their perspective of this research project. The majority of the AHEC sites (eight out of 10) conducted this session with students. In general, the comments were mostly positive. Some students indicated that the project was worthwhile and an invaluable experience. Other post-study comments included the need for greater preceptor assistance in participant identification. Many students commented that the experience made them more aware of literacy and to explain medication information when counseling patients. For future projects, comments indicated that if students will be expected to collect data for research while on rotations, they would be more accepting and learn more during the process if course credit is given for the work.

The results of this study indicate that a large percentage of patients has some difficulty interpreting OTC medication instructions as evidenced by the overall comprehension scores (Table IV). The highest comprehension scores were achieved in the 20 to 29 year old age group. As education increased to at least a 10th grade level, there was a statistically significant difference (P<0.001) in the ability to answer questions correctly. This is consistent with research that indicates at least a ninthgrade level is needed to accurately interpret OTC medication labels(7). The participant's self-perception of reading ability significantly correlated (P<0.001) with comprehension scores (Table III). We chose to break the group into those less than or equal to 50 years of age and those greater than 50 years. because about half of the group fell in each of these categories. Comprehension scores were higher for individuals 50 years or less, and women in this category had higher comprehension scores when compared to women or men greater than 50 years of age. A limitation of this research includes the use of a convenience sample instead of a randomized sample. Another drawback of these data is the fact that all students did not perceive the importance of completing the project to the same degree.

In March of 1999, the FDA issued a regulation that requires OTC medications to include clear, simple and readable labeling by 2005. Hopefully, this will make it easier for consumers to understand information about these products, as well as, select the appropriate product based on their symptoms and health situation(10). Based on the results of this study and the fact that the OTC instructions used in this project required at least a college education for comprehension, we suggest changes be made for future application of the OTC instruction example. Using two different reading scales, the Flesch-Kincaid(11) and the Gunning Fog Index(12), the OTC example could be modified for potential future study. After rewording the information in Appendix B, the grade level required for readability changed from grade 20.4 to grade 9.4 for Flesch-Kincaid and from grade 23.3 to 10.5 using Gunning-Fog Index. These two reading scales were chosen because the methods have been validated and have been shown to be useful for health care information(13). Simple changes in technical terminology and shortening the word count in each sentence, as suggested in Figure 1, should improve consumers understanding of OTC medication instructions.

Reliance on printed materials to educate patients is not uncommon; however, it is important for health care providers to evaluate literacy level. Patients may be ashamed of their inadequate literacy skills, and many never tell anyone that they cannot read or understand medication information. Pharmacists and pharmacy students are in a unique position to identify literacy problems and help patients interpret and understand medication instructions.

Acknowledgement. We would like to thank the pharmacy students at the University of North at Chapel Hill in the class of 1999 and our colleagues at the AHEC for participating in this project.

References

- Weiss, B.D. and Coyne C, "Communicating with patients who cannot read," N. Engl. J. Med., 337, 272-274(1997).
- (2) Kirsch, J.S., Jungeblut, A., Jenkins, L. and Kolstad A., "Adult Literacy in America: a first look at the results of the National Adult Literacy Survey," Department of Education, Washington DC (1993).
- (3) Ad Hoc Committee on health Literacy for the Council on Scientific Affairs, American Medical Association. Health literacy: Report of the Council on Scientific Affairs, JAMA, 281, 552-557(1999).
- (4) Williams, M.V., Parker, R.M., Baker, D.W., Parikh, N.S., Pitkin, K., Coates, W.C., et al., "Inadequate functional health literacy among patients at two public hospitals," *JAMA*, **274**, 1677-1682(1995).

 (5) Baker, D.W., Parker, R.M., Williams, M.V., Clark, W.S. and Nurss, J.,
- "The relationship of patient reading ability to self-reported health and use of health services," Am. J. Public Health, 87, 1027-1030(1997).
- (6) Gazmararian, J.A., Baker, D.W., Williams, M.V., Parker, R.M., Scott, T.L., Green, D.C., et al., "Health literacy among Medicare enrollees in a managed care organization," JAMA, 281, 545-551(1999).
- Sansgiry, S.S., Cady, P.S. and Patil, S., "Readability of over-the-counter medication labels," J. Am. Pharm. Assoc, NS37, 522-528(1997).
- Glaser, M., "OTC sales in 1995: Still a stronghold for drugstores," Drug. Top., 4-7(1996).
- Physician Desk Reference for Non-Prescription Drugs, 18th Edition, American Pharmceutical Association, Washington DC (1997) pp. 606-
- (10) Nightingale, S.L., "New Easy-to-Understand Labels for OTC Drugs,"
- JAMA, 281, 1164(1999).
 (11) Ley, P. and Florio, T., "The use of readability formulas in health care," Psychol. Health Med., 1, 7-28(1996).
- (12) Spadero, D.C., "Assessing readability of patient information materials," Fed. Nursing, 9, 274-278(1983)
- (13) Davis, T.C., Crouch, M.A., Wills, G., Miller, S. and Abehous, D.M., "The gap between patient reading comprehension and the readability of patient education materials," J. Fam. Pract, 31, 533-538(1990).

APPENDIX A, UNC-CH PHARMACY STUDENT PROJECT 1998-1999

a setting separate from the participant. Please think back to be you had any interaction with the participant as you answer. 1. How/why did you select this person? (Check ALL that apper of the person seemed approachable. Person seemed approachable. Person semiled and spoke to me. I thought the person would not read well. I thought the person would read well. I thought the person. It was a quiet time in the pharmacy. No particular reason. Other (specify) 2. How did you expect the person to respond to your survey (Check the single response that most closely reflects your in expectations.) Positively and in a helpful manner. With resistance. With concern that I was asking questions that were personal. Quickly and without much thought. Other (specify) 3. Did you have any preconceived notion of how well this perwould read and understand the material? Yes - Go to #4 No - Go to #6 4. If "yes," what was your preconceived notion? (Check the response that most closely reflects your initial expectations. The person would easily read the items adequately read the items struggle with reading the items 5. What was your preconceived notion about how well the person would understand all the items. not comply with consumer medication information.	18 einant Number	Student N	Stuc
DIRECTIONS: After each interview, complete this form priva setting separate from the participant. Please think back to be you had any interaction with the participant as you answer. 1. How/why did you select this person? (Check ALL that apperson seemed approachable. Person seemed approachable. Person smiled and spoke to me. I thought the person would read well. I thought the person would read well. I know the person. It was a quiet time in the pharmacy. No particular reason. Other (specify) 2. How did you expect the person to respond to your survey (Check the single response that most closely reflects your interactions.) Positively and in a helpful manner. With resistance. With concern that I was asking questions that were personal. Quickly and without much thought. Other (specify) 3. Did you have any preconceived notion of how well this perwould read and understand the material? Yes - Go to #4 No - Go to #6 4. If "yes," what was your preconceived notion? (Check the response that most closely reflects your initial expectations. The person would easily read the items adequately read the items struggle with reading the items struggle with reading the items struggle with reading the items would understand written instructions? (Check the response most closely reflects your initial expectations.) The person would understand all the items. not understand all the items. not understand all the items. NOT comply with consumer medication information. NOT comply with consumer medication informatio	ite	Site	Site
I liked how the person was dressed. Person seemed approachable. Person smiled and spoke to me. I thought the person would not read well. I thought the person would read well. I twas a quiet time in the pharmacy. No particular reason. Other (specify) 2. How did you expect the person to respond to your survey (Check the single response that most closely reflects your i expectations.) Positively and in a helpful manner. With resistance. With concern that I was asking questions that wer personal. Quickly and without much thought. Other (specify) 3. Did you have any preconceived notion of how well this pe would read and understand the material? Yes - Go to #4 No - Go to #6 4. If "yes," what was your preconceived notion? (Check the response that most closely reflects your initial expectations The person would easily read the items adequately read the items struggle with reading the items struggle with reading the items ould understand written instructions? (Check the response most closely reflects your initial expectations.) The person would understand all the items. not understand all the items. not understand all the items. Sometime the person will comply with consumer medication information. NOT comply with consumer medication information.	e this form privately, in think back to before	DIRECTION SETTING SETTING	DIR a se
(Check the single response that most closely reflects your i expectations.) Positively and in a helpful manner. With resistance. With concern that I was asking questions that wer personal. Quickly and without much thought. Other (specify) 3. Did you have any preconceived notion of how well this perwould read and understand the material? Yes - Go to #4 No - Go to #6 4. If "yes," what was your preconceived notion? (Check the response that most closely reflects your initial expectations. The person would easily read the items adequately read the items struggle with reading the items struggle with reading the items ould understand written instructions? (Check the response most closely reflects your initial expectations.) The person would understand all the items. not understand all the items. not understand all the items. Not comply with consumer medication information. YES NO SOMEWHAT 8. What stood out from this experience that you will take with the province of the position information. SOMEWHAT	d. d well. ell.		1.
would read and understand the material? Yes - Go to #4 No - Go to #6 4. If "yes," what was your preconceived notion? (Check the response that most closely reflects your initial expectations. The person would easily read the items adequately read the items struggle with reading the items struggle with reading the items 5. What was your preconceived notion about how well the p would understand written instructions? (Check the response most closely reflects your initial expectations.) The person would understand all the items. not understand all the items. 6. Based on this interview, which of the following do you expocur? The person will comply with consumer medication information. NOT comply with consumer medication informat. 7. Was participant able to read? YES NO SOMEWHAT 8. What stood out from this experience that you will take with the properties of the person will take with th	y reflects your initial . estions that were too t.	(Cheexpe	2.
response that most closely reflects your initial expectations The person would	now well this person	woul	3.
would understand written instructions? (Check the response most closely reflects your initial expectations.) The perso would		The p	4.
occur? The person will comply with consumer medication information. NOT comply with consumer medication informat 7. Was participant able to read? YES NO SOMEWHAT 8. What stood out from this experience that you will take wit APPENDIX B.	neck the response that	woul most woul	5.
YES NO SOMEWHAT 8. What stood out from this experience that you will take wit APPENDIX B.	information.	occu	6.
8. What stood out from this experience that you will take wit APPENDIX B.	1EWHAT	7. Was	7.
			8.
[Part A] Directions for use: Adults and	dults and chil-	Syster	Sy

dren 12 years of age and older. Two caplets, gelcaps or geltabs every six hours. Do not exceed 8 caplets, gelcaps or geltabs in any 24 hour period. Not for use in children under 12 years of age.

[Part B] Indications: Provide effective temporary relief of runny nose, sneezing, itching of the nose or throat, and itchy, watery eyes due to hay fever or other upper respiratory allergies, nasal and sinus congestion and sinus pain and headaches.

[Part C] Warnings: Do not take this product unless directed by a doctor, if you have a breathing problem such as emphysema or chronic bronchitis, or it you have glaucoma or difficulty in urination due to enlargement of the prostate gland. Do not take this product if you have heart disease, high blood pressure, thyroid disease or diabetes unless directed by a doctor. If nervousness, dizziness or sleeplessness occur, discontinue use and consult a doctor. Avoid alcoholic beverages while taking this product. As with any drug, if you are pregnant or nursing a baby, seek the advice of a health professional before using this product. Do not take this product if you are taking sedatives or tranquilizers without first consulting your doctor.

[Part D] Use caution when driving a motor vehicle or operating machinery. May cause excitability, especially in children. May cause marked drowsiness: alcohol, sedatives and tranquilizers may increase the drowsiness effect.

[Part E] Directions for use: Adults and children 12 years of age and older. Two caplets, gelcaps or geltabs every six hours. Do not exceed 8 caplets, gelcaps, or geltabs in any 24 hour period. Not for use in children under 12 years of age.

Δ	PF	PFN	JD	IX	C	PAI	2TI	CI	PA	NT	RESF	109	NSF	SH	IFFT
$\overline{}$			ข	1/\	· •	1 / \	\ I I	\sim 1	_		$1 \times 1 \times 1$	\sim	NOL.	OI.	1 - 1

Participant Number		Interviewers Initials
Site	_ AHEC	Date
answer my questions.		et me know when you are ready to
Reading Start Time:	Re	eading End Time:

Total Time: min: secs:	8. Based on what you read, when should you consult a health care
REMEMBER: Allow the participant to refer to the written material when answering your questions. Do not erase or use white-out on the response sheet. To change what you have written, put a line through what you want to change, and initial it. In each case, check the one response that most nearly reflects the participant's response. Do not read the choices except where specifically indicated. Allow participants to give their give their own answers.	professional? If I have nervousness/am pregnant/am sleepy (any of these problems) I just stop taking and don't consult anyone If I have problems If it doesn't work other (specify)
Based on what you read, how often should you take this medication? every six hours don't know	9. Who would you call a health care professional? (Check all that apply) doctor nurse
other (specify)	pharmacist don't know other (specify)
hours? 8 caplets don't know other (specify)	10. If you have a headache, should you take this medicine if you also have?(Read these choices slowly and check any "yes" responses) diabetes
3. Based on your daily schedule, when would you take this medication to be sure to take it correctly? every 6 hours3-4 time a day while I'm awake (any variation that ties into their lifestyle)	high blood pressure arthritis heart disease other (specify) Part D: Please read PART D and let me know when you are ready to
don't know other (specify)	answer my questions.
4. Can children take this medication? (Check only one response.)children 12 years old or older can take this medication	Reading Start Time: Reading End Time: Total Time: min: secs:
yes no don't know other (specify)	11. Based on your reading, what kinds of side-effects might this medication cause? (Check all that apply) dizziness increase appetite
5. If a child is 10 years old but the size of an average 14-year old, what would you do about giving the child this medicine? give the normal dose for a child over 12 years old (adult dose) ask a health care professional about what I should do give 1/2 the normal dose give a children's medication don't give it	nervousness drowsiness only 12. If you took this medication and had side-effects, which of these activities would be dangerous to do? (Read these choices slowly and check any "yes" responses) driving a car watching television using a power lawn mower
Part B: Please read PART B and let know when you are ready to answer my questions.	13. If you took this medication and you felt drowsy, it might cause you to feel more drowsy is you? (Read these choices slowly
Reading Start Time: Reading End Time: Total Time: min: secs: 6. Based on what you read, what is this medication used for?	and check any "yes" responses) drank a beer took sleeping pills ate a meal
allergy/sinus pain/headache/runny nose/itchy eyes (any of these listed) don't know other (specify)	took a tranquilizer Part E: Please read PART E and let know when you are ready to
7. For which of the following symptoms would you use this medication? (Read these choices slowly and check any "yes" responses) hay fever	answer my questions. Reading Start Time: Reading End Time: Total Time: min: secs:
common cold sinus headache other (specify)	14. How much, if any, difficulty did you have in reading the smaller print? A lot Some
Part C: Please read PART C and let know when you are ready to answer my questions.	Not much None
Reading Start Time: Reading End Time: Total Time: min: secs:	Thank you for your time today. You've helped me a lot. Is there anything that I can answer for you related to this?

APPENDIX D. ORIENTATION AND DEBRIEFING SESSIONS WITH AHEC FACULTY

Student Name			AHEC	
Sites: 1)	2)	Date_		

DIRECTIONS: Complete this form after your debriefing session with your AHEC faculty.

- What did you gain from the project orientation discussion ses-
- 2. How can the orientation process be improved?
- 4.
- What did you gain from the project debriefing discussion session? How can the debriefing process be improved? What, if anything, will you do with your experience(s) from this 5. project?
- Is there some other project that could/should grow out of this one for future?