CALIFORNIA STATE UNIVERSITY, NORTHRIDGE

A PHARMACIST-SPONSORED SCREENING CLINIC
FOR HIGH BLOOD PRESSURE

A thesis submitted in partial satisfaction of the requirements for the degree of Master of Public Health

by

John Thomas Bailey

January, 1975
The thesis of John Thomas Bailey is approved:

California State University, Northridge
January, 1975
DEDICATION

To
My Wife, Dona,
To
My Sons, Steven and Thomas,
And
To
My Daughter, Janine.
ACKNOWLEDGMENTS

The author wishes to acknowledge the assistance of the many individuals who have contributed to this study. Special thanks and appreciation are due Dr. Lennin H. Glass and Dr. G. B. Krishnamurty, not only for their guidance and availability during this study, but also for their encouragement and concern throughout the entire graduate studies program.

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ABSTRACT

A PHARMACIST-SPONSORED SCREENING CLINIC FOR HIGH BLOOD PRESSURE

by

John Thomas Bailey

Master of Public Health

January, 1975

The purpose of this study was to examine the practicality, and acceptance, by the public of a blood pressure screening program sponsored by a pharmacist.

It has been estimated by experts in the field of hypertension that some eleven million persons in the United States are not aware that they have elevated blood pressures. Recent studies have shown that control of elevated blood pressures extends life expectancy. For these reasons a concerted national effort has been aimed at identifying persons with blood pressures above the normal range and bringing these pressures under control. In order to accomplish this, maximum utilization of available health professionals is necessary.

Because the taking of blood pressures has not been a traditional role for pharmacists, it was deemed impor-
tant to determine, in this study, whether or not the public was willing to accept the pharmacist in this capacity. In order to evaluate the degree of acceptance, mailings were made to a sample of eight hundred people inviting them to attend a free blood pressure screening clinic. One-fourth of the cards stated that the clinic was being offered by a pharmacist, one-fourth of the cards stated that the clinic was being offered by a county health department, one-fourth of the cards stated that the clinic was being offered by the Kidney Foundation, and one-fourth of the cards gave no indication of sponsorship. Evaluation of the results showed no significant difference in attendance relative to sponsorship of the clinic.

Consideration of the practicality of a pharmacist presenting such a screening was given. Based on the results of the study, it was determined that with certain modifications pharmacists could provide blood pressure screening programs that would be accepted by many persons in the community.
Chapter 1

INTRODUCTION

For many years hypertension has been a recognized medical condition. However, several factors have recently been resolved concerning hypertension which has changed considerably the importance placed on both diagnosis and treatment. Until a few years ago medical authorities agreed that a necessary concomitant of the aging process was a gradual increase in blood pressure. This was not considered to be harmful, and was given the name "Essential Hypertension."

Completion of several long range studies, such as that of the Veterans Administration on "The Effects of Treatment on Morbity in Hypertension,"\(^1\) and the "Chicago Heart Association Detection Project in Industry,"\(^2\) showed that about one of every seven adults had hypertension. The World Health Organization has called hypertension a "wide-spread epidemic."\(^3\) In the United States alone it has been a major contributing factor in an estimated 250,000 deaths and in many of the 1,000,000 heart attacks and strokes that occur each year. Hypertension afflicts an estimated 23 million American adults. Unfortunately, about one-half of these hypertensive individuals are not aware of their elevated pressure. The disease may be
present for many years without producing any symptoms noticeable to the patient.

In 1950, a vigorous national effort against the cardiovascular diseases was launched, and the first National Conference on Heart Disease was held. At that time there was much disagreement among the nation's leading authorities about the treatment of hypertension. At a later conference, in the 1960's, there was still disagreement, but evidence was beginning to show that treatment of hypertension brought reductions in mortality. One problem remained: there were no effective drugs with which to treat hypertension.

In the early 1970's, in addition to arriving at the point where sound and adequate knowledge was available to show the necessity of treating hypertension, there came the development of a multitude of effective drugs with which the physician was able to maintain blood pressure within normal limits. An important aspect of these newer drugs was their relative lack of side effects. Many of the older antihypertensive agents, although reasonably effective, were unacceptable for long term use because of the undesirable changes that they brought about in the patient. Long term use is necessitated by the fact that there are no drugs to cure hypertension; there are only drugs to control it.

In 1972, the Secretary of the Department of Health, Education, and Welfare authorized the establishment of the
National High Blood Pressure Education Program. In July, 1973, objectives and a course of action for the program were established. One of these objectives was to "...sponsor, through grants and contracts, a High Blood Pressure Education Research Program to explore practical approaches to professional and community education that will effect a change in the control of elevated blood pressure in the hypertensive population."\(^6\)

Because of this massive health problem, considerable effort has been expended to involve health professionals other than physicians in screening people for high blood pressure, the major factor in hypertension. Pharmacists are one group of health professionals who have a great exposure to the public, and therefore appear to have an excellent opportunity to perform this important function. Several pilot projects involving pharmacists in high blood pressure screening have been underway. In all of these programs, the pharmacist takes blood pressure readings in a pharmacy setting during regular hours. Although there are several advantages to this approach, the main disadvantage to the pharmacist is that it is not always convenient to take the extra time required to measure a patient's blood pressure. This is especially true during busy periods.

A potential problem also exists. Since pharmacists have not traditionally performed patient-contact functions, such as taking blood pressures, the question of patient
acceptability has yet to be answered.

**Purpose**

The purpose of the study was two fold: (1) to compare patient response to notification of a pharmacist-sponsored high blood pressure screening clinic with response to notifications of clinics sponsored by private and public health agencies; and (2) to investigate the practicality of offering a pharmacist-sponsored clinic to screen people for high blood pressure at a particular time and place as an alternative to taking blood pressure readings during regular pharmacy hours.

**Null Hypothesis**

There will be no significant difference in response to notification of high blood pressure screening clinics, regardless of the source of the notification.

**Limitations of the Study**

The study was limited to eight hundred patrons of Las Posas Pharmacy, in Camarillo, California. This group may or may not be representative of other groups in other areas of the country. The list from which these eight hundred people were chosen consisted of pharmacy patrons who had a prescription refilled by at least one member of their immediate family within the past year. In addition, the pharmacy used in the study was a professional pharmacy, located in a medical center, and may not be representative
of all types of pharmacies.

Importance of the Study

"Hypertension and its sequellae appear to be the most common causes of death in the United States, in addition, hypertension is one of the greatest factors in causing disability in the age group of 25 to 64."7 This knowledge, coupled with the estimate that more than eleven million Americans have undiagnosed hypertension, points out the importance of utilizing all available health resources to aid in the detection of hypertension.

Definition of Terms Used in the Study

**Hypertension.** High blood pressure having no known organic cause.

**High blood pressure.** For purposes of this study, high blood pressure shall mean systolic blood pressure of 160 millimeters of mercury (mm/Hg) or above, and/or diastolic pressure of 90 mm/Hg or above.
Chapter 2

REVIEW OF THE LITERATURE

Because of the recent emphasis on detection of hypertensive patients a considerable number of articles have appeared in the current literature concerning the importance of detection and the difficulties of maintaining known hypertensives on a proper regimen of therapy. Included in many of the articles on detection were discussions dealing with the importance of patient education as an integral part of the detection process. Patient education concerning hypertension is undoubtedly a desireable part of any screening program. However, since it was not a primary purpose of this study, discussion of this area of detection is not included in this report.

The relatively recent changes in knowledge and attitude of experts toward treatment of hypertensive persons has demonstrated that there is a serious gap in the control of this disease. A 1972 editorial in the Journal of the American Medical Association urged physicians to "take a more responsible view toward this treatable illness." Reports showed that many opportunities for detection were not utilized. Determination of the blood pressure is, unfortunately, not a routine aspect of every patient's examination. This is especially true of
patients seen in emergency rooms and clinics, or by physicians in non-medical specialties. In a study of 800 randomly chosen charts from four hospitals, it was found that 26 percent of the patients never had their blood pressure recorded. This study of hospital charts was made four years after the release of the Veterans Administration Cooperative Study which demonstrated that treatment resulted in "striking benefits for men whose initial diastolic pressure was greater than 105 millimeters of mercury." For a number of years insurance companies have urged the medical profession to identify and treat high blood pressure in its early stages. They have known for quite some time that persons who have high blood pressure, identified during insurance examinations, represent a greater risk of morbidity, and therefore were charged a higher premium.

One of the reasons for lack of control of this insidious disease has been a poor utilization of the abilities of existing health professionals. The measurement of blood pressure is a function traditionally performed by the physician, or at least under his direct supervision. With the possible exception of the American Red Cross Blood Program, most blood pressure measurements have been done in the physician's office and the hospital. However, as the problem of undiagnosed hypertension received increasing attention, it has been suggested that a wide variety of health professionals, including the
pharmacist, become involved in blood pressure measurements and screening activities. Three Task Forces of the National High Blood Pressure Education Program have mentioned the pharmacist in this role. The Task Force on Community Education noted that "there is no reason why dentists, optometrists and pharmacists should not take blood pressures. Perhaps no other action by health professionals can more strongly emphasize the importance of blood pressure to the patient than a routine pressure measurement on every occasion a consumer visits any health professional."20 The Task Force on Resources and Impact Assessment stated that "if both the pharmacist and the customer are willing, the possible detection of hypertension by taking blood pressures..."21 is a role for the pharmacist in the hypertension program.

Many experts feel that the pharmacist is the most logical of the health professionals to perform this vital task. Dr. Theodore Cooper, Director of the National Heart and Lung Institute, which has been the focal point for coordinating the activities of this program, viewed the pharmacist as contributing to its success "...both in his capacity as an actual 'health educator' and advisor to the public and in his capacity as a colleague of the prescribing physician."16 Dr. Cooper also stated that "...there really is what might be called a built-in role for the pharmacist in monitoring the patient..."23

Pharmacist George D. Dennmark, President of the
American Pharmaceutical Association, has contended that "if there is any place in the community where blood pressures can easily be checked—it would be the pharmacy." Utilization of local pharmacies would allow the National Program to be continued on an ongoing basis as a community health service provided by "readily accessible health professionals who are knowledgeable in the field of hypertension." Reinforcing such views are studies which have shown that the pharmacist is often consulted first about health needs, especially by the poor. This role of health advisor could be more important in economically depressed areas having a high percentage of black residents because of two factors: a greater percentage of blacks than whites have been reported as having elevated blood pressures, and the availability and accessibility of health care services in economically depressed areas is more limited as well as poorly utilized. The neighborhood pharmacists have traditionally been among the last health care providers to leave these communities.

Participation by Pharmacists

The statement that "The interest, support and participation of both pharmacists and the pharmaceutical associations are critical to the National Hypertension Program" has been heeded by many of the nation's pharmacists. Pharmacist Frederick S. Mayer, of Sausalito,
California, conducted a program for five hours each Saturday and Sunday during the month of February, 1974, at his Sausalito pharmacy. The pharmacy, located on the main street of Sausalito, not only screened regular patrons, but they were "dragging them in off of the streets." A total of 585 persons were screened by Mayer and two registered nurses who assisted him. Of the 585, 24.2 percent had diastolic pressures over 90 mm/Hg.

In Kenmore, New York, community pharmacist Martin Rein has screened over two thousand patients in a program he established in his pharmacy. In the early stages of the program Rein took the blood pressures himself, assisted by a pharmacy intern. However, as utilization of the service increased, the process became "too involved". Rein hired a nurse to do the actual blood pressure measurement. To make the program manageable, the service was offered on a scheduled basis, three days a week, from 7:00 p.m. to 9:00 p.m.

Pharmacist Herman Glassband, of the Hampton Pharmacy in Baltimore, Maryland, performed the blood pressure measurements himself. Assisted by a nonprofessional staff member, he utilized an automatic blood pressure monitor which eliminated the need for a stethoscope, and reduced the time required to determine the patient's pressure.

Because the involvement of the pharmacist in blood pressure measurement has been relatively limited to date,
the few pharmacists who have established in-pharmacy hypertension screening programs have in most cases done so without the benefit of examples in the literature or advice from colleagues already involved. This situation should change rapidly in the future as current projects and studies in this area are reported. At the present time, there are several pilot programs underway. Many of these are the undertakings of pharmacists who are also part-time instructors at pharmacy schools, or are similarly involved in academic pursuits.

Participation by Academicians

William C. Jennings, a pharmacy resident at The Medical College of Virginia, has recently completed a project "to evaluate a model screening program for detection of hypertensive patients by a pharmacist in a community pharmacy." The study, which was funded by the Virginia Regional Medical Program, was conducted over a four week period in the pharmaceutical center of Eugene V. White in Berryville, Virginia, a rural community with a population of about 1,500. The screening program was conducted during normal pharmacy hours. It was promoted to the public through posters and radio announcements as well as feature articles and advertisements in the local newspaper. Community volunteers were utilized to serve as receptionists and to process the forms used in the study. Jennings and a pharmacy student performed the actual blood
pressure measurements.

Doctor Gregory M. Chudzik, Assistant Professor of Pharmacy at the State University of New York at Buffalo, has been involved in a similar program with a local pharmacy in Buffalo during the past year. 29

In Abington, Pennsylvania, pharmacist Mark Cohen screened over four hundred patrons in the first three months of a program that he designed to utilize the community pharmacist in "educating, motivating and maintaining hypertensive patients." 30 Cohen, a community pharmacist at Maplewood Pharmacy in Abington, also was an Adjunct Clinical Professor of Pharmacy at Temple University. He saw "The Maplewood Experiment" as being significantly different from most screening programs that have been organized. He pointed out that "in our program, we stress continued patient monitoring to achieve better patient compliance with therapy." 31 A special consultation room was built into the pharmacy to assure privacy and to stress the professional quality of the service rendered. Although readings were taken by trained non-professionals, the pharmacist served as a consultant and was called in when the patient showed abnormal pressure readings. Use of an electronic sphygmomanometer provided the patient with a printed record of the reading.

In San Antonio, Texas, pharmacist Ed Mandel established a six month long program in conjunction with
ten other pharmacists, widely scattered throughout the United States. Mandel, a candidate for a Master of Science degree in Public Health, designed a screening and monitoring project as a pilot program for Medi-Health. The project has been funded by Merck, Sharp and Dohme, one of the largest manufacturers of antihypertensive drugs. Medi-Health, a national organization, was formed in 1973 to increase the utilization of pharmacists as community health specialists. Pharmacists involved in this pilot program also utilized automatic sphygmomanometers but did not deliver a printed reading. 32

The late Robert R. Anderson, an instructor at the University of Minnesota College of Pharmacy, was also a pharmacist-owner of a pharmacy located in an economically depressed community. Anderson was interested in investigating the feasibility and acceptability of some pharmacist-provided extended health roles that had been suggested in the professional literature. A wide variety of health services were provided to patrons of Anderson's pharmacy by pharmacy students under the supervision of a pharmacist. Blood pressure measurement became a large element in the project when word spread that this service was provided free. The success of Anderson's endeavor has resulted in expansion of the project. The Department of Clinical Pharmacy at the University, in cooperation with the Minnesota Department of Health, has been seeking funds to undertake a three year study designed to increase phar-
macist's awareness of hypertension, improve patient compliance with prescribed drug regimens and to measure the effect on morbidity and mortality. Twelve pharmacy sites will collaborate in the study.33

Dr. Matthew Weiner, Director of Clinical Services at Columbia University College of Pharmaceutical Sciences in New York City, has indicated that the pharmacist has the opportunity to play a key role in several areas of hypertension. Dr. Weiner has been organizing a blood pressure screening and control program involving pharmacists in the New York City area. This project was designed to help identify unsuspecting victims of hypertension and to assist such patients in "maintaining long term programs of therapeutic control."34

Participation by Associations

The California Pharmaceutical Association has been involved in the development of a national hypertension screening pilot project. Pharmacists in Fresno and Madera Counties of California have been chosen to participate in what is hoped will become a model for pharmacists throughout the United States. At the initial meeting of the pharmacists involved in the pilot study, Robert C. Johnson, Executive Vice-President of the California Association stated:

The role that the pharmacist should and does play in health care has been overlooked far too long. The nation has essentially been deprived of this untapped resource and the hypertension screening program will
be another step toward increased utilization of the pharmacist's expertise in innovative roles... The California Pharmaceutical Association is committed to increasing the pharmacist's involvement in health care, and... to demonstrate, nationally, the value of the pharmacist in one specific area--hypertension screening.35

Mr. Johnson has since been elected President of the American Pharmaceutical Association. At the same meeting, Max Millar, M.D. noted that a soon-to-be-published study reflected a fifty percent increase in patient compliance when the pharmacist became intimately involved with the follow-up care of patients with high blood pressure.36

Dr. John T. Skhal, Director of Health Programs for the California Pharmaceutical Association, stated that pharmacies are ideally situated within communities to serve as screening and public information centers. According to Skhal, pharmacists are "freely available to the public, and the pharmacist will often be the only contact certain patients have with any health professional."37 In addition, the number of patients who go to pharmacies has been quite large, and has been estimated to be a figure approaching the total population of the United States every three weeks for all of the nation's pharmacies.38

Pharmacists participating in the screening program have provided equipment such as sphygmomanometers and stethoscopes, as well as a quiet area where the patient can be seated while his blood pressure is taken. The California Pharmaceutical Association has the responsibility of providing administrative assistance and reporting
forms, and for collection and compilation of generated data for proper program evaluation. Prior to initiation of the project an education program for participating pharmacists was presented. A refresher course on incidence, prognosis, psychological impact on the patient, drugs and therapy used to treat hypertension, and proper techniques in measuring blood pressure was presented. This course was filmed in order that the information and techniques presented could be shared with other state and regional associations.

**Participation by Pharmacists in Government**

Involvement of some pharmacists goes far beyond merely screening for high blood pressure. There are instances in which pharmacists have been responsible for almost complete control of the therapy of hypertensive patients. One example has been the Public Health Service Hospital in Phoenix, Arizona. Patients returning to the hospital for prescription refills of antihypertensive drugs were examined by the pharmacy staff, and based on their evaluation of test results, determination was made as to the future course of therapy. This of course was a carefully controlled study administered by the government. It is mentioned here only to show the recognition of the capabilities of the pharmacist by other health professionals, and by the government, and to indicate a possible future role in the clinical area. 39
Summary

Review of the literature has shown a definite need to intensify efforts to detect undiagnosed hypertensives. The direct increase in longevity when blood pressure is controlled has clearly been shown in several studies. Not only is the control of high blood pressure desireable, but because of recent advances in drug therapy it is now also feasible. Although there is still no cure for primary, or essential hypertension, the current spectrum of antihypertensive drugs permits long term control of blood pressure with very few, if any, side effects for most patients.

Because of the already existing shortage of physicians in the United States, assistance from other health professionals appears to be the best solution to the problem of locating the estimated eleven million undiagnosed hypertensives in this country. A large share of the work of screening the general population for high blood pressure could be performed by pharmacists.

Several pharmacists have already become involved in screening programs. A wide variety of designs have been used with the degree of involvement ranging from simply taking blood pressures, to total control of the patient's therapy. There appears to be little doubt that there is a role for the pharmacist in the war on hypertension. However, there seems to be a lack of consensus as to just what that role should be.
Chapter 3

METHODOLOGY OF THE STUDY

Several of the pharmacists who have introduced high blood pressure screening programs into their pharmacy routines have found that the taking of pressures in the pharmacy setting becomes unwieldy after a short time and necessitates either hiring additional personnel or purchasing expensive automatic sphygmomanometers that can be used by nonprofessional employees. One purpose of this study was to evaluate the practicality of presenting a free high blood pressure clinic at a specified time and place as an alternative to taking blood pressures during regular pharmacy hours. In order to determine the percentage of people interested in attending this type of clinic, notification was made to a group of eight hundred pharmacy patrons by post card. No other method of advertising the clinic was used, although it might be assumed that some word-of-mouth contact might have occurred among some of the recipients of the post cards.

The second purpose of the study was to compare the response to a notification of a screening clinic offered by a pharmacist with response to notifications of clinics sponsored by private and public health agencies. In order to determine the relative response, the post cards used to
notify the prospective participants were randomly divided into four groups, with each of the four groups receiving identical messages, but with each group's message indicating a different sponsor for the clinic. One-fourth of the cards stated that the clinic was being offered by Las Posas Pharmacy, one-fourth of the cards stated the clinic was being offered by the Ventura County Health Department, one-fourth of the cards stated that the clinic was being offered by the Ventura County Kidney Foundation, and one-fourth of the cards had no indication of any sponsorship. Two-way post cards were utilized, and the recipients were asked to return the second portion of the card and to state whether or not they intended to attend (see Appendix A). The return address on the first three sets of cards corresponded with the indicated sponsor, and the set with no sponsor specified were addressed to "Blood Pressure Clinic."

The source of names used in the study was the prescription record file of Las Posas Pharmacy, Camarillo, California. These files consisted of one card for each family having prescriptions filled by the pharmacy. Records of all family members were listed on the same card so that there was only one card for each address. Cards used in this study were all from the active file, which would indicate that at least one member of each family had had a prescription filled within the past year. This would not necessarily mean that the person receiving
a post card had been seen by a physician within the past year since many prescriptions are refilled with oral or written authorization, which is often given in advance.

Pre-test

A sample mailing was made to forty-four randomly selected names from the prescription record file (see Appendix B). This sample card was designed to determine the degree of interest in the clinic before expenditure of funds was made to purchase the eight hundred double post cards. The following procedure was used to ascertain that the message on the card was adequately clear to properly convey the intent. On the morning of February 16, 1974, a draft of the card was shown to twenty-two patrons as they entered the pharmacy. Each was asked to read the card, to express an opinion as to it's clarity, and to offer any suggestions they might have to improve the copy. All twenty-two of these people expressed the opinion that the message and questions were clearly worded and none offered any suggested changes. All but three of the people surveyed commented that they thought that it was an excellent idea, and all but three of these asked to be notified when the clinic was to be held. Although the twenty-two patrons participating in this preliminary survey were taken in order as they entered the pharmacy, without any attempt at selection, a good statistical mix resulted. Included in the twenty-two were two men over sixty-five
years of age, three women over sixty-five, one of whom was on Medi-Cal, two Mexican-American women, one of whom was on Medi-Cal, and one young mother, twenty years old, on Medi-Cal.

Pilot Test

Original intent was to mail fifty post cards in the sample mailing, however, six cards were destroyed in printing and only forty-four were sent. The people chosen for this sample mailing were selected from the master file of approximately 1,600 cards in the following manner.

Selection of the Sample

One male and two female employees of the pharmacy each picked one card at random in rotation until forty-four cards had been selected. Cards were addressed to the head of the household indicated on the record card. Of these addressees, nine, or 20.45 percent, were taking medication that indicated that they were currently being treated for hypertension. These nine cards were marked with a small x in the lower right corner of the return portion of the card. Results of the sample mailing were as follows:
Of the nine cards addressed to known hypertensives, three were returned with all three indicating that they were not interested in attending. However, all three of these respondents did include remarks on their cards indicating that they felt that the clinic was a commendable public service. Removing these nine cards from the sample mailing would alter the results as follows:

<table>
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<th>Mailed 35</th>
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<tr>
<td>Returned 11 (31%)</td>
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<tr>
<td>Not Interested 8 (73%)</td>
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This resulted in approximately the same rate of return, but increased the percent interested from 57 percent to 73 percent.

Recipients of the sample mailing were asked whether they would prefer that the clinic be offered on a weekday between 5:00 p.m. and 7:00 p.m., or on a Saturday between Noon and 2:00 p.m. Replies showed that four pre-
ferred a Saturday clinic, three favored a weekday, and one indicated that either would be acceptable.

Based on the results of the sample mailing it was decided to proceed with the project. The decision also was made to make the mailing without attempting to control for known hypertensives. This was done both to reduce the amount of work involved, and to obtain the favorable publicity anticipated from the project.

Obtaining Sponsorships

Since the sample cards showed an almost even division of choice between Saturdays and weekdays, a Saturday was chosen to hold the clinic. This choice was made after a meeting with representatives of the Ventura County Health Department and the Ventura County Chapter of the American Heart Association. Members of both groups recommended a Saturday clinic because of the greater ease of obtaining volunteers. Both groups were extremely helpful in the planning phase of the clinic, and the Heart Association agreed to provide the necessary number of trained personnel to take the blood pressure readings. These agencies also provided a wide variety of literature to be handed out at the clinic. The original plan was to name the Heart Association as one of the sponsors of the clinic, but because of the unavailability of both the President and the Executive Director until after the date established for the clinic, it was not possible to obtain
permission to use their name. To maintain the original intent of the project the President of the Ventura County Chapter of the Kidney Foundation was contacted, and permission was obtained to use their name in the mailing. They also provided literature and offered to supply volunteers if they were needed.

The month of May, 1974, had been designated as National Hypertension Awareness Month, which seemed an opportune time to conduct the clinic, but it was not possible to make the necessary preparations earlier than the last Saturday of the month, which was Memorial Day weekend. It was feared that the long holiday weekend would interfere with attendance, so Saturday, June 1, was chosen for the clinic date.

Cards were prepared for mailing so that they could be posted on the Saturday prior to the clinic. It was hoped that this timing would allow adequate time for the cards to be returned, and still be close enough to the screening date to minimize forgetfulness by the recipients. Arrangements were made with the Post Office to deliver all of the cards to the pharmacy even though six hundred of them were addressed to organizations that did not have offices at the indicated address. Cards addressed to persons with Spanish surnames included a Spanish language translation of the message.

A dental suite adjacent to the pharmacy that had been vacated two weeks prior to the screening date pro-
vided an excellent location for the clinic. Persons arriving to be screened were greeted in the reception room by a volunteer, and asked to fill out a form provided by the Heart Association to facilitate follow-up of persons with elevated pressures (see Appendix C). The upper part of the form contained seven important facts about hypertension and provided space for the technicians to record the person's blood pressure. This part of the form was designed to be given to the patient. The bottom part of the form was designed to provide the information needed by the Heart Association to perform the necessary follow-up. Patients were asked by the volunteers to indicate their source of notification, and the forms were marked with a code number to reflect their response (see Appendix D).

Procedure

After the preliminary information was obtained, patients were directed to one of three treatment rooms where their blood pressures were taken. The privacy of this type of arrangement is desirable, when feasible. After having their blood pressure recorded on the form, the patients were then counseled by the pharmacist in another private office. Those with elevated pressures were given explanations of the importance of maintaining blood pressure within normal limits, and advised to consult their physician. Referral slips to Health Department Clinics were available for those who desired them (see Appendix E).
Patients were questioned as to prior history of hypertension and asked to indicate how much time had elapsed since they had been seen by a physician. Replies to these questions were recorded on their forms by a number and letter code (see Appendix F). Patients also were provided with additional literature explaining hypertension and its sequelae.

Throughout all of the procedures, every effort was made to keep the number of questions to a minimum. Even though the cards had indicated different sponsors for the clinic, once the patients arrived they were informed of the true nature of the clinic and told that it was a pilot project. It was felt that an excessive number of questions might leave the impression that they were being used as subjects in an experiment, and this was not considered desirable. It also was felt that demographic information beyond the needs of this particular undertaking should not be gathered. Data from this comparatively small sample would add little to the great body of information already accumulated in other studies on hypertension. The technique of having volunteers ask some of the questions, rather than utilizing a longer questionnaire, was a further attempt to avoid the experimental atmosphere. By using a coding system to indicate responses to questions, less emphasis was placed on the inquisitive nature of the study.
Chapter 4

RESULTS

The results of the study are discussed in this chapter. As stated in Chapter 1, the purpose of the study was two-fold: 1) to compare the patient response to a notification of a pharmacist-sponsored clinic with responses to a notification of clinics sponsored by private and public health agencies, and 2) to investigate the practicality of offering a pharmacist-sponsored clinic to screen people for high blood pressure at a particular time and place. Practicality is a highly variable and individualized determination, and what may be practical and reasonable in one situation may not be in another setting. For this reason no attempt has been made in this study to extrapolate the findings to other pharmacy practices, but rather to present the results along with a judgement as to the practicality of the endeavor relative to the circumstance in which it was presented.

This chapter is divided into three major subheadings: the results of the response to notification, the results of the screening, and the summary. Results of similar clinics sponsored by selected health agencies are included in this chapter to provide a basis for comparison.
Results of the Response to Notification

The Null Hypothesis of this study as previously stated was "there will be no significant difference in response to notification of high blood pressure screening clinics, regardless of the source of notification".

Results of the mailing show the hypothesis to be correct. A decision to accept the hypothesis was made after applying the Chi Square test to data obtained from the study. Of a total of 741 cards mailed, 136, or 18.3 percent, were returned. The breakdown of returned cards is as follows.

Table 1
Number of Postcards Returned

<table>
<thead>
<tr>
<th>Source</th>
<th>Number Mailed</th>
<th>Number Returned</th>
<th>Percentage Returned</th>
<th>Number That Plan To Attend</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pharmacy</td>
<td>184</td>
<td>39</td>
<td>21%</td>
<td>30</td>
</tr>
<tr>
<td>Health Dept.</td>
<td>185</td>
<td>42</td>
<td>23%</td>
<td>36</td>
</tr>
<tr>
<td>Kidney Found.</td>
<td>185</td>
<td>28</td>
<td>15%</td>
<td>21</td>
</tr>
<tr>
<td>Anonymous</td>
<td>187</td>
<td>27</td>
<td>14%</td>
<td>19</td>
</tr>
</tbody>
</table>

Even though there was a range of 8.3 percent (above percentages are rounded off to the nearest whole number), application of the Chi Square test shows the response to be independent of the source at a significance level of five percent.
Importance of the results. The fact that a cross
section of pharmacy customers indicated that they were as
willing to attend a blood pressure screening clinic
offered by a pharmacist, as compared to attending one
offered by a governmental agency or a prestigious private
health agency carries with it many implications.

A recent study of consumer attitudes concerning
pharmacists showed that failure to "...adequately communi-
cate the value of his services to his patients"\textsuperscript{41} was
responsible for many of the problems of pharmacists. This
was one of the findings of an in-depth survey conducted by
the Dichter Institute for Motivational Research and
sponsored by The American Pharmaceutical Association. The
annual meeting of the A.Ph.A. in 1974 has planned two
seminars devoted to helping the pharmacist improve his
ability to communicate with the public, and to increase
public awareness of the professional nature of pharma-
ceutical services. From the response to this project it
would appear that this type of service is appreciated by
the patient; and that the method of communication was
adequate to convey the desired message.

Table 2 shows the number of cards returned by
those indicating that they either were not interested in
attending; or were unable to attend at that particular
time. The figures in parentheses are the number of cards
included in the totals shown that had written comments
concerning the project. These comments were all favorable.
Four of the cards returned as "not interested" had comments on them, which expressed the opinion that the clinic was a "good idea" and a "praiseworthy public service". Each of these four indicated that they were not interested in attending because they were already under treatment for hypertension, and were having their blood pressure monitored by their physician.

Table 2

<table>
<thead>
<tr>
<th>Sponsor</th>
<th>Unable to Attend (Comments)</th>
<th>Not Interested (Comments)</th>
<th>Percent Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pharmacy</td>
<td>13 (4)</td>
<td>8 (3)</td>
<td>33%</td>
</tr>
<tr>
<td>Health Dept.</td>
<td>13 (1)</td>
<td>8 (1)</td>
<td>9%</td>
</tr>
<tr>
<td>Kidney Foundation</td>
<td>10 (3)</td>
<td>6</td>
<td>18%</td>
</tr>
<tr>
<td>Anonymous</td>
<td>9</td>
<td>6</td>
<td>0</td>
</tr>
</tbody>
</table>

The higher percentage of comments included with the pharmacy-sponsored cards may be due to the personal relationship established between the pharmacist and the patients. It is interesting to note that none of the respondents to the anonymous cards included any comments or explanations as to why they did not plan to attend.

Results of the Screening

During the four hour period that the clinic was operated a total of fifty-four persons were screened. This was approximately half of the number that had indi-
cated that they planned to attend. Table 3 shows the breakdown by sponsor of the number indicating an intention to be present at the screening and the actual number that came.

Table 3

<table>
<thead>
<tr>
<th>Sponsor</th>
<th>Number of Cards Returned</th>
<th>Number Plan To Attend</th>
<th>Number That Did Attend</th>
<th>Percent of Planned Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pharmacy</td>
<td>18</td>
<td>30</td>
<td>16</td>
<td>53.3%</td>
</tr>
<tr>
<td>Health Dept.</td>
<td>21</td>
<td>36</td>
<td>7</td>
<td>33%</td>
</tr>
<tr>
<td>Kidney Found.</td>
<td>12</td>
<td>21</td>
<td>6</td>
<td>50%</td>
</tr>
<tr>
<td>Anonymous</td>
<td>12</td>
<td>19</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

No figures are given for the number attending who had received a card from an anonymous source, since it was not possible to determine how many people fell into this category. Of the twenty-five people attending who did not indicate that one of the other sponsors had notified them of the clinic, fourteen stated that they did not remember the source of notification, and ten said that they had learned of the clinic from someone else. It seems reasonable to assume that at least part of these twenty-five people received notification from one of the other three sponsors, or that if they learned of the clinic from someone else, the original notice came from one of the
three. The fact that twenty-five people, or forty-six percent of the total number attending the clinic either showed up in response to an anonymous postcard, or else could not remember who had informed them of the clinic tends to reinforce the conclusion that the response to notification of the clinic was independent of the source of notification.

Comparison with other clinics. Because of the response to the mailing it was somewhat of a disappointment to have only fifty-one percent of the expected number show up. This disappointment was offset somewhat by the discovery that fifty-four was a greater number than had been screened so far during the year by either the Heart Association or the Health Department during a four hour clinic. Both of these agencies fully advertise their clinics in advance, utilizing both newspapers and local radio station announcements, as well as flyers, handbills, and bulletin-board notices. Table 4 shows the number of persons screened by the Ventura County Health Department and Table 5 shows the screenings at clinics held under the auspices of the American Heart Association. Included are results of several screenings conducted at shopping centers in which large numbers of people were screened.
<table>
<thead>
<tr>
<th>Date</th>
<th>Location</th>
<th>Number Screened</th>
<th>High Readings</th>
</tr>
</thead>
<tbody>
<tr>
<td>March 9</td>
<td>La Colonia Housing, Oxnard</td>
<td>90</td>
<td>16</td>
</tr>
<tr>
<td>April 2</td>
<td>La Colonia Youth Project, Oxnard</td>
<td>36</td>
<td>7</td>
</tr>
<tr>
<td>April 9</td>
<td>Rose Garden Apartments, Oxnard</td>
<td>69</td>
<td>7</td>
</tr>
<tr>
<td>April 24</td>
<td>St. Paul's Church, Oxnard</td>
<td>42</td>
<td>19</td>
</tr>
<tr>
<td>April 16</td>
<td>Camarillo Pap Clinic</td>
<td>54</td>
<td>12</td>
</tr>
<tr>
<td>April 30</td>
<td>Saticoy Pap Clinic</td>
<td>52</td>
<td>3</td>
</tr>
<tr>
<td>Week of May</td>
<td>Ojai Valley Hospital Staff</td>
<td>396</td>
<td>125</td>
</tr>
<tr>
<td>May 2</td>
<td>Pap Clinic, Oxnard</td>
<td>35</td>
<td>5</td>
</tr>
<tr>
<td>May 21</td>
<td>St. Paul's Baptist Church, Oxnard</td>
<td>16</td>
<td>5</td>
</tr>
<tr>
<td>May 22</td>
<td>St. Anthony's Church, Oxnard</td>
<td>35</td>
<td>13</td>
</tr>
<tr>
<td>May 28</td>
<td>Pap Clinic, Thousand Oaks</td>
<td>57</td>
<td>4</td>
</tr>
<tr>
<td>May 28</td>
<td>Oxnard Senior Citizens</td>
<td>51</td>
<td>11</td>
</tr>
<tr>
<td>Month of May</td>
<td>Health Department Drop-ins</td>
<td>51</td>
<td>19</td>
</tr>
</tbody>
</table>

Times were not provided for the above clinics. Only the information that all of these clinics were in excess of four hours was available.
Table 5  
Results of High Blood Pressure Screening Clinics  
Conducted by Ventura County Heart  
Association During 1974

<table>
<thead>
<tr>
<th>Date</th>
<th>Location</th>
<th>Duration In Hours*</th>
<th>Number Screened</th>
<th>High Readings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jan. 14</td>
<td>Ventura Health Dept.</td>
<td>2 Hrs.</td>
<td>32</td>
<td>5</td>
</tr>
<tr>
<td>Jan. 19</td>
<td>Ventura Health Dept.</td>
<td>4 Hrs.*</td>
<td>77</td>
<td>18</td>
</tr>
<tr>
<td>March</td>
<td>Oxnard Twin Centers</td>
<td>12 Hrs.</td>
<td>323</td>
<td>69</td>
</tr>
<tr>
<td>April</td>
<td>Oxnard Twin Centers</td>
<td>4 Hrs.*</td>
<td>209</td>
<td>37</td>
</tr>
<tr>
<td>May 2</td>
<td>Oxnard, Low Income Area</td>
<td>2-1/2 Hrs.</td>
<td>16</td>
<td>3</td>
</tr>
<tr>
<td>May 8-12</td>
<td>Thousand Oaks, Conejo Days</td>
<td>23 Hrs.</td>
<td>350</td>
<td>14</td>
</tr>
<tr>
<td>June 3</td>
<td>Oxnard Twin Centers</td>
<td>7 Hrs.</td>
<td>268</td>
<td>38</td>
</tr>
<tr>
<td>June 22</td>
<td>Esplanade Center, Oxnard</td>
<td>9 Hrs.</td>
<td>164</td>
<td>44</td>
</tr>
</tbody>
</table>

*Times not shown were not available. Heart Association representatives stated that all of those for which times were not recorded were in excess of four hours duration.
Previous history of hypertension. One of the questions asked of each participant during the screening procedures was whether or not he or she had ever been told that the blood pressure was elevated. Those giving an affirmative reply were asked if they had ever been told that they had hypertension. Further, they were asked if they were presently, or had ever been, under treatment for hypertension. Table 6 shows the responses to these questions.

Table 6
Participants Indicating a History of Elevated Blood Pressure or Hypertension

<table>
<thead>
<tr>
<th>Response</th>
<th>Number</th>
<th>Number With Elevated Pressures At Clinic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Never told high pressure</td>
<td>36</td>
<td>5</td>
</tr>
<tr>
<td>Told before high reading</td>
<td>10</td>
<td>5</td>
</tr>
<tr>
<td>Presently under treatment</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>Previously under treatment</td>
<td>4</td>
<td>1</td>
</tr>
</tbody>
</table>

Several interesting observations may be extracted from these findings. Of the four people reporting that they had previously been under treatment for hypertension, only one had an elevated pressure at the time of the screening. All four of these people also reported that they had been seen by a physician within the previous six month period. The one person out of these four that had
an elevated pressure was a sixty year old female. Her blood pressure, as recorded at the clinic, was 182/110, the highest reading of the day. Consultation with this patient revealed that she had recently had lung surgery. A recommendation was made that she contact her physician without delay to advise him of the elevated reading. Follow-up on this patient revealed that she had indeed contacted her physician immediately upon leaving the clinic. Discussion with her physician verified the accuracy of the reading and brought out his concurrence that the situation had necessitated immediate correction.

Previous high readings. Ten persons stated that they had been told at some time that their blood pressure reading was above normal. Of these ten, five had elevated pressures at the time of the clinic. This aspect of hypertension presents the physician with an additional problem. The question of whether or not a patient should be placed under treatment is considerably more complicated than merely taking a blood pressure reading. Factors such as age, family history, general health, occupation and sex must be considered. Even economic considerations must be weighed due to the long range nature of therapy with drugs that might be rather expensive.

The transient nature of high blood pressure is well known and many experts agree that at least three separate elevated readings are necessary for an indica-
tion of persistant hypertension. These three readings are usually taken at intervals of at least one week, and at different times of day. Most experts also agree that although a single elevated reading does not presuppose a diagnosis of hypertension, it can be very meaningful. Many pharmacists that have undertaken blood pressure screening programs request many of their patients showing elevated readings to return at weekly intervals for at least three weeks before referring them to a physician. This may or may not be advisable. Before instituting such a procedure it would be wise to consider factors of diagnosis. Only a physician can properly determine the significance of a single elevated pressure. It is conceivable that the fact that a pharmacist decided that an elevated pressure was not important could be construed as a diagnosis. Undoubtedly, the best procedure to follow in undertaking any screening program is to discuss the plans with a representative of the local Medical Society as well as with local physicians so that predetermined guidelines can be used.

Compliance. It was interesting, but not altogether surprising, to learn that of the four people currently under treatment for hypertension, three had elevated pressures at the time of the clinic. Although a rather wide array of effective antihypertensive drugs are now available, they all have one drawback that has received much
attention recently in the literature. They are only effective if they are taken regularly. As discussed previously, hypertension is a controllable, but not a curable condition.

Since checking medication records for drug therapy compliance was not included as a feature of this clinic, it is not possible to state that non-compliance was a factor in these particular cases. The overall pattern of non-compliance is well documented, however, and has been shown to be a major cause of treatment failure. According to Doctor Gregory Chudzik, of the State University of New York at Buffalo, reports of non-compliance range from as low as four percent to as high as ninety-six percent in various groups studied.\(^{43}\)

One of the participants who reported that she was currently under treatment for hypertension also stated that it had been over a year since she had been seen by a physician. This failure, or inability, of the physician to monitor patients on antihypertensive agents is intimately involved with the problem of non-compliance. A study of this problem was reported in a 1970 article in the Journal of Chronic Disease.\(^{44}\) Basically the reason for failure to follow the physician's advice was lack of motivation. This may be due to one or more of the following factors:

1. The patient does not understand the serious nature of the disease.
2. The patient does not understand that the condition is not curable and requires continuing treatment for control.

3. The patient may feel better when he is not taking the medication than when he is taking it.

Length of time since last seen by a physician.
Clinic participants were asked how long it had been since they had been seen by a physician. Twenty-six people, or forty-eight percent, stated that they had been seen within the previous six month period. The remaining fifty-two percent were fairly evenly divided as follows:

<table>
<thead>
<tr>
<th>6 Months or Less</th>
<th>6 Months To 1 Year</th>
<th>1 to 2 Years</th>
<th>2 to 5 Years</th>
<th>Over 5 Years</th>
</tr>
</thead>
<tbody>
<tr>
<td>26</td>
<td>8</td>
<td>8</td>
<td>6</td>
<td>6</td>
</tr>
</tbody>
</table>

Of the six persons who had not been seen by a physician in over five years, three had elevated pressures. All three were males, ranging in age from thirty-nine to fifty-three. Diastolic pressures for these three were 98, 102, and 104. The two higher pressures fall into the category of "moderately elevated" as compared with "mildly elevated", for those falling between 90 and 100. All three of these people were urged to contact a physician without delay to make an appointment for a complete physical examination. Even though the reading of 98 diastolic falls within the range of "mildly elevated",

it is in the upper limits of this classification, and this reading was obtained on the thirty-nine year old. Many experts feel that a diastolic pressure in this range is as significant in a younger individual as a higher reading would be for an older person. Certainly anyone of this age with even a mildly elevated pressure should not allow five years or more to pass without being seen by a physician.

It must be remembered that the sample was drawn from a group of regular pharmacy patrons rather than from the general population. The fact that sixty-three percent of those attending the clinic had been seen by a physician within a year's time probably is not representative of the general population. It is doubtful that this is even representative of the area from which the sample was drawn. It would appear to be more reasonable to conclude that the people who attended the clinic did so because they were more concerned about their health than those who were invited but did not attend. This concern for their health could also explain why such a high percentage had been seen by a physician within the past year.

**Ethnicity.** It is unfortunate that a count was not maintained on the number of cards mailed to persons with Spanish surnames. The representative of the American Heart Association who was present at the screening stated that she was disappointed in the apparent failure to reach
the lower income Mexican-American portion of the population. This group has presented a challenge to the Heart Association as members have not responded in any great numbers to any of the clinics that the Association has sponsored. Even those clinics presented in predominately Mexican-American areas have been poorly attended compared to those given in other areas.45

In this clinic, only one Mexican-American was screened, and he was known to be an engineer whose income is well within the middle class range. There also was only one Black that attended, and he was known to be a Civil Service worker, employed by the Postal Service.

**Age of participants.** The average age of those attending the clinic was forty-seven years. The age breakdown was as follows:

<table>
<thead>
<tr>
<th>Age Range</th>
<th>Under 20</th>
<th>20-29</th>
<th>30-39</th>
<th>40-49</th>
<th>50-59</th>
<th>60-69</th>
<th>Over</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ages</td>
<td>1</td>
<td>4</td>
<td>11</td>
<td>18</td>
<td>10</td>
<td>6</td>
<td>4</td>
</tr>
</tbody>
</table>

It was interesting to note that the grouping by age resulted in an approximate normal distribution curve.

The oldest person screened at the clinic was a seventy-four year old male. His blood pressure reading was 124 systolic and 65 diastolic. Obviously elevated blood pressure is not a necessary concomitant of the aging process.
Averages. The average age of the participants was 46.9 years. The average systolic pressure was 131 and the average diastolic pressure was 83. Fifty-four percent of the participants were women and forty-six percent were men. Ethnic minorities accounted for less than four percent of the participants.

Summary

Presenting this clinic was an extremely interesting and rewarding experience. One of the stated objectives of the study was to determine the practicality of this type of clinic. The overall project was considered successful enough to be judged practical, but several portions of the endeavor could have been handled in a more practical manner. Recommendations for changes in procedure are discussed in Chapter 5.

An overall return rate of 18.3 percent was obtained from the mailing. From a total of 741 two-way postcards that were mailed, 136 were returned. The Null Hypothesis of the study, "there will be no significant difference in response to notification of the high blood pressure screening clinics, regardless of the source of notification" was accepted based on the results of a Chi Square test.

Although a total of one hundred and six people indicated on the returned cards that they planned to attend, only fifty-four, or 50.9 percent, actually did...
attend. Of these fifty-four, fourteen had elevated pressures. This is a percentage of 25.6 which is comparable to percentages obtained by other practitioners conducting hypertension screening programs.
Chapter 5

DISCUSSION

This chapter discusses the overall results of the project and presents recommendations for the presentation of similar clinics. Included are suggestions for expansion of the screening project and inclusion of additional important aspects. The chapter is subdivided into three major headings: conclusions, recommendations, and summary.

Conclusions

One of the objectives of this study was to investigate the practicality of presenting such a clinic. It has previously been stated that the determination of the practicality of a project is a highly variable and individualized matter. It is the intent of this portion of the chapter to discuss the variables which might affect such a determination.

Time required. The primary considerations for most practitioners would undoubtedly be how much time is required to conduct such a screening and how much expense is involved. The actual time of the clinic was four hours. Considering the circumstances under which the clinic was presented, this was probably the best length of time to have used. Although there were periods in which the clinic
was crowded due to the number of people attending, there also were slow periods. Overall an adequate length of time was permitted for each participant. More people could be handled in the same period of time with the same number of workers. Two or three workers taking blood pressures could handle a considerably larger number, but no more than approximately one hundred participants could adequately be counselled by one person during a four hour clinic. It is the opinion of the author that counseling is a far more important role for the pharmacist than the actual taking of blood pressures, and that this role should be allotted adequate time.

The time used in planning this project was far in excess of what would be required under non-academic conditions. The cooperation and assistance of local health agencies can greatly reduce the amount of time required by the practitioner in conducting such a program. Even with a lack of agency support, it should not prove too difficult to enlist the aid of one or two nurses to take blood pressures. In addition, a family member or pharmacy employee can serve as a clerical volunteer. The American Heart Association and probably all health departments have materials and forms which are usable. Several pharmaceutical manufacturers also have forms for use in screenings as well as literature to assist in informing the patient.
A screening could become much more demanding of time if a follow-up procedure were included. In the case of this project, the Heart Association handled the follow-up since they were already set up to perform this task. The follow-up procedure consisted of phone calls to all participants who had elevated pressures. These calls were to determine whether or not the person had subsequently contacted a physician and to urge them to do so if they had not. They also were reminded during the phone call that the County of Ventura maintained treatment clinics for those who could not afford to go to a private physician. Postcards were subsequently sent as a secondary reminder.

Expense. The method of notification for this screening was the use of two-way postcards. These are available from the United States Post Office at a cost of sixteen cents each. For this project a total of eight hundred cards were purchased. Thus, the total cost for cards was one hundred and twenty-eight dollars. For the fifty-four participants, this represented a cost per person screened of two dollars and thirty-seven cents. Since no charge was made for the blood pressure reading, none of the expenses were recovered. Several methods that would be less expensive are discussed later in this chapter. There was no expense incurred in this project for printing because of the availability of a mimeograph machine. Often health agencies have this type of equipment avail-
able. Prices quoted for commercial printing of the cards ranged from a low figure of eleven dollars, by one of the newer type rapid printing firms, to forty dollars by a more traditional print shop. The prices quoted were for the two-way post cards which required printing on three different facings. These are considerably more expensive to have done than would be other types of materials.

**Subjective evaluation.** Much of the success or failure of this sort of undertaking must be determined by the feeling of the individual presenting the screening. Since this clinic was not structured to be a profit-making venture, there can be no evaluation based on whether or not it was a financial success. Underlying any such public service endeavor is the hope that there will be a resultant increase in professional prestige. Increased esteem by the members of the community may well result in an indirect increase in income by increasing the utilization of services for which monetary remuneration is received. This, however, is an aspect that is difficult to evaluate with any degree of scientific accuracy. In the final analysis success or failure can only be based upon the acceptance of the project by the participants, and the presence or lack of a feeling of satisfaction among the workers. Based on this criteria the clinic must be judged a success.
Recommendations

There are a number of ways in which a similar project could be simplified. Because this was a graduate project, a number of steps that were included would not be required under more ordinary conditions. There are also several procedures that would enhance the effectiveness of a screening program that was not faced with a time limit.

Notification procedure. The necessity of having at least a general idea of how many people might attend the clinic dictated the use of two-way postcards. This type of card also was considered to be the easiest way to arrive at a determination of the response to notification. Since these predeterminations do not have to be a requirement for holding a clinic, there would be no need to use this expensive method of notification. Also, there was a necessary limit to the number of people notified of the clinic, for statistical purposes. Under usual circumstances it would be desirable to notify the greatest number of people possible with a minimum expenditure of both time and money. There are several less expensive methods of notification which might be considered.

One-way postcards. By deleting the return portion of the postcards, twice as many cards could be mailed for the same amount of money. Even though not all of the two-
way cards were returned, postage was paid for all of them. Printing of the cards in most cases would be less expensive for twice as many of the one-way cards. This is due to the requirement for printing only one surface instead of three.

Enclosure of notice in statements. Pharmacists sending out a large number of statements to their patrons each month might consider enclosing a notice of the screening with these statements. This would involve no additional expenditure for postage. An additional reduction in expense could be realized by pharmacists using computer billing services. Most of these services will include a message on the statements at no additional charge.

Advertising to the general public. The use of mass media to advertise a blood pressure screening would have a two-fold effect. Not only would the message of the screening be carried to people that would attend the clinic, but it would also be carried to a great number who would not attend the clinic. In the words of Doctor Leighton Cluff, "Professionalism involves services, not products." This observation was made by Doctor Cluff at a seminar for teachers of pharmacy, sponsored by The American Association of Colleges of Pharmacy in early 1974. Surveys have shown that the public is interested in this type of service. There seems to be little doubt that participation by phar-
Pharmacists in service oriented endeavors can only improve his professional image. The opportunity to bring this professionalism to the attention of the public should not be overlooked. Although costs for mass media advertising vary considerably, in many areas the expense is not prohibitive. For example, in the area in which this screening was presented, the one hundred and twenty-eight dollars spent for postcards is only a few dollars less than the cost for a full page ad in the local daily newspaper. One disadvantage to this method is that there is no assurance that the target population has been reached.

**Conduct of the clinic.** The problem of hypertension breaks down quite logically into three major areas: 1) identifying those with elevated pressures; 2) diagnosing the hypertensive patient and establishing a regimen of therapy; and, 3) following the progress of the patient and checking for compliance with prescribed drug therapy. Obviously the second area is the responsibility of the physician. Areas one and three, however, are both areas where the pharmacist can provide assistance. This paper was concerned only with the first area, identification of those persons with elevated pressures. Other practitioners planning to undertake similar screening clinics might wish to give consideration to including procedures for follow-up in two areas: follow-up of persons with elevated pressures to urge them to see a physician, and follow-up of
diagnosed hypertensive patients to assure compliance with prescribed drug therapy. The latter, of course, could only be undertaken with those who are patrons of the pharmacist.

Pharmacists planning to provide blood pressure screenings as a long term project have the alternative of either establishing regular times during which this service will be provided, or having someone available to take readings at all times that the pharmacy is open. Experience of other practitioners has shown that the use of some sort of regularly scheduled clinic is preferable. Experience with this project has shown that setting aside a particular time to screen patients is a workable method of checking a large number of people in a relatively short period of time. This procedure has the further advantage of not interrupting the normal pharmacy routine and of permitting the screening and consultation to proceed uninterrupted by regular pharmacy functions.

There is a very sensitive area that deserves special mention. This is the language and technique used by the pharmacist in advising someone to seek medical care. Although it is not possible to specify terminology to be used in every instance, these two major considerations should be borne in mind: 1) care must be taken to avoid frightening the patient while adequate emphasis is made to obtain the desired result, and 2) care must be taken to
avoid having the advice offered misinterpreted as a diagnosis.

A final recommendation concerns the matter of compensation for providing these services. In a one time, or occasional clinic of the type discussed in this study, adequate justification appears to exist for presenting the screening as a public service. Due to the required expenditure of time and effort, there also appears to be adequate justification for charging a fee for this service if it is to be provided on a continuing basis, although this might detract from the concept of community service.

Summary

Pharmacist-sponsored screening programs for persons with high blood pressure were determined to be a practical undertaking with certain modifications. The major change recommended concerned the method of notification. The utilization of less expensive techniques to advertise the clinic would result in considerable cost savings without impairing the effectiveness of the undertaking. The amount of time required to set up and conduct a screening of this kind was not judged to be prohibitive.

Both private and public health agencies were extremely cooperative in both planning and presentation of the screening program that was undertaken in this study. Even though this could vary considerably, depending on the geographical area, it certainly warrants investigation.
Assistance in preparing for the screening, supplying volunteers, and providing forms to be used were important agency contributions to the project.

Finally, on a subjective basis, this author considered the study to be both worthwhile and personally rewarding.
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APPENDIX A

FORMAT OF POSTCARDS USED IN NOTIFICATION

FREE BLOOD PRESSURE CHECK

We are planning a Clinic in conjunction with National Hypertension Month to help discover some of the thousands of persons who do not know that they have High Blood Pressure. Since there are no symptoms to warn people that they have High Blood Pressure, it is undetected in about half of those who have it. It is called "THE SILENT KILLER". It causes Heart Attacks, Strokes, and Kidney Disease. It is a major cause of death. A Blood Pressure check is painless, takes only a few minutes, and in this case is FREE.

The Clinic will be held SATURDAY, JUNE 1, from 12 Noon, until 3 PM, at Las Posas Medical Center, 3901 Las Posas Rd., Camarillo. It will help in planning if you will return the attached card whether or not you plan to attend. There is no obligation or cost.

This portion of the card was either left as shown, or had one of the following signature lines added:
1) John T. Bailey, F.A.C.A., Las Posas Pharmacy, 2) Health Services Agency, Ventura County Health Department, or 3) Ventura County Kidney Foundation.
The return portion of the card used the following format.

<table>
<thead>
<tr>
<th>FREE BLOOD PRESSURE CHECK</th>
</tr>
</thead>
<tbody>
<tr>
<td>Please check one of the following and mail</td>
</tr>
<tr>
<td>_____ I (we) plan to attend. Number of Adults___</td>
</tr>
<tr>
<td>_____ I (we) will be unable to attend at this time.</td>
</tr>
<tr>
<td>_____ I am not interested in attending.</td>
</tr>
</tbody>
</table>

Your cooperation in returning this card will help in planning the Clinic. Postage has already been paid.

Thank you

The Camarillo City Bus goes to the Medical Center hourly.
APPENDIX B

FORMAT OF POST CARDS USED IN SAMPLE MAILING

FREE BLOOD PRESSURE CHECK

We are planning a clinic in conjunction with the Calif. Pharmaceutical Assn. to help discover some of the thousands of Californians who do not know that they have High Blood Pressure. Since there are no particular symptoms that warn people that they have High Blood Pressure, it is undetected in about half of the people who have it, and yet continuing High Blood Pressure is one of the major causes of death, and always shortens life expectancy of it's victims. For this reason it has been called "The Silent Killer". A Blood Pressure check is painless, takes only a few minutes, and in this case is free.

We are asking you to assist us in planning by answering the questions on the attached card, and dropping it in the mail. You need not sign the card, and of course it does not obligate you in any way. Thank you for your cooperation.

John T. Bailey, R.Ph., F.A.C A.

_____ I would be interested in attending a Free Blood Pressure Clinic if it were held on a weekday between 5:00 p.m. and 7:00 p.m.

_____ I would be interested in attending a Free Blood Pressure Clinic if it were held on a Saturday between 12 Noon, and 2:00 p.m.

_____ I would not be interested in attending.

Any comments you would care to make would be appreciated. Thank you for your cooperation.
APPENDIX C

VENTURA COUNTY HEART ASSOCIATION HYPERTENSION DETECTION PROGRAM
In Cooperation With
VENTURA COUNTY HEALTH SERVICES AGENCY

NAME ________________________________
DATE ________________________________
BLOOD PRESSURE ___________ / __________ mm.Hg.

HYPERTENSION FACTS:
1. Hypertension means persistently high blood pressure.
2. Pressures greater than 160/90 are usually considered elevated.
3. It is estimated that 15-20 per cent of the American population has hypertension.
4. Hypertension itself frequently causes no symptoms, but may cause serious complications later on.
5. The incidence of many complications of hypertension (such as strokes, heart failure and kidney failure) can be greatly reduced by medical treatment before they develop.
6. An elevated pressure on only one occasion does not always indicate hypertension. However, it is wise to recheck high readings; if persistently elevated they frequently indicate a need for treatment.
7. If your blood pressure reading today is elevated, a subsequent recording in the next few weeks is recommended. This can be done by your private physician, or if you would prefer it, evaluation of an elevated reading (and treatment if necessary) can be provided by the Ventura County Hypertension Program.

PLEASE PRINT
DATE ___________ AGE ___________ SEX _M_ F
NAME ________________________________
ADDRESS ________________________________ CITY ___________
PHONE NUMBER ________________ ZIP ___________ / __________
ARE YOU PRESENTLY UNDER A DOCTOR’S CARE? _____YES _____NO
WOULD YOU LIKE TO BE REFERRED TO THE COUNTY HYPERTENSIVE CLINIC FOR FURTHER TESTING? _____YES _____NO

BLOOD PRESSURE ___________ / __________
APPENDIX D

CODE USED TO RECORD RESPONSES

Learned About Clinic

1) Postcard LAS POSAS PHARMACY
2) Postcard HEALTH DEPARTMENT
3) Postcard KIDNEY FOUNDATION
4) Postcard BLOOD PRESSURE CLINIC (Anonymous)
5) Postcard DON'T REMEMBER SOURCE
6) LEARNED FROM SOMEONE ELSE
7) OTHER - Specify

Ethnicity

A Anglo
B Black
C Chicano
O Oriental

Blood Pressure History

V - Never told had high blood pressure
X - Told before had high blood pressure
Y - Presently under treatment
Z - Was under treatment - stopped

Last Seen By a Physician

1) Less than 6 months
2) 6 months - 1 year
3) 1 - 2 years
4) 2 - 5 years
5) Over 5 years.
APPENDIX E

HIGH BLOOD PRESSURE CLINIC REFERRAL

Health Services Agency
Ventura County

Blood Pressure___/___ Date___/___/

Name __________________________ (last) (first) (initial)

Address __________________________ City __________ Zip __________

Phone Number __________________________ Another Phone __________________________ Another Address __________________________

Date of Birth___/___/___ Sex: M Fe

____ Only speaks Spanish Ethnic: ______ Mexican-American ______ Black

____ Ventura General ______ Caucasian ______ Oriental

____ Oxnard ______ Other

____ Santa Paula

____ Simi