

## PLAN AND OPERATION OF THE CONNECTICUT HYPERTENSION SURVEY

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### Introduction

The Connecticut High Blood Pressure Program is a statewide effort to increase awareness of high blood pressure and to coordinate resources for the control of high blood pressure. As part of the Program, three institutions--the State Department of Health Services, the Connecticut Affiliate of the American Heart Association and the Yale University Department of Epidemiology and Public Health--are funded by the National Heart, Lung and Blood Institute; each in turn is responsible for a different component of the Program.

The Yale University component involves two tasks: (1) evaluation of the Program's effectiveness in changing consumer levels of awareness and information regarding high blood pressure over a three year period; and (2) epidemiological and statistical consultation. Program evaluation, the first of these tasks, has begun with a baseline survey--The Connecticut High Blood Pressure Survey--whose objectives are to provide estimates of the prevalence of high blood pressure in the summer and fall of 1978 among the adult Connecticut population by certain demographic characteristics, to gauge current levels of high blood pressure awareness and control status, and to identify barriers to medical care. To accomplish these ends, the Yale University Department of Epidemiology and Public Health established a field office in New Haven to conduct personal interviews throughout the state.

### Nature and Magnitude of Endeavor

The field operations consisted of collecting data through personal interviews with blood pressures in approximately 3,100 households in Connecticut. These households were selected by a multi-stage cluster probability sample. Thirty-two of Connecticut's 169 towns were designated as the Primary Sampling Units (PSUs) in the five Health Service Areas. A random selection of 784 segments in these PSUs comprised the second stage. The third stage was a 25% random sub-sample of the households contained in each of these segments.

A listing of the segments was done in the early months of field operations. Over 70,000 addressees were listed throughout the state. In addition to listing, design and pretest of the survey instrument were activities of the early summer 1978 months. Interviewing spanned seven months, from mid-July, 1978, to mid-February, 1979. Analysis of the data collected regarding prevalence of high blood pressure is now underway and will be available at a later date.

This paper does not concern the data and its analysis but rather the field operations, distinctive features thereof and special problems encountered in the course of seven months of interviewing. In particular, staffing, training, field work and quality control will be discussed.

### Staffing

There were two major recruiting stages; the first stage involved a group of college students hired for the summer, 1978. The second recruiting stage consisted of those interviewers hired cyclically from the beginning of September through No-

vember. A total of 76 interviewers operated in the field during the seven months of field operations.

An unanticipated development was that staffing was not a static activity but was a continuing process. Originally, a semi-permanent staff of interviewers was envisioned. The supervisors found, however, that most interviewers viewed the position either as a summer job or as a temporary job--a holding action--until they found a permanent position. Staffing became a critical issue in the field operations and required a considerable amount of time from supervisors for handling advertisements and screening applicants as well as other duties associated with hiring.

With an eye toward the future, supervisors of field operations should be aware of this problem of permanence of the interviewing staff. One possible solution would be upgrading the position; this however, would entail paying a higher salary, perhaps, twice the minimum wage. Alternatively, supervisors could anticipate turnover among interviewers and plan accordingly.

### Training

Given the turnover of interviewers discussed above, training also became a continual feature of the field operations. Forty-eight interviewers were trained during the fall months; this figure does not include those who did not complete the training. Again, the time involved on the part of the supervisors was considerable. It was essential, therefore, to standardize the training sessions for maximum effectiveness and efficiency. Training cycles, which coincided with recruiting, were established to maintain twenty interviewers in the field at any given time. The supervisors also developed a training manual which proved invaluable in the training process.

The training schedule (see figure 1) consisted of classroom sessions interspersed with practice listing and measurement of blood pressures at screening clinics sponsored by the Connecticut affiliate of the American Heart Association. The interviewers then had the opportunity to apply all aspects of the training in a field trial.

The key components in the training procedure were hypertension education and blood pressure measurement procedures. Several varied tools were used to educate the supervisors and the interviewers about hypertension. The supervisors showed a film titled "High Blood Pressure, If Only it Hurt a Little."<sup>1</sup> Both interviewers and supervisors received two pamphlets published by the American Heart Association: "How to Help Your Doctor Treat Your High Blood Pressure" and "What Every Woman Should Know about High Blood Pressure." Finally, there were group interviewer meetings with a presentation on hypertension given by the Principal Investigator.

The supervisors and interviewers were trained in blood pressure measurement techniques by the American Heart Association. They supplemented their training with a video cassette titled "Measuring Blood Pressure" prepared for the Hypertension Detection Follow-up Program.<sup>2</sup> The interview-

ers, after discussion of equipment and techniques, had practice sessions in the classroom setting and at screening clinics. Supervisors administered accuracy tests on the fifth training day; the interviewers had to pass the test with 80% agreement before entering the field.

With regard to the overall training experience, the training of large numbers of inexperienced people in blood pressure measurements proved particularly interesting. At the start of the training session, the supervisors noted the anxiety on the part of the interviewers regarding "technology" of blood pressure measurement. There was particular concern about the equipment, the mercury sphygmomanometer and stethoscope. During the course of the training session, the interviewers' confidence grew. The initial problem--the perception of blood pressure measurement as a complicated technology or procedure--was converted in the course of the training to an enjoyable undertaking for the interviewers. In fact, learning how to measure blood pressures was the activity the interviewers enjoyed most during training.

#### Field Work

As mentioned earlier, a total of 76 interviewers entered the field from mid-July to mid-February, 1979. There were periodic assemblies of interviewers and supervisors but, in general, the interviewers operated exclusively in the field, with State Health Department identification badges and white jackets. Letters describing the survey and informing the households of the impending interview were mailed the week preceding an interviewer's arrival in an area. The interviewer was expected to make six attempts to obtain enumeration. Once contact had been established, the interviewer made a minimum of three attempts to interview the individuals in the household.

Two special reorganizations relating to the actual field work are worth noting. The first reorganization involved the creation of a satellite office in Hartford. Traveling from one central location to towns throughout the state proved unfeasible operationally. The creation of the Hartford office reduced traveling time between the main office and the designated northern towns. The office also helped improve overall coordination, particularly with a coordinator based at the Hartford office. Thus, the initial supervisory assumption that a tightly centralized field operation was most desirable changed to the realization that a certain degree of decentralization made operations more feasible, even in a state as small as Connecticut.

The second reorganization concerned the structuring of the interviewer's time in the field. The original concept of two person teams proved to be inefficient, as it reduced the number of households that could be contacted in a day. As a result, the supervisors abandoned two person teams and relied instead on interviewers working alone. It was then possible to service a larger geographic area and to increase the number of households interviewed. In short, the supervisors obtained greater productivity from interviewers working alone than interviewers working in pairs.

#### Quality Control

The fourth and final aspect of field operations which will be discussed is quality control. In field operations with large numbers of interviewers, there is an obvious need for constant

review for quality control. The following steps were undertaken to address this concern: the supervisors monitored household assignments through daily telephone calls and meetings with interviewers. The calls and meetings enabled the supervisors to review the interviewer's schedule, to inform the interviewers of changes in assignment, to relay messages about specific households and to resolve listing or interviewing problems that may have arisen the previous day. In addition to the calls and meetings, periodic group meetings with all interviewers and supervisors provided a forum for updating field operations, for airing any questions and for resolving problems. Observation was another means of quality control. A coordinator observed the interviewers in the field once a month. The coordinator would complete an observation form which commented on the interviewer's particular strengths and weaknesses.

The problem of non-response was dealt with by supervisors reassigning problem households (where the previous interviewer had obtained a refusal) to the more successful interviewers. Toward the end of the field operations, incomplete households (households without enumeration and households where individuals had been enumerated but not interviewed) were reassigned to the more successful interviewers in a final attempt to include these individuals in the sample.

One particular innovation in the field operations was the introduction of computerized interviewer control procedures. Supervisors relied on two reports written in SAS. The reports, a weekly report and a bi-weekly cumulative report, summarized enumeration and interview outcomes and percentages as well as the number of completed households by town and by individual interviewer. The reports proved particularly valuable because the supervisors were able to produce them quickly. The reports were run late every Thursday and contained results for that preceding week. In establishing criteria for measuring interviewer success in the field, the reports enabled the supervisors to quickly pinpoint problems and to work with interviewers to improve productivity.

#### Conclusion

The field operations achieved an enumeration rate of 92%; of 3,325 households selected, 3,123 were contacted and 202 were ineligible. An interview rate of 79% was achieved; of 5,813 individuals enumerated, 4,591 were interviewed. These results are quite satisfactory because: (1) several interviews were conducted in most households (all adults in the household were included in the sample); and (2) each interview lasted about 30 minutes and included three blood pressure readings. The Yale University Department of Epidemiology and Public Health determined through its field experience two important findings: (1) it is possible to obtain blood pressure data in a statewide probability sample of households; and (2) it is possible to execute a major statewide survey of this nature without a previously existing survey organization.

#### References

1. Dr. Harriet P. Dustan (Alabama University) & Dr. Richard Hurley (American Heart Association) "High Blood Pressure, If Only it Hurt a Little," (30 minute film produced by West Glen Films, Inc.)
2. Dr. Gerald Payne, Scientific Project Officer,

Hypertension Detection Follow-up Program. "Measuring Blood Pressure." (Videocassette produced by KPRL TV Houston, Texas, for Division of Heart and Vascular Diseases, National Heart, Lung and Blood Institute, National Institutes of Health.)

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CHBP  
TRAINING SCHEDULE

Figure 1

<p>Day 1</p> <p>Introduction to CHBP Survey</p> <p>Discussion of Sample Design</p> <p>Presentation of Listing Procedures</p> <p>Hypertension Education</p> <p>Blood Pressure Measurement</p>	<p>Day 2</p> <p>Discussion of Segment Sheet and Household Data Sheet</p> <p>Discussion of Professional Ethics</p> <p>Presentation of Introduction, probing techniques and coding procedures</p> <p>Discussion of questionnaire</p>	<p>Day 3</p> <p>Assignment of half of class to field to practice listing; Assignment of other half of class to screening clinic sponsored by the Connecticut Affiliate of American Heart Association to practice blood pressures</p>	<p>Day 4</p> <p>Reversal of Day 3 Assignment</p>	<p>Day 5</p> <p>Accuracy Tests for blood pressure measurement</p> <p>Review of questionnaire</p> <p>Assignment of households for field trial, Project 002</p>
<p>Day 6</p> <p>Application of training through field trial; Interviewers receive an assignment of 10 to 12 households for this period.</p> <p>Observation of interviewers in the field by coordinator</p>				
<p>Day 7</p> <p>Application of training through field trial; Interviewers receive an assignment of 10 to 12 households for this period.</p> <p>Observation of interviewers in the field by coordinator</p>				
<p>Day 8</p> <p>Application of training through field trial; Interviewers receive an assignment of 10 to 12 households for this period.</p> <p>Observation of interviewers in the field by coordinator</p>				
<p>Day 9</p> <p>Application of training through field trial; Interviewers receive an assignment of 10 to 12 households for this period.</p> <p>Observation of interviewers in the field by coordinator</p>				
<p>Day 10</p> <p>Review of individual interviewer's completed households</p> <p>Review of field procedures</p> <p>Assignment of households in survey, Project 003, and later in the fall, in the Reliability Study, Project 004</p>				