Hypertension Control in a Rural Biracial Community: Successes and Failures of Primary Care

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Abstract: Through a total community survey and a medical record review, we examined hypertension awareness, treatment, and control in a biracial rural community rich in primary care resources. The overall prevalence of hypertension among the 2,939 respondents was 20.5 per cent; 82 per cent of hypertensives were aware of their condition; 68 per cent were on treatment; and 55 per cent were under control. Comparison of data sources revealed discrepancies and misconceptions about diagnosis and treatment. Nearly one-third of the population reported a history of hypertension despite the fact that most of them were untreated and were normotensive. Conversely, one-third of "undetected" hypertensives had notation of the diagnosis in their medical records. Discontinuation of treatment accounted for over one-half of aware but untreated hypertension. Misconceptions about therapy contributed to failures of control in the treated group. These findings suggest that difficulties in the transmission of information about hypertension contribute importantly to failures of control. (*Am J Public Health* 70:48-55, 1980.)

Introduction

Investigators studying the extent and determinants of hypertension control have found it useful to divide hypertensives into subgroups based on the respondent's awareness or history of hypertension, treatment, and measured blood pressure.[1,2] This categorization, emanating from the necessary steps in hypertension control, has been used to guide decisionmaking regarding interventions. The earlier finding that approximately one-half of hypertensives were unaware of their condition stimulated efforts directed at case-finding, such as blood pressure screening[3]. More recent evidence suggesting that a large majority of hypertensives were aware of their condition contributed to a shift in emphasis away from case-finding toward the provision of easier access to medical services for confirmation and the institution of therapy.[4] Using the same categories, Alderman and Schoenbaum found among New York working people a high proportion of hypertensives aware of their condition and on treatment but a relatively low proportion of treated hypertensives under control.[5] They interpreted these findings as indicative of deficiencies in the way in which medical care is delivered to treated hypertensives and proposed work-place and other specific hypertension treatment programs as alternatives to conventional medical care.

The policy making implications of categorizing hypertensives according to awareness, treatment, and control suggest that a closer examination of the data used to classify individuals and the resulting characteristics of subgroups may be in order. We conducted a household blood pressure survey and detailed investigation of the drugs individuals were using in a biracial rural Southern community relatively rich in primary medical care resources. Survey information was supplemented by reviews of the medical records of randomly selected respondents. These multiple data sources provided the opportunity to study more closely the beliefs, behaviors, and blood pressure levels of individuals resulting from their interaction with a complex and unstructured network of primary care.

Methods

Study Population

Two adjacent townships in rural central North Carolina were selected for study because of their biracial composition and because they lie within the service area of a federally funded neighborhood health center. In addition to the neigh-

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TABLE 1—Distribution of Respondents by Age, Race, Sex, and Education

Age (years)	Race-Sex	N	Education		
			Grade School %	High School %	College %
18–39	Black Female	343	6.4	84	9.6
	Black Male	325	10.5	81.2	8.3
	White Female	369	4.3	72.1	23.6
	White Male	388	7.5	72.2	20.4
40–59	Black Female	184	37	59.2	3.8
	Black Male	186	68.3	30.6	1.1
	White Female	254	16.1	73.2	10.6
	White Male	218	28.4	55.5	16.1
≥60	Black Female	127	83.5	15.7	0.8
	Black Male	115	92.2	7	0.9
	White Female	260	46.9	42.3	10.8
	White Male	170	59.4	35.9	4.7
	TOTAL	2939	28.4	60.2	11.4

borhood health center, residents had access to a wide variety of medical services including two academic medical centers. Members of the study staff traveled the entire two township area, identifying and describing each dwelling and its relationship to notable landmarks. In order to assure maximal community cooperation, a public education program was begun six weeks prior to the survey. Meetings with local ministers, other community leaders, and local civic organizations publicized the nature and purposes of the survey and obtained the support of influential community members. In addition, the study was described in local newspapers and television and radio programs prior to the survey.

The Interview

Forty interviewers (13 black women, 15 white women, 1 black male, 11 white males) were employed and instructed in survey methods, questionnaire administration, blood pressure measurement, and drug identification during an intensive two-week training program. Interviewers were examined for hearing acuity by an audiologist. At the end of the two-week period, interviewing and measurement skills were examined in a series of test interviews. The survey was conducted in the summer of 1976.

Teams consisting of two interviewers each were assigned to specified geographic areas and equipped with maps and listings of all dwellings, road numbers, and landmarks in their areas. Interviewer teams were matched by race and assigned to areas whose residents were of the same race; no attempt was made to match interviewers and respondents by sex. Interviewers systematically visited every dwelling in their assigned area. The pretested survey instrument began with a census of all persons living in the household and efforts to arrange a private interview for each adult age 18 years or older. Appointments were made to conduct the interviews at the convenience of the respondent and often were conducted in the evening.

The questionnaire contained questions about beliefs and behaviors related to hypertension, diabetes, general health, and symptoms. Respondents were then asked to present all their prescription medications or unfilled prescriptions to the interviewers who recorded label information and asked questions about the indications for and use of each drug. Further drug identification was made using the *Physician's Desk Reference*. If the container of medication was unobtainable or the medication was unidentifiable, a drug unit or a detailed description was obtained and subsequent identification made by the pharmacist investigators. Interviewers carried a list of all anti-hypertensive drugs. For any anti-hypertensive drug and for all drugs used within the past month, further information was obtained about subjective efficacy, side effects, and compliance behavior. The respondent's sources of medical care were ascertained by asking "Whom do you go to see when you are sick or need advice about your health?"

Using a standard mercury sphygmomanometer, three blood pressure measurements (two sitting and one standing) were made on the respondent's right arm with an appropriately sized cuff based on mid-arm circumference. The fifth phase Karotkoff Sound was used as the measure of diastolic pressure. The first of the two sitting blood pressure measurements was taken approximately 10 minutes into the interview, the second after about 30 minutes. Prior to the survey, individual referral instructions by blood pressure level were obtained from each primary care practitioner in the area. Any respondent having a blood pressure level higher than the recommended level of his/her physician was referred.

Throughout the survey, data were monitored in order to ensure consistent application of the protocol by the interviewers. For the first two weeks of the interview period, every questionnaire was reviewed and errors and inconsistencies discussed with the interviewers. Subsequently, randomly selected interviews were reviewed. Blood pressure levels were continuously monitored for digit preference and unusually high or low prevalences of hypertension.

Medical Record Reviews

Three to six months following completion of the survey, stratified random subsamples of the interviewed population

TABLE 2—Prevalence of Hypertension and Distribution of Detection and Treatment among Hypertensives by Age, Race, and Sex

Age (years)	Race-Sex	N	Hypertensives* N	Hypertensives* % of respondents	Newly Detected % of hypertensives	Diagnosed but Untreated % of hypertensives	Treated and Uncontrolled % of hypertensives	Treated and Controlled % of hypertensives
<50	Black Female	441	61	13.8	13.1	16.4	14.8	55.7
	Black Male	407	64	15.7	48.4	26.6	6.3	18.8
	White Female	490	18	3.7	16.7	22.2	22.2	38.9
	White Male	496	53	10.7	39.6	24.5	7.5	28.3
≥50	Black Female	213	112	52.6	8.9	10.7	12.5	67.9
	Black Male	219	100	45.7	22.0	12.0	15.0	51.0
	White Female	393	127	32.3	7.9	8.7	7.9	75.6
	White Male	280	67	23.9	10.4	9.0	16.4	64.2
	TOTAL	2939	602	20.5	18.6	14.1	12.0	55.5

*Includes both respondents with DBP ≥ 95 mm Hg and those with DBP < 95 mm Hg who reported themselves as in treatment.

were selected and their medical records reviewed. The sampling frame included the 2,434 individuals (83 per cent of respondents) whose first named clinic (including the neighborhood health center) or physician was one of the 15 most frequently named sources of medical care. The strata were determined by questionnaire responses and blood pressure level, and included hypertensives with and without histories and/or treatment and normotensives. Five hundred forty-three individuals were included in the sample. Each physician or clinic identified by the respondent sampled was contacted and visited by a trained record abstractor. Information obtained from the records included evidence of a diagnosis of hypertension and drug treatment for hypertension.

Data Analysis

To examine differences by age, race, and sex, all prevalences were first examined within ten-year age bands for each race-sex group and then aggregated into two age groups: below 50 years, and 50 years and above. Age adjustment using the direct method (total study population serving as the standard) was performed, and adjusted and crude rates within the two aggregate age categories were compared. No major differences between adjusted and crude rates were found and therefore only crude rates for the two age categories will be presented.

Results

Population Characteristics

Of the 3,064 adults identified in the survey census,* 2,939 (96 per cent) were interviewed. Eighty-nine per cent or more of each age-race-sex group participated in the study. Of the 125 persons not interviewed, 53 per cent refused, 26 per cent were not available despite multiple call-backs, 13 per cent were either mentally retarded or too ill to be interviewed, and the remainder could not be interviewed for other reasons.

Table 1 shows the distribution of respondents by age, race, sex and educational level. Fifty-six per cent of all respondents were white but whites comprised 53 per cent of those under age 40 and 64 per cent of those age 60 and older, mainly because 39 per cent of all those age 60 and older were white females. Educational achievement varied strongly with age, race, and sex. Among those under age 40, the majority of all race-sex groups had completed high school with more whites going on to college. Whereas the majority of whites and black females age 40–59 had completed high school, two-thirds of black males of this age never entered high school. Among those over age 60, most had only a grade school education.

The predominant occupation in the community is farming, principally tobacco. Because of the seasonal nature of tobacco farming, 28 per cent of the farmers had second jobs in industry, services, etc. Many women also participated in farm activities so that about 40 per cent of the employed population worked in farming. Ninety-eight per cent of the population could identify a physician or clinic to whom they would go if sick or needing advice. Twenty-nine per cent of the population (37 per cent of blacks and 21 per cent of whites) mentioned the neighborhood health center.

Reliability of Hypertension Awareness

Selected questions were re-administered by telephone or at home to 302 randomly sampled respondents three to six weeks after the initial survey. The question "Have you ever been told by a doctor or nurse that you have hypertension?" proved to be quite reliable with 95 per cent of sampled respondents giving the same answer on re-survey. The vast majority of disagreements were changes from yes to no among individuals whose survey blood pressures were normal. The question "Do you think you have hypertension?" was less reliable with only 83 per cent of respondents agreeing with their original response. The direction of disagreements was strongly influenced by the level of blood pressure measured during the survey. Changes from no to yes predominated among those with elevated blood pressures and yes to no among normotensives.

*The 1970 census enumerated approximately 2800 individuals 18 years of age and older residing in the two townships.

TABLE 3—Frequency of a History and/or Self-Diagnosis of Hypertension in Untreated Individuals by Age, Race, and Sex

Age (years)	Race-Sex	N	Neither Self-diagnosis or History		History but no Self-diagnosis		Self-diagnosis but no History %		Both Self-diagnosis and History %	
			N	%	N	%	N	%	N	%
< 50	Black Female	398	303	76.1	54	13.6	11	2.8	30	7.5
	Black Male	391	315	80.6	35	9.0	12	3.1	29	7.4
	White Female	479	406	84.8	60	12.5	1	0.2	12	2.5
	White Male	477	395	82.8	42	8.8	10	2.1	30	6.3
≥ 50	Black Female	123	72	58.5	32	26.0	1	0.8	18	14.6
	Black Male	153	109	71.2	19	12.4	1	0.7	24	15.7
	White Female	287	195	67.9	65	22.6	4	1.4	23	8.0
	White Male	226	182	80.5	31	13.7	3	1.3	10	4.4
	TOTAL	2534	1977	78.0	338	13.3	43	1.7	176	6.9

Prevalence of Hypertension

The diagnosis, treatment, and control status of age-race-sex groups, expressed in the usual four categories, is shown in Table 2. As used here, diagnosis and treatment are based on respondent reports. Elevated blood pressure is defined as the average of the two sitting diastolic blood pressures (DBP) ≥ 95 mm Hg. For the entire population, the prevalence of hypertension (including those with DBP ≥ 95 mm Hg and those on treatment with DBP < 95 mm Hg) was 20.5 per cent. Prevalence rates rose with age, were higher in blacks than in whites, and approximated 50 per cent for blacks over age 50. Only 19 per cent of hypertensives had not been previously diagnosed; another 14 per cent reported a previous diagnosis but were not receiving treatment. Thus two-thirds of the hypertensives in this community reported current drug treatment. Eighty-two per cent of those reporting themselves as under treatment had diastolic blood pressures < 95 mm Hg. Overall 56 per cent of hypertensives were being treated and were under control.

When examined within age-race-sex groups, important differences in the distribution of diagnosis, treatment and control emerged. Newly detected hypertension was proportionally far greater in males under age 50 and accounted for nearly one-half of the hypertension in younger black males. Detected but untreated hypertension was also proportionally more frequent among younger hypertensives. Once treated, however, control of blood pressure was achieved in a high proportion of every age-race-sex group. Because of the large proportion of younger males not in treatment, only 19 per cent of black male hypertensives under age 50 and 28 per cent of white male hypertensives under age 50 were treated and under control. Rates of control were higher for all groups over age 50 although black males still had the lowest proportion treated and controlled.

Hypertension Awareness or Diagnosis

A diagnosis of hypertension in surveys has generally been approached in two ways — by asking the respondents whether they believe they have hypertension or by asking if a doctor or other health worker has told them they have hypertension. The advantage of the first approach (self-diagnosis) is that it deals with the present despite its subjectivity. The second approach (history) introduces greater objectivity through reference to an outside professional observer. We asked both questions of all respondents, compared the responses, and related the responses to measured blood pressure levels.

A history of hypertension was very common in this community. Table 3 includes only those individuals not reporting treatment for hypertension (almost all individuals receiving treatment reported a history). Among the untreated, 20 per cent reported a history of hypertension while only 9 per cent made a self-diagnosis. Most individuals who thought they had hypertension also reported a history but 66 per cent of those reporting a history did not consider themselves to be currently hypertensive. A history of hypertension was particularly prevalent among those over age 50. When those who reported receiving treatment are also included, 68 per cent of black women over age 50, 51 per cent of black men over age 50, and 50 per cent of white women over age 50 reported a history of hypertension.

Both self-diagnosis and a history independently contributed to the likelihood of an individual actually having an elevated measured blood pressure. Table 4 shows that among those not receiving treatment, the prevalence of DBP ≥ 95 Hg was 5 per cent in those who neither thought they had nor gave a history of hypertension and 20 per cent in those with both a self-diagnosis and a history. The two groups with either a self-diagnosis or a history had intermediate prevalences, 14 per cent and 15 per cent respectively. A similar gradient was evident among virtually all the age-race-sex groups.

As indicated previously, 112 hypertensives in this community reported that they had never been told by a doctor or nurse that they had hypertension. A random sample (n = 38) of this group was selected for medical record review. Examination of their medical records revealed that a diagnosis of hypertension was mentioned in the records of 12 (32 per cent). Two hundred five normotensive individuals with no reported history of hypertension also were sampled and in 19 (9 per cent) a diagnosis of hypertension was mentioned in the

TABLE 4—Prevalence of Hypertension (DBP ≥ 95 mm Hg) in Untreated Individuals by History and/or Self-Diagnosis*

Age (years)	Race-Sex	Neither Self-diagnosis nor History %	History but no Self-diagnosis %	Self-diagnosis but no History %	Both Self-diagnosis and History %
< 50	Black Female	3	11	0	13
	Black Male	9	26	25	28
	White Female	0.5	5	**	8
	White Male	5	14	10	23
≥ 50	Black Female	14	25	**	22
	Black Male	19	26	**	29
	White Female	5	12	**	13
	White Male	4	16	**	10
	TOTAL	5	15	14	20

*Base frequencies from which percentages are figured are shown in Table 3.
**Prevalences not shown, n < 10 (see Table 3).

TABLE 5—Comparison of Questionnaire Responses, Anti-Hypertensive Drugs Identified in the Home, and Medical Record Review Information

Home Drug Identification

Current Treatment by Questionnaire	Anti-hypertensive Drug Present	Anti-hypertensive Drug Absent	Total
Yes	381	24	405
No	32	522	555
Not Asked*	11	1969	1980
TOTAL	424	2515	2939

Sensitivity ** 381/424 = 89.9% Specificity ** 2491/2515 = 99.0%

Medical Record Review

Current Treatment by Questionnaire	Current Treatment	No Current Treatment	Total
Yes	122	37	159
No	17	135	152
Not Asked*	4	228	232
TOTAL	143	400	543

Sensitivity ** 122/143 = 85.3% Specificity ** 363/400 = 90.8%

Medical Record Review

Home Drug Identification	Current Treatment	No Current Treatment	Total
Anti-hypertensive Present	125	33	158
Anti-hypertensive Absent	18	367	385
TOTAL	143	400	543

*Current treatment not probed in questionnaire because respondent denied being hypertensive.
**Sensitivity and specificity are used here as measures of the ability of responses to the question on current treatment to correctly identify treated individuals and untreated individuals respectively.

record. The records of 300 individuals with a history of hypertension were reviewed. Mention of hypertension was found in the records of 42 per cent of the 142 not receiving treatment and 84 per cent of the 158 reporting treatment.

Hypertension Treatment

We next compared the answers of respondents with a self-diagnosis or history to the question: "Are you currently using a medicine for your hypertension?", the drugs identified on survery, and the medical records of sampled respondents. Diuretics or propranalol not ascribed to hypertension by the respondent or the prescription label were not designated as anti-hypertensive drugs.

As shown in Table 5, the treatment question, the usual approach to ascertaining treatment status in surveys, correctly labeled as treated (sensitivity) 90 per cent of those with an anti-hypertensive drug in the home and 85 per cent of those whose medical records indicated current anti-hypertensive therapy. Conversely, the treatment question correctly labeled as untreated (specificity) 99 per cent of those with a history of hypertension who displayed no anti-hypertensive drug and 91 per cent of those whose medical records revealed no current treatment. The presence or absence of an anti-hypertensive drug in the home agreed to a similar extent with medical record treatment information. The strong agreement between reports of treatment, the availability of appropriate drugs and physician records provides evidence supporting the validity of respondent reports about anti-hypertensive treatment, and also suggests greater consonance between physician and patient with regard to treatment than with regard to diagnosis.

For two groups, however, the discrepancies between respondent reports about treatment and home drug identification indicated misunderstandings or misconceptions about their treatment. The 24 individuals reporting current treatment who possessed no recognized antihypertensive drug or prescription, in most instances, displayed a tranquilizer or other symptomatic medication whose presence they ascribed to hypertension. The 11 individuals who denied a history or self-diagnosis of hypertension but possessed anti-hy-

TABLE 6—Distribution of Treatment Categories by Age, Race, and Sex

Age (years)	Race-Sex	N	Current Treatment		Current Treatment without Appropriate Drug		MD Discontinued Treatment		Self-Discontinued Treatment		Never Treatment	
			N	%	N	%	N	%	N	%	N	%
<50	Black Female	441	40	9.1	3	0.7	16	3.6	12	2.7	390	83.9
	Black Male	407	16	3.9	0	0	8	2.0	19	4.7	364	89.4
	White Female	490	11	2.2	0	0	11	2.2	12	2.4	456	93.1
	White Male	496	18	3.6	1	0.2	12	2.4	10	2.0	455	91.7
≥50	Black Female	213	86	40.3	9	4.2	19	8.9	17	8.0	82	38.5
	Black Male	219	66	30.1	3	1.4	9	4.1	17	7.8	124	56.6
	White Female	393	104	26.5	3	0.8	33	8.4	19	4.8	234	59.5
	White Male	280	51	18.2	5	1.8	17	6.1	7	2.5	200	71.4
	TOTAL	2939	392	13.3	24	0.8	125	4.3	113	3.8	2285	77.7

pertensive drugs were clearly unaware of their own hypertension despite the fact that the prescription label often identified the drug as being for high blood pressure.

The 32 individuals who denied current treatment yet had a drug in the home all reported that the drug had been discontinued. Three hundred and ninety-two individuals displayed and reported that they were currently taking anti-hypertensive drugs although 15 (4 per cent) reported taking their drugs only when needed. An additional 206 individuals with no drug present in the home reported that they had been treated in the past but were not currently being treated. These 238 drug discontinuers (8 per cent of the respondents) were asked why they stopped their treatment; 125 (53 per cent) indicated that their doctor advised them to stop (MD discontinuers) and 113 (47 per cent) gave other reasons (self-discontinuers).

On the basis of respondent reports and survey drug identification, five categories of drug treatment were created: current treatment with anti-hypertensive drug, current treatment without a recognized anti-hypertensive drug, MD discontinued treatment, self-discontinued treatment, and never treatment. Table 6 shows the distributions of these five categories by age, race and sex. A high proportion of this community had been or were being exposed to anti-hypertensive drugs. Twenty-two per cent of all adults had received such treatment at some time, including 42 per cent of all persons over age 50. Twenty-eight per cent of all those over age 50 were currently taking anti-hypertensive drugs. Treatment with other, presumably inappropriate, drugs was largely confined to the older age group. Although drug treatment was much more prevalent in the older age group, drug discontinuation, particularly self-discontinuation, was proportionally more prevalent among younger individuals; among those ever treated for hypertension, 28 per cent of those under age 50 and only 13 per cent of those over age 50 had stopped treatment without physician advice.

Table 7 shows the percentage of individuals in each treatment category with DBP ≥ 95 mm Hg. Among those currently treated with anti-hypertensive drugs, elevated DBP was found in only 17 per cent, but was most commonly found in younger white females, and was generally more common among men and among those under age 50. The small subgroup believing themselves to be treated but receiving inappropriate drugs also exhibited a high prevalence of elevated DBP. Self-discontinuers demonstrated the highest prevalences of elevated DBP. These differences in prevalence indicate that the distinction between discontinuers based upon their stated reasons for stopping drugs has predictive value. The distribution of hypertension prevalences by age, race and sex in the never treatment group differs importantly from that seen in those currently treated with anti-hypertensive drugs. Among those never treated, the expected differences by race were more prominent and the usual increase in prevalence with increasing age was generally seen.

Discussion

Recent discussions of policy alternatives for hypertension control have emphasized the importance of strategies directed at identified and treated hypertensives.[6, 7] In part, this emphasis is supported by surveys demonstrating the progressive diminution in the proportion of hypertensives who remain undetected or untreated[4, 8, 9] which was again confirmed in this survey. But, there is another side to this evidence of improved detection.

In the Baldwin County, Georgia survey of 1962, 18 per cent of individuals over the age of 15 years had been told they had high blood pressure.[1] In contrast, 31 per cent of adults over age 18 in our survey had such a history. Whereas over one-half the untreated individuals with a history in Baldwin County had elevated blood pressure (≥ 160/95), only 17 per cent of untreated individuals with a history in our survey had elevated blood pressures (DBP ≥ 95). Thus, it would appear that as blood pressure detection activities increase, the prevalence of hypertensive histories increases, with a resulting fall in the predictive value of a positive history in untreated individuals. The inadequacy of a hypertensive history as a marker of high risk is supported by two additional findings. First, nearly two-thirds of those with a positive history did not think they currently had hypertension and most were correct. Second, the medical records of over one-half the untreated individuals with a history did

TABLE 7—Prevalence of Hypertension (DBP ≥ 95) by Treatment Category, Age, Race, and Sex*

Age (years)	Race-Sex	Current Treatment with Anti-hypertensive Drug %	Current Treatment without Anti-hypertensive Drug %	MD Discontinued Treatment %	Self-Discontinued Treatment %	Never Treatment %
<50	Black Female	20.0	**	18.8	16.7	3.5
	Black Male	25.0	**	**	36.8	11.0
	White Female	36.4	**	**	16.7	1.1
	White Male	22.2	**	16.7	30.0	6.4
≥50	Black Female	11.8	**	15.8	47.1	13.3
	Black Male	22.7	**	**	29.4	21.8
	White Female	9.6	**	6.1	10.5	7.3
	White Male	19.6	**	5.9	**	5.0
	TOTAL	16.6	25	11.2	27.4	6.6

*Base frequencies from which percentages are figured are shown in Table 6.
**Prevalences not shown, n < 10 (see Table 6).

not mention hypertension. These findings suggest that a reported history of hypertension often results from passing comments or misapprehensions about a measured blood pressure.

On the other hand, our data indicate that the absence of a reported history of hypertension does not necessarily represent a failure in detection. Nearly one-third of the sampled "unaware" or "unidentified" hypertensives had the diagnosis mentioned in their medical records. The sketchiness of many of the records suggests that this might be a conservative estimate. Haynes, et al, also reported that "a portion" of unaware hypertensives found on screening in a steel mill had previously recorded blood pressure elevations and presumably had been so informed.[10]

This complex picture of hypertension awareness in a rural community probably reflects the documented increase in medical activities related to hypertension detection.[11] It also suggests problems in the communication of information about blood pressure status whose effects could be of major significance. A large proportion of the adults in this community bore the label of hypertensive despite the fact that they were untreated, had no mention of hypertension in their medical records, and had low blood pressure levels on survey. The adverse effects of hypertension labeling[10] raises questions about the circumstances and process by which an individual becomes aware of hypertension. Conversely, there also appear to be difficulties in communicating an awareness of hypertension to those with sustained elevations of blood pressure.

Less confusion and discordance were evident with regard to treatment. However, the relatively few discrepancies between reported treatment and actual drug presence and use often appeared to indicate misunderstanding by the respondent of the nature and purpose of his/her treatment. In some instances, as with treatment with inappropriate drugs, the apparent confusion or misunderstanding was associated with a relatively high prevalence of elevated blood pressure. The discontinuation of treatment also proved to be a major problem both with regard to its prevalence and its association with elevated blood pressure. Of particular concern was the fact that 27 per cent of the 113 individuals who stopped taking their drugs without physician advice had elevated blood pressures. Further analysis of the characteristics of this important group is in process.

The additional information gathered in this survey highlights specific problems in the care of hypertensive patients that are obscured by the categorization of hypertensives into newly detected, diagnosed but untreated, and treated but uncontrolled. Newly detected hypertensives include many who have, in fact, been detected; aware but untreated hypertensives include many who have discontined treatment; treated and uncontrolled hypertensives include some who are not receiving appropriate drugs and others who are treating themselves "as needed", etc. The common denominator underlying these subgroups would appear to be failure in the transmission or receipt of information. Hulka, et al, in a community-based study of compliance, emphasized the importance of doctor-patient communication in determining compliance behavior.[12] Our data suggest that related problems in information exchange may play a significant role in uncontrolled hypertension.

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Child Health and Sexual Development Symposium Scheduled

The University of California, San Francisco, Division of Continuing Education in Health will sponsor a symposium entitled "The Health of the Young and the Development of Sexuality and Gender" February 9-10, 1980 at the Sheraton-Palace Hotel in San Francisco. This symposium will center on the health of children and explore ideas and concepts for educators, health practitioners and parents to aid them in helping young children understand and appreciate their sexual development.

The program will explore the early years and the physical and emotional beginnings of human sexuality, discuss sex roles and their expression in young children, sexual disorders, and developmental stages in sexual health.

This symposium will be of special interest to pediatricians, early childhood education teachers, social workers, counselors, related allied health professionals, persons concerned with the development and implementation of health policy and parents as well as physicians, nurses and pharmacists. For program information, call (415) 666-3904; for registration information, call (415) 666-2894.