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FROM VITAL & HEALTH STATISTICS OF THE NATIONAL CENTER FOR HEALTH STATISTICS

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Office Visits for Hypertension, National Ambulatory Medical Care Survey: United States, January 1975-December 1976^a

According to data collected in the National Ambulatory Medical Care Survey (NAMCS), an estimated 46.1 million visits with a principal diagnosis of essential benign hypertension (EBH) were made to office-based physicians during the two-year period January 1975 through December 1976.

NAMCS is a sample survey conducted annually by the Division of Health Resources Utilization Statistics in the National Center for Health Statistics. The estimates in this report are based on information recorded by participating physicians on the "Patient Record" during sampled office encounters. A facsimile of this encounter form may be found in an earlier report.¹ A brief description of the sample design and an explanation of the sampling errors associated with selected aggregate statistics may be found in the Technical Notes of this report.

Visits for which EBH was the principal, or first-listed, diagnosis comprised 4 percent of the over 1.1 billion estimated visits made in calendar years 1975 and 1976 and ranked first among visits for all morbidity related principal diagnoses. While many of the estimates presented in this report deal chiefly with visits for which EBH was the principal diagnosis, it is important to note that for an additional 28.6 million visits, EBH was the diagnosis listed second or third in order of importance at that encounter. In addition, there were clearly more visits in which EBH was a disabling factor than are reflected by the visits in which EBH was a listed diagnosis.

For example, of the 26 million visits reported for chronic ischemic heart disease that are not included in this report, over one-third were recorded by the physician as chronic ischemic heart disease *with* hypertensive disease. Moreover, another 1.6 million visits for some cardiovascular sequelae of EBH, such as hypertensive heart disease and angina pectoris with hypertensive disease, are not included in this report although hypertension is clearly a factor in these diagnoses. Therefore the estimates only reflect visits wherein the organic consequences of prolonged or untreated hypertension, for example, hypertensive heart disease, had not yet manifested themselves to the degree that the principal diagnosis of hypertension was superseded by its cardiovascular or cerebrovascular sequelae.

The coexistence of EBH with obesity, diabetes mellitus, neuroses, osteoarthritis, arthritis, arteriosclerosis, bronchitis, emphysema, and asthma is suggested by the visit data. Table 1 indicates the frequency of coincidence of these diseases listed as second or third diagnoses when EBH was listed first by the physician, and the frequency of their assignment to principal diagnosis when EBH was the diagnosis listed second or third. In both cases, these diseases appeared as the most frequent in combination with EBH. For example, obesity was the diagnosis listed second or third in over 10 percent of all visits where EBH was listed as the principal diagnosis. On the other hand, obesity was the primary diagnosis in 5 percent of all visits where EBH was listed as a second or third diagnosis. Diabetes mellitus figured as an additional diagnosis in about 5 percent of all EBH visits. When EBH was a condition listed second or third, a striking

^aThis report was prepared by Beulah K. Cypress, Ph.D., Division of Health Resources Utilization Statistics.

Table 1. Number and percent of office visits for essential benign hypertension listed as principal and second or third diagnosis, by other most frequent diagnosis: United States, January 1975-December 1976

Diagnosis and ICDA code ¹	Hypertension as principal diagnosis		Hypertension as second or third diagnosis	
	Number of visits in thousands for second or third diagnosis	Percent of visits ²	Number of visits in thousands for principal diagnosis	Percent of visits ³
Obesity.....277	4,674	10.1	1,425	5.0
Diabetes mellitus.....250	2,054	4.5	4,038	14.1
Neuroses.....300	1,380	3.0	1,125	3.9
Arthritis, unspecified.....715	992	2.2	1,017	3.6
Osteoarthritis and allied conditions.....713	845	1.8	1,328	4.7
Arteriosclerosis.....440	649	1.4	*343	*1.2
Bronchitis, emphysema, asthma.....490-493	576	1.3	943	3.3

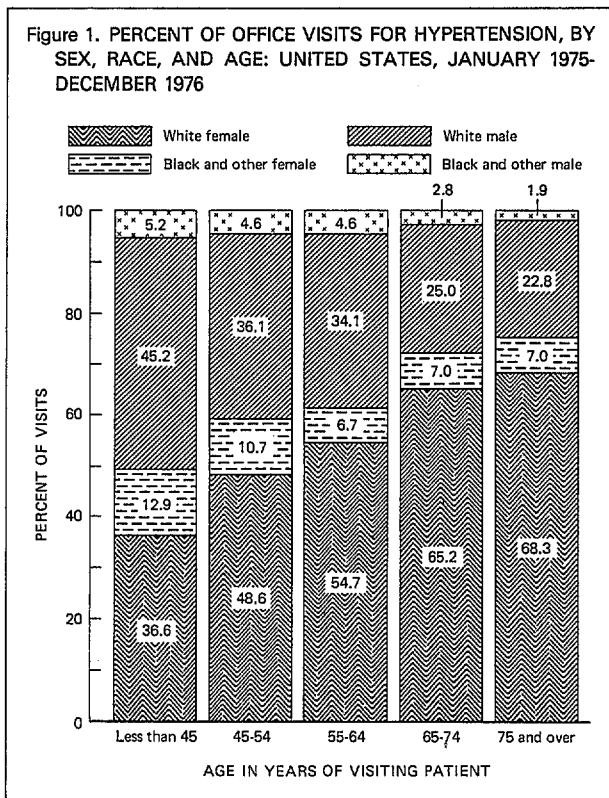
¹ Based on *Eighth Revision International Classification of Diseases, Adapted for Use in the United States (ICDA)*.

² Percents based on total number of visits where hypertension was listed as the principal diagnosis, 46,128,000.

³ Percents based on total number of visits where hypertension was listed as second or third diagnosis, 28,590,000.

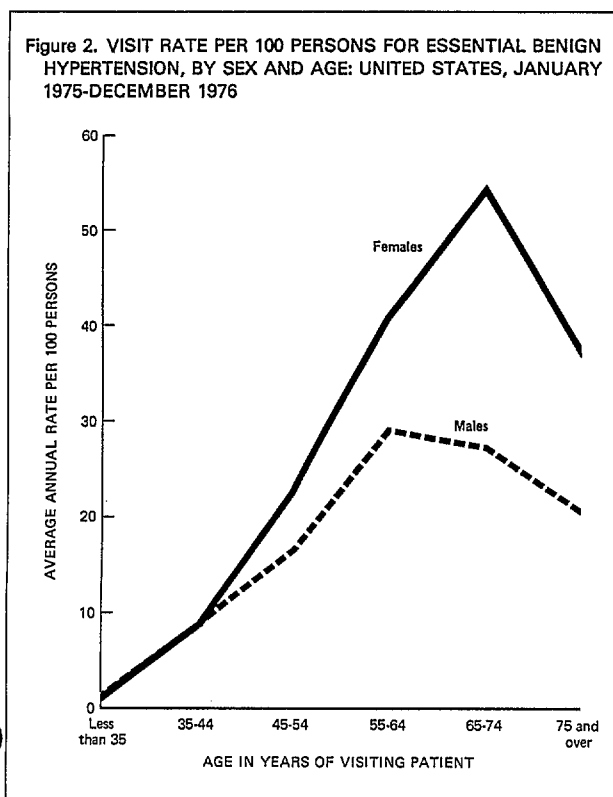
14 percent of those visits were diagnosed primarily as diabetes mellitus.

Figure 1 reveals the dramatic differences in proportions of visits with a principal diagnosis of EBH by race and sex within selected age groups.



Visits by white females dominated other race and sex combinations in all age groups over 45 years, with visits by white males second. The reader is cautioned that the frequency of visits for members of the black race is comparatively small, and therefore sampling error is increased. Furthermore, there is evidence that members of the black race avail themselves of ambulatory medical care rendered in hospital clinics and emergency rooms, settings not included in NAMCS, at a higher rate than do members of the white race. According to data from the Health Interview Survey (HIS), about 9 percent of ambulatory medical care visits by white persons were to hospital clinics or emergency rooms, whereas 21 percent of visits by members of other races were in similar settings.²

Visit rates for both sexes by age are illustrated in figure 2. There is a marked difference in visit rate by sex beginning at about age 44, with the female rate peaking in age group 65 to 74 years, about 10 years later than the highest rate for males. The Health and Nutrition Examination Survey (HANES) revealed that hypertension was more prevalent among women aged 65 to 74 years than among men of the same age.³ Data from HIS indicate that females 65 years of age and older were the highest proportion of hypertensives in the population.⁴ The higher female visit rate in NAMCS is therefore consistent with the higher EBH prevalence rate among females.



The advanced female age at visits as opposed to the younger male age at visits may be related to greater susceptibility of males to other cardiovascular diseases which preempt EBH as primary diagnosis. The Framingham Study demonstrated that for persons with definite hypertension the incidence rates of diseases such as coronary heart disease, myocardial infarction, and congestive heart failure were substantially higher for males than for females of the same age.⁵ Therefore, while the diagnosis may remain EBH as females age, a principal diagnosis of EBH for male visits may have been supplanted earlier by other diagnoses.

The results of HIS and HANES studies in conjunction with visit data from NAMCS provide some insight into the utilization of ambulatory medical care resources by those in need of treatment. According to the findings of HANES, an estimated 23.2 million adults aged 18-74 years had definite hypertension, 23.4 million had borderline hypertension, and 81.4 million were normotensive. However, HANES also showed that of the borderline and normotensive groups 8.9 percent and 2.0 percent, respectively,

took regular medication for high blood pressure, leading to an assumption in the HANES report that an additional 3.7 million adults had controlled hypertension, or a total EBH prevalence of 26.9 million. NAMCS estimates for 1975 and 1976 show 74.7 million visits by patients aged 18 to 74 years with EBH as a diagnosis listed first, second, or third, that is, EBH was a recognized and diagnosed condition regardless of the principal reason for the visit. If 37.3 million (one-half of 74.7 million), the average yearly visits in which EBH was a diagnosis is divided by the HANES EBH prevalence of 26.9 million, there was an estimated average minimum visit rate of 1.4 visits to office-based physicians per year for each person aged 18 to 74 years in the population who has hypertension. This utilization rate provides a model and a benchmark for estimating and evaluating utilization of physician resources by the segment of the population needing treatment for EBH. One reason for the low rate of utilization may well be due to the fact, shown in HANES, that 55 percent of the population estimated to have definite hypertension were *never diagnosed* as hypertensive. As consumer education reduces this number, the rate of utilization may increase.

Since EBH is a chronic condition requiring continuous care and maintenance therapy, it is not surprising that over 89 percent of visits were made by returning patients with EBH as a principal and recurring problem. Nor is it unexpected, in view of the high proportion of return visits, that in responding to the item on the Patient Record which calls for the chief complaint as nearly as possible in the patient's own words, 40 percent of all EBH visits were designated as "progress visits"^b and an additional 27 percent as abnormally high blood pressure (table 2). Both of these reasons given by the patient are an indication of his prior awareness of the condition. Headache, vertigo, and fatigue, which are sometimes symptomatic of EBH, motivated another 14 percent of visits for EBH.

^bAccording to the symptom classification developed for use in NAMCS, "progress visit" was the appropriate category if the patient stated that the reason for visit was "hypertension check" or "blood pressure check." It does not necessarily represent all followup visits which may be otherwise coded.

Table 2. Number and percent distribution of hypertension diagnosed office visits by patient's principal problem, complaint, or symptom: United States, January 1975-December 1976

Patient's principal problem, complaint, or symptom and NAMCS code ¹	Number of visits in thousands	Percent of visits
All principal problems.....	46,128	100.0
Progress visits ² 980,985	18,336	39.8
Abnormally high blood pressure..205	12,582	27.3
Headache.....056	2,759	6.0
Vertigo-dizziness.....069	2,471	5.4
Fatigue.....004	1,216	2.6
General medical exam.....900	973	2.1
Nervousness.....810	696	1.5
All other problems ³	7,096	15.4

¹Based on a symptom classification developed for use in NAMCS.

²Category 980, progress visit-specified condition includes "check for hypertension"; Category 985, progress visit-unspecified condition, includes "blood pressure check." These categories do not necessarily reflect the total number of followup visits for hypertension, which may be otherwise coded.

³Includes 1.3 million visits coded "none" or "unknown."

Periodic blood pressure measurement is important both in treating EBH and as a screening device for hypertension detection and control.⁶ The degree to which this diagnostic technique was used, as well as the number of types of diagnostic and therapeutic services rendered during EBH visits, are shown in table 3. About 80 percent of EBH visits included a blood pressure check. This may be an underestimate due in part to measurement error in that visits for hypertension often include a limited or general examination in which blood pressure is routinely measured but not separately recorded. Drugs were the most frequent form of therapy (61 percent of EBH visits), while medical counseling was an aspect of treatment in almost 15 percent of EBH visits.

Since detection of hypertension as early as possible is crucial to its control, investigation of the use of the sphygmomanometer or other measuring device during visits for conditions other than EBH is revealing. According to the data given in table 4, one-third of all physician visits included blood pressure checks. However, as a proportion of EBH visits only, blood pressure checks increased considerably, as would be

Table 3. Number and percent of office visits for principal diagnosis of essential benign hypertension, by diagnostic and therapeutic services ordered or provided: United States, January 1975-December 1976

Diagnostic and therapeutic service	Number of visits in thousands	Percent of visits
All visits ¹	46,128	100.0
<u>Diagnostic services</u>		
Limited history-exam.....	25,301	54.9
General history-exam.....	5,919	12.8
Clinical laboratory test.....	9,483	20.6
X-ray.....	2,167	4.7
Blood pressure check.....	36,861	79.9
Electrocardiogram.....	3,540	7.7
<u>Therapeutic services</u>		
Drug administered or prescribed ²	28,141	61.0
Injection.....	3,691	8.0
Immunization.....	834	1.8
Medical counseling.....	6,747	14.6
Psychotherapy or therapeutic listening.....	901	2.0
Other services provided.....	1,931	4.2

¹ Figures will not add to totals, since more than one service might be provided.

²Includes prescription and nonprescription drugs.

expected. It is interesting to note that in those specialties that treated few or no cases of hypertension, such as neurology, urological surgery, and ophthalmology, blood pressure checks were made in a fair percentage of visits. It is not unexpected to find that specialists in cardiovascular diseases made more frequent use of the blood pressure check (72 percent of visits) than did any other specialist. Blood pressure was also measured in about 60 percent of visits to both internists and obstetrician-gynecologists.

Table 5 lists number and percents of visits for principal diagnosis EBH by visit status, seriousness of the patient's principal problem, and disposition. Because most visits for EBH were return visits and because EBH is so often asymptomatic, it is reasonable that although EBH is a condition requiring continuous medical care, only 22 percent of visits were judged "serious" or "very serious" by the physician. The highest

Table 4. Number and percent of blood pressure checks made during office visits for all diagnoses and for visits with hypertension as first, second, or third diagnosis, by selected specialties: United States, January 1975-December 1976

Specialty	All diagnoses		Hypertension diagnosis	
	Blood pressure checks in thousands	Percent of visits	Blood pressure checks in thousands	Percent of hypertension visits
All blood pressure checks.....	383,359	33.2	58,665	78.5
General and family practice.....	190,139	41.3	34,431	79.6
Internal medicine.....	77,859	59.7	16,674	80.5
General surgery.....	17,732	23.0	2,618	73.8
Obstetrics-gynecology.....	57,920	59.7	973	74.9
Cardiovascular diseases.....	9,679	71.6	1,840	82.7
Pediatrics.....	9,712	9.1	*	*
Orthopedic surgery.....	690	1.5	*	*
Urological surgery.....	2,797	13.5	*	*
Psychiatry.....	1,639	5.4	*	*
Neurology.....	848	22.4	*	*
Ophthalmology.....	1,094	2.0	*	*
Otolaryngology.....	496	1.8	*	*
All other specialties.....	12,754	7.4	1,406	66.6

Table 5. Number, percent distributions, and mean duration in minutes and standard error of mean duration of hypertension diagnosed office visits by visit status, seriousness of problem, and disposition: United States, January 1975-December 1976

Visit status, degree of seriousness, and disposition	Number of visits in thousands	Percent distributions of visits	Mean duration in minutes	Standard error of mean duration
All visits.....	46,128	100.0	14.3	.29
<u>Visit status</u>				
New patient.....	2,254	4.9	24.0	1.62
Returning patient:				
New problem.....	2,709	5.9	18.7	1.12
Recurring problem.....	41,165	89.2	13.5	.29
<u>Degree of seriousness</u>				
Very serious.....	765	1.7	17.8	1.84
Serious.....	9,479	20.6	14.9	.42
Slightly serious.....	21,373	46.3	14.0	.43
Not serious.....	14,510	31.5	14.3	.42
<u>Disposition¹</u>				
No followup planned.....	1,189	2.6	...	...
Return visit:				
Specified time.....	39,708	86.1	...	...
If needed.....	4,734	10.3	...	...
Referral to another physician or agency.....	832	1.8	...	...
Other ²	1,161	2.5	...	...

¹ Figures will not add to totals because more than one disposition was possible.

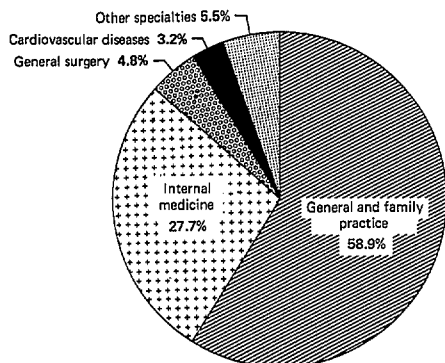
² Includes telephone followup, returned to referring physician, and admitted to hospital.

proportion (46 percent) were considered "slightly serious," with 32 percent assigned to the "not serious" category.

While the average visit for EBH lasted about 14 minutes, which is about the same as the average duration of all physician visits in NAMCS, duration of EBH visits was affected by the status of the problem. When EBH was presented as a new problem to the physician, either during an initial encounter or by a patient the physician had seen before, the visit lasted longer (24.0 minutes and 18.7 minutes, respectively) than did visits involving returning patients with EBH as a recurring problem (13.5 minutes). The duration of the new patient encounter was significantly longer than that of the returning patient with a new problem. This may be due to the need for more intensive workup in new patient visits. For example, 57 percent of all initial visits for EBH included a general examination as opposed to 23 percent of return visits for a new problem and only 10 percent of visits for an old problem. Seriousness did not significantly affect visit duration.

The instruction by the physician to return at a specified time, which was given in 86 percent of EBH visits, was no doubt heeded by the patient, since it very closely reflects the proportion of return visits made. An additional 10 percent were told to return if needed, and 2 percent were referred to another physician. In only 3 percent of EBH visits was no followup planned, and most of these visits were "not serious." Attesting to the chronic and asymptomatic na-

Figure 3. PERCENT DISTRIBUTION OF OFFICE VISITS FOR ESSENTIAL BENIGN HYPERTENSION BY SPECIALTY VISITED: UNITED STATES, JANUARY 1975-DECEMBER 1976



ture of most EBH visits, the disposition of very few visits was admittance to a hospital.

Most EBH visits (87 percent) took place in the office of either the general and family practitioner or the internist, with the remaining 13 percent distributed among the practices of specialists in cardiovascular diseases, general surgery, and other diseases (figure 3).

Table 6 displays EBH visits by region, location, and type of practice. While office-based physicians in the least populated West Region had the fewest visits for hypertension, visit rates were substantially alike for all regions. Division of visits for EBH by metropolitan or nonmetropolitan areas was parallel to the average for all NAMCS visits.

Hypertension patients tended to visit physicians in solo practice more frequently than did patients presenting all diagnoses combined (70 percent of hypertension visits were to physicians in solo practice as opposed to 60 percent for all other diagnoses).

Table 6. Number of office visits and percent distributions and average annual visit rate for essential benign hypertension by location and type of practice: United States, January 1975-December 1976

Location and type of practice	Number of visits in thousands	Percent of visits	Annual rate per 100 persons ¹
All visits.....	46,128	100.0	11.1
LOCATION OF PRACTICE			
Region			
Northeast.....	12,456	27.0	12.8
North Central.....	13,376	29.0	11.8
South.....	12,894	28.0	9.7
West.....	7,402	16.1	10.2
Type of area			
Metropolitan.....	33,079	71.7	11.7
Nonmetropolitan.....	13,049	28.3	9.8
TYPE OF PRACTICE			
Solo.....	32,170	69.7	...
Other ²	13,957	30.3	...

¹The base populations used in computing the rates are national estimates published by the U.S. Bureau of the Census for the civilian noninstitutionalized population as of July 1, 1975, in Series P-25, No. 614, and as of July 1, 1976, in Series P-25, Nos. 643 and 646, of *Current Population Reports*.

²Includes partnerships and group practices.

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SYMBOLS	
Data not available.....	---
Category not applicable.....	...
Quantity zero.....	0
Quantity more than 0 but less than 0.05.....	0.0
Figure does not meet standards of reliability or precision.....	*

TECHNICAL NOTES

SOURCE OF DATA: The information presented in this report is based on data collected in the National Ambulatory Medical Care Survey (NAMCS) during 1975 and 1976. The target population of NAMCS encompasses office visits within the conterminous United States made by ambulatory patients to physicians who are principally engaged in office practice.

SAMPLE DESIGN: NAMCS utilized a multi-stage probability design that involves samples of primary sampling units (PSU's), physician practices within PSU's, and patient visits within practices. Each year a sample of practicing physicians is selected from master files maintained by the American Medical Association and the American Osteopathic Association. These physicians are requested to complete Patient Records (brief encounter forms) for a systematic random sample of office visits taking place within their practice during a randomly assigned weekly reporting period. (A facsimile of the Patient Record used is shown in a previous issue of *Advance Data From Vital and Health Statistics*, No. 12, October 12, 1977.) Characteristics of the physician's practice, such as primary specialty and type of practice, are obtained during an induction interview. A detailed description of the NAMCS design and procedures has been in Series 13, Number 33, of *Vital and Health Statistics*.

SAMPLING ERRORS: Since the estimates for this report are based on a sample rather than the entire universe, they are subject to sampling variability. The standard error is primarily a measure of sampling variability. The relative standard error of an estimate is obtained by dividing the standard error of the estimate by the estimate itself and is expressed as a percent of the estimate. Relative standard errors of selected aggregate statistics are shown in table I. The standard errors appropriate for the estimated percentages of office visits are shown in table II.

ROUNDING: Aggregate estimates of office visits presented in the tables are rounded to the nearest thousand. The rates and percents, however,

Table I. Approximate relative standard error of estimated numbers of office visits, NAMCS 1975-76

Estimate in thousands	Relative standard error in percentage points
600	30.2
1,000	23.5
2,000	16.7
4,000	12.0
10,000	8.0
40,000	4.8
200,000	3.4
1,000,000	3.1

Example of use of table: An aggregate estimate of 25,000,000 visits has a relative standard error of 6.4 percent or a standard error of 1,600,000 visits (6.4 percent of 25,000,000).

Table II. Approximate standard errors of percentages for estimated numbers of office visits, NAMCS 1975-76

Base of percentage (number of visits in thousands)	Estimated percentage					
	1 or 99	5 or 95	10 or 90	20 or 80	30 or 70	50
	Standard error in percentage points					
600.....	3.0	6.5	9.0	12.0	13.8	15.0
1,000.....	2.3	5.1	7.0	9.3	10.7	11.6
2,000.....	1.6	3.6	4.9	6.6	7.5	8.2
4,000.....	1.2	2.5	3.5	4.7	5.3	5.8
10,000.....	0.7	1.6	2.2	2.9	3.4	3.7
40,000.....	0.4	0.8	1.1	1.5	1.7	1.8
200,000.....	0.2	0.4	0.5	0.7	0.8	0.8
1,000,000.....	0.1	0.2	0.2	0.3	0.3	0.4

Example of use of table: An estimate of 20 percent based on an aggregate estimate of 80,000,000 visits has a standard error of 1.3 percent. The relative standard error of 20 percent is 6.5 (1.3 percent ÷ 20 percent)

were calculated on the basis of original, unrounded figures. Due to rounding of percents, the sum of percentages may not equal 100.0 percent.

DEFINITIONS: An *ambulatory patient* is an individual presenting himself for personal health

services who is neither bedridden nor currently admitted to any health care institution on the premises.

An *office* is a place that the physician identifies as a location for his ambulatory practice. Responsibility over time for patient care and professional services rendered there generally resides with the individual physician rather than an institution.

A *visit* is a direct personal exchange between an ambulatory patient and a physician or a staff member working under the physician's supervision for the purpose of seeking care and rendering health services.

A *physician* is a duly licensed doctor of medicine (M.D.) or doctor of osteopathy (D.O.) currently in practice who spends time in caring for ambulatory patients at an office location. Excluded from NAMCS are physicians who specialize in anesthesiology, pathology, radiology; physicians who are federally employed; physicians who treat only institutionalized patients; physicians employed full time by an institution; and physicians who spend no time seeing ambulatory patients.

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