SOCIODEMOGRAPHIC AND HEALTH FACTORS INFLUENCING BLACK AND HISPANIC USE OF THE HOSPITAL EMERGENCY ROOM

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The factors influencing the increased use of emergency rooms by minorities were examined among a national sample of black and Hispanic Americans. Multivariate analysis indicated that ethnicity and age were important predictors of emergency room use. Specific health conditions also determined whether the emergency room was chosen as a health care option. Directions for future research on emergency room use are presented.

One of the fastest growing segments of the health care market is hospital outpatient care, in particular the use of the emergency room.[1] It is clear that ethnic minorities have contributed significantly to this increased pattern of use.[2,3] What is less clear are the sociodemographic determinants of these patterns and what types of nonemergency health problems are brought by minorities to emergency rooms. This article examines the relationship among sociodemographic factors, health problems, and black and Hispanic use of the emergency room as a source of nonemergency health care.

There are a number of health care options available in today's society. For most people the emergency room is simply one of several sources of medical treatment.[4,5] However, over the last 25 years ethnic minorities have considered the emergency room as a key source of health care. That trend among blacks and Hispanics is usually attributed to several sociohistorical factors: the proximity of hospitals to urban areas; the tradition of free care found within hospitals; the exodus of physicians from urban environs to the suburbs; the greater tendency of members of both groups not to have a regular physician or health insurance; and a lack of knowledge of other health care options.[6-11]

Some argue that Hispanics and blacks have contributed to the increased demands placed upon the emergency room because it remains their principal port of entry into the mainstream medical care system. Twice as many blacks and Hispanics as whites report emergency rooms as a source of care.[12] That pattern suggests that minorities continue to have poorer access to comprehensive health care[13] and other sources of mainstream care.[14] The very structure of the medical care system may funnel minorities to public medical facilities.[2] Gibson,[6] for example, has argued that the role of the hospital emergency room is dictated by the failure of other parts of the health care system to allow access for "undesirable" segments of the population, such as the poor, blacks, and Hispanics. In fact, according to Gibson, hospital emergency rooms have become "the 24-hour rain barrel of ambulatory health care to collect everyone else's leaks."[6(p60)]

Moreover, the health care provided in emergency rooms may affect the overall quality of care received. The emergency room is less likely than are other health care facilities to provide the continuity of care associated with improved health outcomes.[3] That significant numbers of minorities may not receive continuity of care has

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important policy implications. Patients are also least satisfied with the treatment received in emergency rooms, although it is one of the most expensive sources of medical care.[3]

Many of the conclusions about black and Hispanic use of the emergency room mentioned above are drawn from descriptive data, for few researchers have examined those factors that influence use of emergency rooms among black and Hispanic populations. Although those groups are consistently identified as frequent users of emergency rooms, it is often unclear whether cultural or other sociodemographic factors play a significant part in explaining that use. Thus, large families, the unemployed, possessors of public insurance or those with no insurance, central city dwellers, and those with low incomes and little education are considered most likely to use the emergency room. However, those characteristics describe the poor, blacks, and Hispanics equally as well.[9,15-17] These relationships can easily be clarified by simultaneously examining the association among ethnicity, income, and usage.

Two studies were found that used multivariate analysis. Kleinman, Gold, and Makuc[18] found blacks at all income levels more likely than whites to use the emergency room. That relationship might indicate a cultural predisposition among blacks to using emergency room medical care.[19,20] Using data from the first national probability sample of black Americans and specifying the dependent variable as the log-odds of using or not using the emergency room, Neighbors[9] discovered that poor, unemployed, and elderly blacks were most likely to use the emergency room. None of these researchers appears to control for emergency versus nonemergency conditions—an important distinction for understanding the process of choosing a particular facility.

As the above review indicates, the multiple factors influencing minority use of the emergency room need to be explored. In particular sociodemographic correlates of emergency room use must be highlighted. Moreover, as part of the process of understanding health care patterns, the relationship between nonemergency health problems and use of health facilities needs exploration. However, there is little information about this relationship within minority populations. Although Neighbors[9] identified physical health problems as the most common set of conditions brought to the emergency room, he does not differentiate between emergency and nonemergency situations. Analysis of this issue is hampered by a lack of basic data describing the incidence of major diseases among either minority population. The recently released *Report of the Secretary's Task Force on Minority Health* indicates that blacks are more likely to have respiratory, circulatory, and genitourinary system ailments, whereas Hispanics are more likely to have digestive and musculoskeletal problems.[21]

Little is known about minority use of emergency rooms and what brings them there. The current analysis investigates sociodemographic determinants of emergency room use among blacks and Hispanics and the medical conditions brought to the emergency room. A framework developed by Aday and Andersen[22] was used for analysis. Their framework provided a useful model for examining determinants of health services utilization. The model focuses on three major dimensions of health service utilization. The first, predisposing characteristics, examines grouped individual factors that measure the likelihood of an individual using services. These characteristics include either demographic (age, sex, marital status, and family size) or social/structural (education and race) factors. Second, enabling characteristics describe resources available to an individual through the family or community when seeking care. These variables include family (income, insurance, a regular source of care, and job status) or community resources (residence and geographic location). Third, Aday and Andersen identify measures of health status and immediate causes for seeking care, which they term "need characteristics." In the present research, these include health perceptions and respiratory, digestive, impairment, circulatory, and arthritis conditions.

Much of the research on the use of the emergency room has provided simple descriptive information on black and Hispanic use of health facilities, leaving unexplored those sociodemographic factors that influence the choice of the emergency room as a health care option and those health conditions seen in the emergency room. Other studies, although illuminating the relationship between those factors and emergency room use, apparently fail to draw distinctions between nonemergency and emergency conditions. That distinction is of critical importance if the factors that influence the choice of health facility are to be discovered. Thus, within the context of nonemergency care, this article examines sociodemographic factors and health conditions that dispose blacks and Hispanics to choose the emergency room as a source of health care.

DATA AND SAMPLE

The data source used in this research is the National Medical Care Utilization and Expenditure Survey (NMCUES), a national sample of the noninstitutionalized, civilian US population cosponsored by the

National Center for Health Statistics and the Health Care Financing Administration. The total sample included 17,123 individuals interviewed five times during 14 months from 1980 to 1981. In addition to information on medical service utilization and expenditures, these data provide a unique source of information on health insurance, health/disease conditions, employment, and nonwage income. The representation of blacks and Hispanics within these data is comparable to their representation in the nation: 11.45% and 6.96%, respectively.[23]

From the above data set, all adult blacks and Hispanics that reported a health condition in 1980 were selected. The health conditions considered were based on a comprehensive listing of diseases from the World Health Organization's *International Classification of Diseases*. From this comprehensive listing, we classified diseases into six groups: digestive, impairments, circulatory, respiratory, arthritis, and all other conditions. Digestive conditions included diseases of the digestive system, blood, and nervous system. Impairments included disorders of the eye and ear as well as fractures and sprains. Hypertension, heart diseases, and other conditions of the circulatory system were classified as circulatory. All diseases of the respiratory system were included in the respiratory classification. Finally, the arthritis classification included diseases of the musculoskeletal system and connecting tissues. Thus, all major disease categories were examined.

As this article examines the decision to choose the emergency room as a source of medical care among an array of other options, all emergency medical visits were excluded from the analysis. An emergency medical visit was defined as care needed within a few hours of an emergency room visit. Need was defined according to whether there was a threat to life or health at the time of the emergency room visit. Specifically, survey respondents were asked two questions: "At the time you went to the emergency room for your condition was there a threat to life if you did not receive treatment within an hour?" and "At the time, did you need care within a few hours to prevent your condition from becoming serious?" Affirmative answers to either question implied the visit to the emergency room was for a "true" emergency health condition.

The final sample included all adult blacks and Hispanics who reported health conditions and did not need medical care solely on an emergency basis; nonemergency care was received in physicians' offices, outpatient clinics, other health clinics, the patient's home, or the hospital emergency room. Although this sample included 1,258 blacks and Hispanics, only 85% (1,074 individuals) were users of one of the above medical facilities during the year. A total of 142 black and Hispanic medical service users visited the emergency room at least once during the year for some nonemergency medical condition.

ANALYSIS FRAMEWORK

A bivariate analysis was first developed to assess the use of the emergency room as a treatment source for nonemergency health conditions. Although some blacks and Hispanics never visit the emergency room, others consider it a viable treatment option. For blacks and Hispanics who have used some type of medical facility, the bivariate analysis reflects the relationship between selected sociodemographic variables and use of the emergency room as one of several treatment sources.

To examine the independent effects of sociodemographic factors on use of emergency rooms for nonemergency conditions, a logit regression model was developed of the decision to use the emergency room as one of several medical facility alternatives. Specifically, the model examined the determinants of the probability a person would use the emergency room for nonemergency conditions, given the use of some type of medical facility. Therefore, the dependent variable was assigned a value of zero if the medical consumer never visited the emergency room. Otherwise, the dependent variable was given a value of one. A limited dependent variable regression model is implied due to the dichotomous dependent variable and thus a logistic regression analysis was utilized.

As previously introduced, the choice of independent variables for the regression analysis was informed by the general medical utilization model developed by Aday and Andersen,[22] a model based on the premise that use of services is determined by predisposing, enabling, and need factors. Similarly, our model assumed these three factors influence the decision to use the emergency room. Moreover, we considered that the decision to use the emergency room occurs in two stages. First, a decision is made to use some type of medical service. Among those deciding to use services, a choice of medical facilities occurs. At each stage, the determinants of decision making are predisposing, enabling, and need factors. This article focuses on the second stage of decision making: the final choice of the emergency room among several medical facilities. Thus, a precondition for inclusion in our final sample was that a medical visit to some type of facility occurred. Therefore, an additional independent variable was needed in our regression

model of the second stage decision to account for the first stage of decision making; the exclusion of this variable would have produced biased estimates (selectivity bias) for the other independent variables.[24]

The independent variable was constructed by estimating the model for the first stage of decision making using logistic regression analysis to estimate the determinants of the decision to use any medical facility when a health condition exists. We found that predisposing, enabling, and need conditions influence the decision to visit facilities (Table 1). These estimates indicate that the young and married women have the highest probability of medical visits. Health insurance coverage (either private or public) encourages visits. A full-time job lowers the probability of utilization. Digestive, impairment, circulatory, and arthritis conditions increase the probability of utilization. Those perceiving their health as excellent have a higher probability of visits than those who view their health as poor.

The information obtained in this regression model was incorporated in the regression model of the second stage of decision making through the construction of an instrumental variable, the probability of facility use, ie, the probability of being included in the sample for analysis of choice of the emergency room. The instrumental variable was mathematically defined as $1/[1+e^{-(\beta X \beta_i)}]$ where Σ represented regression coefficients from the first stage regression and the X_i represented the significant predisposing, enabling, and need conditions discussed above. This instrumental variable corrected for selectivity bias and was the additional independent variable of the emergency room (medical facility choice) regression model. Thus, in this latter regression we could be assured that the interpretation of predisposing, enabling, and need factors was based on unbiased estimates of their effects.

RESULTS

Bivariate Analysis

The results of the bivariate analysis are presented in Table 2. The bivariate analysis indicates that marital status, gender, age, and medical condition are significantly related to emergency room use for nonemergency conditions.

The presence of a spouse tends to decrease the use of the emergency room. The exceptional case involves widowed respondents; only 6.19% of widowed blacks and Hispanics use the emergency room in comparison with 11.54% of those married. Men are more likely to consider the emergency room as one of their medical facility options; 16.87% of men and 11.03% of women used the emergency room at least once during the survey year. Additionally, use tends to decrease significantly with age. Whereas only 3.6% of those 55 to 64 years of age use the emergency room, 18.32% of those 18 to 34 years old are users. The young age group is six times more likely to choose the emergency room as an option for care than are those 55 to 64 years of age. It is surprising to note the greater tendency of use by those 65 and older. Their utilization patterns resemble those of the 35 to 54 age group.

Finally, note that the health condition necessitating care influences the choice of medical facility. Of the major health conditions necessitating medical visits by blacks and Hispanics, the existence of a physical impairment or a digestive disorder increases the use of this medical service alternative. If either of these conditions is present, blacks and Hispanics are two times more likely to consider the emergency room as a service option than when their medical condition is circulatory, respiratory, or arthritic.

Multivariate Analysis

The logistic model of emergency room use is described in Table 3. At least one factor in each of the three groups of medical use determinants significantly influences the decision to include the emergency room as one of several facilities available for treatment of nonemergency conditions. The predisposing conditions affecting the decision are ethnicity and age. The enabling condition associated with the dependent variable is the emergency room as a usual source of care. Finally, the specific conditions necessitating treatment (a measure of need) are significant determinants of emergency room use.

Blacks are significantly more likely than Hispanics to use the emergency room. Although the young (18 to 34) are more likely to use the emergency room than those aged 65 and older, those 55 to 64 are less likely than the latter group. If the emergency room is the usual source of care, there is a higher probability the emergency room will be one of the facilities used to care for a nonemergency medical condition.

Of the five major medical conditions afflicting blacks and Hispanics, two conditions significantly increase the probability that some treatment will occur in the emergency room. If digestive disorders and physical impairments occur, there is a higher probability that the emergency room will be a treatment option than when the excluded conditions (conditions less frequently faced by blacks and Hispanics) occur. There is no significant difference in use of the emergency room when arthritis,

TABLE 1. LOGIT ANALYSIS OF FACTORS INFLUENCING USE OF MEDICAL FACILITIES AMONG BLACKS AND HISPANICS

Variables	Visit Estimates (*t* statistic)	
Predisposing		
Ethnicity		
= 1 if Hispanic	0.0876	(0.43)
Household Head	0.1485	(0.64)
Marital Status		
= 1 if widowed	−0.2513	(−0.65)
= 1 if separated or divorced	−0.3989	(−1.37)
= 1 if single	−0.6600	(−2.53)*
Family Size		
= 1 if 2-person household	0.1149	(0.32)
= 1 if 3 or more persons in household	−0.2617	(−0.78)
Gender		
= 1 if male	−0.6913	(−3.24)†
Age		
= 1 if 18 to 34	0.8738	(2.16)*
= 1 if 35 to 54	0.2216	(0.57)
= 1 if 55 to 64	0.0333	(0.07)
Education		
= 1 if less than high school	−0.1067	(−0.30)
= 1 if high school graduate	0.0690	(0.19)
= 1 if some college	−0.0001	(−0.09)
Enabling		
Emergency Room as Usual Source	−0.4923	(−1.19)
Insurance		
= 1 if Medicaid	0.9403	(2.85)‡
= 1 if Medicare or private	0.4979	(1.97)*
Income		
= 1 if between $5,000 and $9,999	−0.0869	(−0.23)
= 1 if between $10,000 and $14,999	−0.4699	(−1.21)
= 1 if between $15,000 and $24,999	0.3422	(0.87)
= 1 if $25,000 and above	−0.0266	(0.06)
Employment Status		
= 1 if employed full time	−0.4921	(−2.39)*
Standard Metropolitan Statistical Areas (SMSA)		
= 1 if SMSA (central city)	−0.2358	(−1.30)
= 1 if rural	1.1762	(2.09)*
Region		
= 1 if north east	0.1112	(0.40)
= 1 if north central	−0.0434	(−0.13)
= 1 if south	−0.1249	(−0.49)
Need		
Health Perception		
= 1 if good or fair	−0.2048	(−1.09)
= 1 if poor	−0.9797	(−2.41)*
Conditions		
= 1 if digestive	1.1451	(5.21)†
= 1 if impairment	1.0620	(4.56)†
= 1 if circulatory	1.0133	(3.87)†
= 1 if respiratory	0.1809	(0.99)†
= 1 if arthritis	0.6973	(2.92)‡

Note: The excluded categories corresponding with the above variables are: black, married, one-person household, female, 65 and older, college graduate, no insurance, income less than $5,000, part-time/unemployed/out of the labor force, non-SMSA (urban)/SMSA (noncentral city), west, excellent health, and all other diseases or conditions.
$\chi^2 = 157$†, $df = 34$, $R^2 = 0.292$
* significant at 0.05
† significant at 0.001
‡ significant at 0.01

respiratory, or circulatory conditions occur rather than the excluded medical conditions.

DISCUSSION

Most of what is known about the use of emergency room as a source of care among minority populations is based on descriptive analysis and data presented in frequency tables. The sociodemographic determinants of emergency room use among blacks and Hispanics have seldom been explored in a nationally representative sample. This multivariate analysis of a national sample provides a more rigorous test of the various relationships than is typically offered.

The predisposing factors associated with emergency room use among blacks and Hispanics are ethnicity and age. Most of these results are consistent with descriptive data on these populations.[25] However, unique subgroups within the ethnic and age categories are identified in the present study. Although Hispanics are no more likely to use health facilities than are blacks (Table 1), they are much less likely to choose the emergency room as a source of nonemergency care than are blacks. The particular patterns of use found within each population included in the present analysis may be related to cultural factors.[17,20,26] The influence of sociocultural factors on the particular patterns of treatment sought by Hispanics has fallen into disfavor over the last decade, and never was popular to explain black health behavior.[26,27] Nevertheless, the results of our analysis suggest that unique cultural differences within these populations may have been prematurely abandoned as contributing factors in explaining health behavior.

Unique subgroups within the age category are significantly related to use as well. The significantly higher rates for those 18 to 34 and lower rates for 55- to 64-year-olds, compared with the elderly, need further examination. There may be something about those particular segments of the life course among blacks and Hispanics that can help illuminate these relationships.

Digestive and impairment conditions were need factors significantly related to the use of emergency rooms. These results provide further elaboration on the finding by Neighbors[9] that emergency room visits by blacks usually involve physical health problems. Digestive and impairment problems may flair up at inopportune times and thus are more likely to be seen in the emergency room than at some other facility.

IMPLICATIONS

The results of this analysis suggest that among blacks and Hispanics the specific medical condition is impor-

TABLE 2. SOCIODEMOGRAPHICS OF EMERGENCY ROOM USERS

Sociodemographics	Percent Using the Emergency Room (n)
Ethnicity	
Black	14.76 (97)
Hispanic	10.79 (45)
Health Insurance	
No insurance	15.04 (17)
Medicaid	17.17 (40)
Medicare/private	11.68 (85)
Marital Status*	
Married	11.54 (68)
Widowed	6.19 (7)
Separated/divorced	16.35 (26)
Single	19.25 (41)
Income	
Under $5,000	12.32 (18)
$5,000 to $9,999	15.48 (26)
$10,000 to $14,999	12.74 (20)
$15,000 to $24,999	27.46 (39)
$25,000 and above	10.56 (15)
Residence	
SMSA† (central city)	15.23 (78)
SMSA (noncentral city)	12.25 (43)
Non-SMSA (urban)	6.99 (10)
Rural	16.18 (11)
Gender‡	
Female	11.03 (74)
Male	16.87 (68)
Age**	
18 to 34	18.32 (87)
35 to 54	11.08 (37)
55 to 64	3.60 (5)
65 and above	10.32 (13)
Region	
North east	16.02 (37)
North central	13.51 (20)
South	11.37 (53)
West	13.97 (32)
Medical Condition††	
Digestive	16.14 (71)
Impairment	17.00 (34)
Circulatory	8.08 (8)
Respiratory	6.32 (12)
Arthritis	6.82 (3)
Education	
0 to 11 years	12.55 (63)
High school graduate	16.93 (54)
Some college	11.38 (19)
College graduate	6.98 (6)
Employment Status	
Full-time	12.29 (44)
Part-time/not working	13.69 (98)

*$X^2 = 14.4$, $df = 3$, $P = .002$
†Standard metropolitan statistical area
‡$X^2 = 7.5$, $df = 1$, $P = .006$
**$X^2 = 24.2$, $df = 3$, $P = .0001$
††$X^2 = 17.53$, $df = 5$, $P = .004$

TABLE 3. LOGIT ANALYSIS OF FACTORS INFLUENCING THE USE OF THE EMERGENCY ROOM AMONG BLACKS AND HISPANICS

Variables	Emergency Room Use Estimates	(*t* statistic)
Predisposing		
Ethnicity		
= 1 if Hispanic	−0.6287	(−2.58)*
Household	0.1572	(0.64)
Marital Status		
= 1 if widowed	−0.6438	(−1.25)
= 1 if separated or divorced	−0.1324	(−0.40)
= 1 if single	−0.0070	(−0.02)
Family Size		
= 1 if 2-person household	−0.3021	(−0.78)
= 1 if 3 or more persons in household	−0.1476	(−0.42)
Gender		
= 1 if male	0.5404	(1.80)
Age		
= 1 if 18 to 34	1.1569	(2.35)†
= 1 if 35 to 54	0.2844	(0.67)
= 1 if 55 to 64	−1.2536	(−2.18)†
Education		
= 1 if less than high school	0.8012	(1.62)
= 1 if high school graduate	0.8025	(1.66)
= 1 if some college	0.2723	(0.53)
Enabling		
Emergency Room as Usual Source	1.7455	(3.96)‡
Insurance		
= 1 if Medicaid	0.0424	(0.10)
= 1 if Medicare/private	−0.0451	(−0.13)
Income		
= 1 if $5,000 to $9,999	−0.0501	(−0.17)
= 1 if $10,000 to $14,999	−0.1913	(−0.59)
= 1 if $15,000 to $24,999	0.1643	(0.60)
= 1 if $25,000 and above	0.0253	(0.07)
Employment Status		
= 1 if employed full time	−0.4494	(−1.65)
Statistical Metropolitan Statistical Area (SMSA)		
= 1 if SMSA (central city)	0.2014	(0.92)
= 1 if rural	0.6677	(1.48)
Region		
= 1 if north east	−0.1256	(−0.41)
= 1 if north central	−0.3359	(−0.94)
= 1 if south	−0.5568	(−1.85)
Need		
Health Perception		
= 1 if good or fair	−0.1448	(−0.65)
= 1 if poor	0.0699	(0.15)
Conditions		
= 1 if digestive	0.9194	(2.84)*
= 1 if impairment	0.9198	(3.00)*
= 1 if circulatory	0.2883	(0.87)
= 1 if respiratory	−0.3607	(−1.79)
= 1 if arthritis	0.3956	(1.49)
Visit Probability	−1.5151	(0.90)

Note: The excluded categories corresponding with the above variables are: black, married, one-person household, female, 65 and older, college graduate, no insurance, income less than $5,000, part-time/unemployed/out of the labor force, non-SMSA (urban)/SMSA (noncentral city), west, excellent health and all other diseases or conditions.
$X^2 = 110.64$‡, $df = 34$, $R^2 = 0.22$
* significant at 0.01
† significant at 0.05
‡ significant at 0.001

tant in determining whether a visit will occur in the emergency room or in an alternative medical setting. One issue that needs further examination is whether the particular conditions presented for service at the emergency room are appropriately attended in this care setting. Although immediate medical attention can be directed to health problems in this setting, there is a question of whether vital follow-up or maintenance care will be obtained if the emergency room is the main source of care for particular conditions. From a policy perspective, the economic and social costs of maintaining health could indeed be increased if treatment of conditions is more sporadic when obtained in the emergency room.

Particular attention also must be directed to the role of ethnicity in influencing facility use. Our analysis indicates blacks are more likely to visit the emergency room than are Hispanics. Although the exact relationship is unclear, the results suggest that cultural factors may influence utilization patterns. The research implications of these results are straightforward. Ethnic minority populations do not represent a homogeneous group of medical service utilizers. Cultural differences between and within black and Hispanic populations must be addressed to understand medical utilization decisions.

Finally, the role of age in influencing use of medical services must be examined more closely. Grossman[28] suggested that beyond some point in the life cycle, older persons increase their purchases of medical services to retard the accelerated depreciation in their health levels. This perspective is consistent with our results and suggests that greater understanding of the role of age in the use of services may be obtained through analysis that takes a life cycle approach, ie, longitudinal analysis of use patterns.

With constantly rising health costs, there is great interest in developing mechanisms to trim expenditures while maintaining quality of delivery. Given that blacks and Hispanics are more likely than others to participate in the most costly segment of the health care system, to achieve those goals it is important to gain a better understanding of those factors that lead these communities to health facilities generally and to emergency rooms in particular for the care of nonemergency conditions. Basic research is needed in this area, as are studies that illuminate cultural variables. As the current study indicates, a lack of sufficient data hampers that goal. Detailed national-level data describing health service patterns of US minority populations that over-sample or the specific objective of which is to focus on black or Hispanic populations are not available. Knowledge of health care use among these populations is therefore fragmented and little is known about subgroups within minority sectors and how their particular characteristics may affect the overall patterns. More extensive data are needed for a fuller understanding of services minority populations actually receive and need. Without those data, the specific health needs of minority communities cannot be understood and the delivery of care to these segments of society will remain a hit or miss affair.

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