

Hospitalization for Medical-Legal and Other Abortions in the United States 1970–1977

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Abstract: The National Hospital Discharge Survey records for medical-legal, spontaneous, and “other” abortions (ICDA-8 640-641, 643, and 644 respectively) for 1970–77 were analyzed to investigate the impact of liberalized access to abortion on abortion-related morbidity in the United States. The analysis suggests that in census regions where an increase in medical-legal abortions performed in hospitals occurred over the study period there was an associated decreased likelihood of a “spontaneous” or “other” abortion. The spontaneous and “other” abortion codes appear to have been used synonymously and a small number of each used to classify complications of

both illegal and legal abortions performed outside hospitals. There was a significant reduction in length of stay for spontaneous and other abortions between 1970 and 1977. This is suggestive of decreasingly severe presenting symptomatology for complicated abortion. The study further suggests that: during 1970–77 illegal abortions were largely replaced by legal procedures; increases in legal abortion beyond those replacing illegal have not resulted in increased rates of hospitalization for complicated abortion; and, the case morbidity rate for legal abortion appears to have declined. (*Am J Public Health* 1982; 72:30–37.)

Introduction

This paper addresses two related questions. First, what was the national impact of the 1973 United States Supreme Court ruling¹ liberalizing access to induced abortion on hospitalization rates for all types of abortion? Second, what do the rates reflecting complicated abortion tell us about the continued rate of illegal abortion following liberalization? Before 1973 it was widely hypothesized that liberalization of the United States abortion law would significantly reduce hospital admission for septic abortion. This hypothesis was based principally on the experience of hospitals in California,²⁻⁴ Atlanta,⁵ and New York.⁶ In a major San Francisco medical center, for example, the two years after the 1967 reform of the California abortion law saw a 68 per cent decline in septic abortion,² and in Los Angeles, between 1966 and 1971, a 75 per cent reduction in septic abortion.⁴

Whether more liberal access to induced abortion would be utilized by women who previously would have aborted illegally or, alternatively, by women who would previously have delivered, was also the subject of considerable debate before the Supreme Court Ruling.⁷ Data from Sweden⁸ and East Germany⁹ suggested that illegal abortion did not decline

despite liberalization. In England, however, the main effect of liberalization was to replace illegal with legal abortion.¹⁰ By examining hospital discharge after septic abortion, Leete estimated that illegal abortion in England dropped by one-third between 1967 and 1975.¹¹

In New York City the first two years of legal abortion resulted in 70 per cent of legal abortions replacing illegal procedures.¹² It has also been estimated that 90 per cent of the increase in abortion following liberalization of the abortion law in Oregon replaced illegal abortion.¹³ On a national level, Cates and Rochat reported that deaths resulting from illegal abortion declined from a total of 39 in 1972 to five in 1974 (an 87 per cent decrease). Using these data, the same authors estimated that illegal abortions in the United States declined from 130,000 in 1972 to 17,000 in 1974.¹⁴ Analyses of data from the 1973 National Survey of Family Growth (NSFG), however, using the randomized response technique to estimate the total number of induced abortions, indicated a possibility that the rate of abortion was 3.4 times greater than estimated by the Alan Guttmacher Institute (AGI) for the same year.¹⁵ If the discrepancy between NSFG and AGI is real (which may not be the case because of difficulties with the randomized response technique itself) then it may be accounted for by assuming that the AGI survey misses many legal abortions, or that the rate of illegal abortion is still very high.

AGI estimated that 1,270,000 legal abortions were performed in the United States in 1977,¹⁶ a 264 per cent increase in the rate of induced abortion since 1971. While the complication rate of legal abortion is low and, presumably, less than for illegal abortion,¹⁷ this large increase in legal abor-

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TABLE 1—Weighted Counts¹ of Abortion Type (ICDA-8 Codes) for 1970-77

Year	Abortion Type ²			Total
	Medical-Legal	Spontaneous	Other	
1970	135,272	56,879	267,255	459,406
1971	194,262	51,260	225,153	470,675
1972	197,041	56,121	225,946	479,108
1973	214,928	45,686	228,151	488,765
1974	224,619	50,546	207,962	483,127
1975	219,371	56,976	208,706	485,053
1976	205,647	52,933	210,069	468,649
1977	204,940	49,745	209,779	464,464
TOTAL	1,596,080	420,146	1,783,021	3,799,247

1) Includes those of unknown racial and marital status (first diagnosis only).

2) Medical-Legal ICDA-8 codes 640-641
 Spontaneous ICDA-8 code 643
 Other ICDA-8 code 644

tions would itself increase hospital admissions for complicated abortion if the number of illegal abortion remains unchanged.

Methods

To investigate the study questions, we analyzed data from the Hospital Discharge Survey (HDS) conducted by the National Center for Health Statistics for 1970 through 1977. This national sample of general and short-stay hospitals provides the HDS with information about the hospital itself, patient characteristics, surgical procedures, and discharge diagnoses.¹⁸ ICDA-8 Codes are used by the HDS to classify diagnoses. Those of interest in this study are: 640 - abortion induced in hospital for medical indications; 641 - abortion induced in hospital for other legal indications; 642 - abortion induced in hospital for other reasons (including criminal and self-induced); 643 - spontaneous abortion; and 644 - abortion not specified as induced or spontaneous. The fourth ICDA digit, which specified whether sepsis, toxemia, hemorrhage, or other complications are part of the abortion diagnosis, was not recorded by HDS.

Analysis of the HDS tapes was accomplished by developing an AUTOGRP¹⁹ master file which consisted of essential variables from the 1970-77 HDS tapes for patients with a first diagnosis of ICDA-8 Codes 640-644. The master file was managed and descriptively analyzed using SAS.²⁰ Multi-dimensional tables were analyzed using the package program BMDP3F²¹ for log-linear models^{22*} and are further described in the Appendix.

For a preliminary screen of the HDS data base, we arbitrarily chose 1971. In the 1971 HDS data, 98.6 per cent of

all 640-644 diagnoses were listed as the first diagnosis. Since induced and spontaneous abortion may occur as a consequence of other medical conditions, only first listed diagnoses were used. ICDA Code 642 yielded only 11 cases in 1971 which represented a national weighted total count of 1,235 diagnoses of criminal or self-induced abortion. This number was too small for meaningful analysis and Code 642 was, therefore, excluded from future analyses. No useful distinction could be made between ICDA-8 Codes 640 and 641; these were combined and are termed "medical-legal".

It is also important to note the categories used for age, race, and marital status. The categories of age were ≤ 19 , 20-24, 25-29 and 30 and over. For race, two groups were used: White and minority, where minority include all non-whites. In the case of marital status, the categories of married and not married were used.

Results

Frequency of HDS Abortion Codes

The major abortion discharge diagnoses are shown in Table 1. There has been a 51.5 per cent increase in reported medical-legal abortion performed in-hospital over the eight-year period; most of the increase occurred in 1971 and 1973. Spontaneous abortions appear to have remained fairly constant between 1970-1977. Of particular interest is the group of "other" abortions, i.e., those not coded specifically as induced or spontaneous. Not only is this the largest abortion category but a proportion of diagnoses for complications of abortions performed outside the hospital are likely to have been classified with this code. There was a 21.5 per cent decline in "other" abortions between 1970-1977, most of which occurred in 1971 and 1974. These trends are also evident at the regional level. In all nine census regions the rate of spontaneous abortions generally remained constant while there were decreases in "other" abortions in 1971 and 1974. Increases in reported medical-legal abortions occurred in 1973 in the New England, Central, and Mountain regions.

*Because of the exploratory and descriptive nature of the study the underlying sampling error in HDS was generally ignored. Sampling error can only be adjusted for using a substantially more complex analysis. It is expected that such an analysis would tend to reduce the statistical significance of the findings but not the direction or magnitude of the estimated associations.

TABLE 2—Homogeneity of Medical-Legal and Spontaneous vs “Other” Abortions, 1970–77

Variables	Abortion Type	Year							
		1970	1971	1972	1973	1974	1975	1976	1977
Age	Medical	.134***	.082**	.111***	.123***	.155***	.123***	.142***	.131***
	Spontaneous	.049	.041	.065	.058	.038	.044	.026	.048
Race	Medical	.009	.058*	.156***	.161***	.209***	.190***	.189***	.159***
	Spontaneous	.074*	.122***	.036	.045	.028	.016	.043	.040
Marital Status	Medical	.402***	.371***	.389***	.395***	.409***	.392***	.408***	.389***
	Spontaneous	.068*	.081**	.037	.051	.016‡	.003‡	.027‡	.069*
Region	Medical	.439***	.526***	.532***	.320***	.332***	.295***	.314***	.347***
	Spontaneous	.190**	.245***	.195***	.224***	.199***	.228***	.129**	.186***
Hospital Bedsize	Medical	.302***	.344***	.322***	.287***	.308***	.287***	.256***	.267***
	Spontaneous	.181**	.320***	.147***	.165***	.100*	.181***	.111**	.150***
Hospital Ownership	Medical	.242***	.328***	.324***	.287***	.297***	.267***	.239***	.231***
	Spontaneous	.078*	.072	.022	.042	.096**	.027	.063	.035

The Statistic is Cramer's V where

$$V = \left(\frac{\chi^2}{n} \right)$$

Medical-Legal ICDA-8 codes 640–641
 Spontaneous ICDA-8 code 643
 Other ICDA-8 code 644

*p < 0.05

**p < 0.01

***p < 0.001

‡Tests are based on sparse tables (expected counts < 5)

In the Middle Atlantic and South Atlantic regions this increase took place in 1971. In the Pacific region all three abortion diagnoses remained fairly constant between 1970 and 1977.

Other analyses of the 1970–77 HDS tapes showed that 28 per cent of abortion discharges were minority women, a proportion that did not change significantly over time. From 1970 to 1971 there was an increase in the proportion of unmarried women, with a concomitant decrease for married women, with reported abortion discharges. This then remained unchanged for the rest of the study period. Some major regional shifts were also noted over time. The Eastern Region showed fewer total abortions, and the South and Central Regions more abortions, in more recent years.

Comparison of Abortion Code Categories

The next task was to determine whether abortions coded in the “other” category were more likely to include “spontaneous” or “medical-legal” abortions by comparing patients in the three diagnostic groups on several sociodemographic and hospital-characteristic variables (Table 2).

The “other” abortion patients are similar to the spontaneous abortion patients group on age for all years 1970–77, on race for all years except 1970 and 1971, and on marital status for all years except 1970, 1971, and 1977. In contrast, “other” abortion patients differ from medical-legal abortion patients on all characteristics across all eight years (except for race in 1970). Regional and hospital differences are found between the “other” group and both medical-legal and spontaneous abortion. In all comparisons, however, sponta-

neous abortion differs less from the “other” group than does medical-legal abortion.

Regional Trends

The preceding analysis suggests that the spontaneous and “other” abortion codes have been (incorrectly) used synonymously. If this is the case, then a decrease in complicated abortions might be detected by a decline in reported “other” abortion and, to a lesser extent, a concomitant decline in spontaneous abortion even though both of these categories are composed of a majority of genuine spontaneous abortions.

We saw that marital status, race, age, and region were associated with changes in the three major abortion diagnoses between 1970–1977. Since each of these variables is measured categorically, and the associations among them are quite complex, we elected to analyze the HDS tapes by developing a log-linear model. Because of the particular importance of controlling for region when looking for trends in abortion diagnosis, we identified models for each of the nine census regions. Those in the race category “minority” were excluded from this part of the analysis due to the instability of the likelihood equations caused by too few numbers. The models, based on white's only, are summarized in the Appendix.

Figure 1 shows the results of the log-linear modeling for each of the nine census regions.** The association of abor-

**The test statistics, computed for each model, and the tabulated OY Beta Parameters are available upon request to the authors.

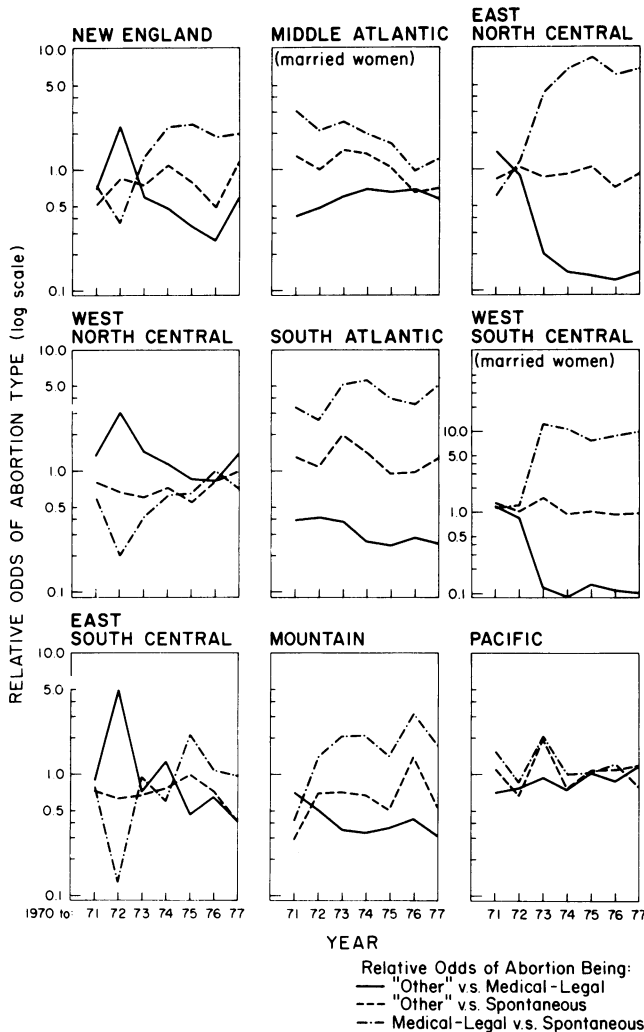


FIGURE 1—Relative Odds of Abortion Type for 1970-1977 by Census Region

tion diagnosis by year reported in Figure 1 are all significant at the $p < 0.05$ level. The abortion diagnosis by year associations for the Middle Atlantic and West South Central regions are conditional on marital status. The relationship between marital status, age, and region for the population of minorities was examined by a comparable log-linear model analysis. In general, the resulting models were the same as (or simpler relatives of) the models shown for the White population and reflected the same temporal trends.

Looking at New England, for example, the horizontal axis shows each year being compared to 1970 and the vertical axis shows the fitted odds of one abortion type compared to a second. The plot is on a semi-logarithmic scale to preserve the symmetry of the estimated odds ratios. Thus, when comparing medical-legal to spontaneous across years the odds of the former were relatively lower in 1971 and 1972 but then increase until 1976 when a small decline occurs. The comparison of "other" to spontaneous is approximately constant but the odds of other to medical-legal

declines sharply. It should be noted that the choice of 1970 as the standard of comparison is arbitrary. Other years can be used without affecting any of the study inferences or conclusions.

Severity of Abortion Complications

We also sought to examine the relationship between legalization of abortion and the "severity" of complications for all types of abortion resulting in hospitalization. Two variables in the HDS system had some bearing on severity: 1) discharge status as being alive or dead; and 2) length of hospital stay. For all abortions, however, death was rarely recorded—no more than two or three a year. Furthermore, the CDC surveillance system²³ detects these rare events more effectively than HDS. Hence, mortality was not analyzed further.

The overall mean length of stay for medical-legal abortions was 1.70 days. The mean length of stay was higher for both spontaneous and "other" abortions (2.22 and 2.29 days respectively for the eight-year period). The mean lengths of stay for spontaneous and "other" abortions were not significantly different from each other but both differed significantly from hospital-induced abortion. Table 3 shows the proportion of abortion diagnoses which resulted in hospitalization for two days or longer over the eight years using estimates based on the weighted data. A two-day hospitalization was selected for this analysis since it most evenly dichotomizes the length of stay variable. The tests of significance, which utilize the underlying sampling error rather than assuming a simple random sample,²⁴ are shown in the Appendix. No change in length of stay for medical-legal abortion is seen over the eight-year period ($p = 0.35$) except for an apparent anomaly in 1970. Length of stay for the spontaneous and "other" abortion diagnoses over the eight-year period is significantly reduced ($p < 0.001$). Moreover, this decline in length of stay occurred throughout the whole eight-year period and not just after 1973. For spontaneous abortion the mean length of stay declined 30.1 per cent between 1970 and 1977 and for "other" abortions 25.5 per cent.

Discussion

Before discussing these observations, it is necessary to point to some possible sources of bias in the analysis. While the HDS is the only national probability sample of all discharges from short stay hospitals in the United States, estimated changes in abortion diagnosis depend on accuracy of coding within each hospital. An additional difficulty in using HDS abortion codes is neglect of the fourth ICDA digit which would indicate whether the abortion diagnosis included complications. We have addressed some of these difficulties by collapsing the two medical-legal abortion categories, ignoring the actual code for criminal and self-induced abortion since it is clearly not utilized, and by including in the analysis both spontaneous and "other" abortion categories.

It should also be emphasized that induced abortions performed in hospitals are only about half of the total number of induced abortions performed nationally, and the

TABLE 3—Percentage of Abortions with a Hospital Stay of Two or More Days and Standard Errors, United States 1970–1977

Year	Abortion Type					
	Medical Legal		Spontaneous		Other	
	Per Cent	SE	Per Cent	SE	Per Cent	SE
1970	57	2.6	74	3.5	69	1.8
1971	35	2.1	67	4.0	67	2.0
1972	33	2.0	62	3.9	62	2.0
1973	35	2.0	63	3.9	58	2.0
1974	37	2.0	59	4.1	58	2.0
1975	36	2.0	57	4.0	53	2.1
1976	35	2.0	53	4.2	52	2.1
1977	30	2.0	54	3.9	50	2.0

proportion of abortions performed in hospitals was decreasing (from 53 per cent in 1973 to 35 per cent in 1975).¹⁶ The analysis has shown that abortion diagnoses vary significantly between geographic regions and within region by other important sociodemographic variables such as race and marital status. These differences are not unexpected since utilization of both legal and illegal abortion has been shown to vary by these same parameters.²⁵ Furthermore, the availability and utilization of legal abortions also differ significantly from one region to another, especially over the time period studied, largely because of differences in State abortion laws and demand for abortion services.²⁵ While these differences demand the development of complex models to assess relative trends in abortion diagnosis over time, they also allow for more insight into what the observed trends may mean.

The present analysis has suggested quite strongly that the "other" abortion category of HDS contains a large proportion of spontaneous abortion and few legal induced abortions. This is not surprising since legally induced abortion performed in the hospital is difficult to misdiagnose. The diagnosis of spontaneous abortion, however, usually depends entirely on the patient's history and cannot be differentiated with certainty (unless evidence of instrumentation is seen) from the results of non-admitted illegally induced abortion. Thus many spontaneous abortions would be coded as "other" and, for the same reasons, many complications of legal abortion would be coded as spontaneous. It is to be expected that the specific HDS codes for criminal or self-induced abortion are under utilized since most women are unlikely to admit to aborting in this manner.

Care must be taken in interpreting these findings since the increase in the proportion of medical-legal abortions will, because we have analyzed *relative* changes in abortion, force a decline in the proportion of at least one other abortion category. Nonetheless, the observation that both spontaneous and "other" abortions decline in tandem in most regions is important in indicating some cross-classification of illegal with spontaneous abortion. A drop in the rate of spontaneous as well as septic abortions with increased legal abortion was reported in San Francisco,² Atlanta,⁵ and

Oregon.¹³ Francome reported that spontaneous abortion dropped in England to one-tenth of the pre-Abortion Act levels.¹⁰ Although some pregnancies that would have spontaneously aborted may now be terminated by induced abortion, it is unlikely that this would account for much of the drop in spontaneous abortion observed with increased legal abortion.

The three regions—Middle Atlantic, Mountain, and Pacific—showing the weakest trends in legal abortion over the 1970–1977 period are also the only regions in which the absolute ratio of medical-legal abortion was calculated to be greater than 50 per 1,000 live births for the majority of the eight years studied. In these regions the increased ratio of medical-legal abortion occurred before 1970 as, therefore, did any effect of medical-legal abortion on the relative ratio of spontaneous and "other" abortions. The Middle Atlantic and Pacific regions were also the only two regions estimated by AGI to be meeting more than 70 per cent of the abortion need in 1974. Moreover, the East South Central and West South Central regions, both of which show strong trends in the HDS data, were the only two regions estimated to be meeting less than 30 per cent of abortion need in 1974.²⁵

While the rate of major complications for legal abortions in the first trimester (which is when almost all clinic abortions are performed) is very low,^{6,16} the 264 per cent national increase in legal induced abortion between 1971 and 1977¹⁶ would itself be likely to lead to an increased rate of complicated abortions being admitted to hospital unless offset by a decline in illegal abortion. Examination of the absolute rate of hospital admission for spontaneous and "other" abortions by region did not reveal any striking shift in spontaneous abortion during the eight-year period and a 21.5 per cent decline in the "other" category did occur. This observation provides support for the notion that illegal abortion was almost entirely replaced by legal procedures in the United States over the study period. If replacement had not occurred, the addition of a large number of legal abortions to those performed illegally would have resulted in a proportionate increase in admission to hospital for treatment of complications of abortion. Moreover, the large increase in legally induced abortion over those simply replacing illegal

abortion has been accomplished without increasing the demands placed on hospital resources. Additionally, since the absolute number of admissions for complicated abortions declined in the face of a large increase in medical-legal abortion, the case morbidity rate for medical-legal abortion must have been markedly reduced.

A significant reduction (25.5 per cent) in the mean length of stay for women presenting in hospitals with "other" abortions was found between 1970-1977. Length of stay for spontaneous abortion also declined (30.1 per cent) over this period. We have no way of knowing from these data whether this decline reflects changes in the management of patients with complicated abortions or whether presenting symptoms have become less severe thereby reducing the overall mean length of stay for this diagnosis. The long length of stay reported for medical-legal abortion in 1970 may reflect uncertainty in how long patients needed to be followed post-operatively in the early days after abortion legalization or a tendency to keep the large proportion of out-of-state abortion patients, in 1970, under longer observation before sending them home. Most likely, however, it largely reflects sampling error since it is so discrepant from any of the other observed values.

The overall reductions in length of stay are greater than the general decrease in stay observed for all medical and surgical admissions in HDS of 9 per cent from 1970 to 1975 and less than the reductions in length of stay observed for other gynecological procedures, such as tubal sterilization (42 per cent) observed from 1970 to 1975.²⁶ To our knowledge, however, there have not been changes in the management of complicated abortion which would significantly reduce hospital stay and we are more inclined to believe that presenting symptomatology has become less severe. It is most likely that any change in symptomatology would result from reduced complications of illegal abortion.

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APPENDIX

A Statistical Note

Several methodological aspects of the present study may require clarification for the statistical reader. First, analysis of the HDS at the level of nine census subregions was performed to provide more meaningful interpretation of regional differences in the types of abortion performed over the eight-year period. The HDS itself, however, follows a sampling frame stratified to only four regions. It can be demonstrated that analysis at the nine-region level (in our case by age and race) yields larger sampling variance because of reduced sample size but is a valid procedure. Poststratification, as this procedure is more correctly termed, has been shown by a number of authors²⁷⁻²⁹ to lead to a negligible increase in variance provided the average sample size (\bar{n}) in the substrata remains relatively large. Specifically, the variance of a poststratified estimator, such as the \bar{x} , is given by:

$$\sigma_{\bar{x}}^2 = \frac{1-f}{n} \left(S_w^2 + \frac{1}{\bar{n}} \sum_{h=1}^L S_h^2 Q_h \right)$$

where the second term in parentheses represents inflation due to poststratification. From this formula we estimate that inflation due to the nine subregions, in the present analysis, is less than 1 percent.

The second issue concerns our use of raw instead of weighted counts. There are three separate considerations: 1) the feasibility of applying log-linear models to weighted sample data; 2) the philosophical meaning of the analysis of weighted data; and 3) the validity of analyzing weighted data when the weights include an adjustment for non-response

and missing data. Taking these in turn, there exists only one method for the log-linear analysis of weighted sample data and that is discussed by Freeman and Koch.³⁰ The method is valid but not computationally feasible in the present situation since variance-covariance formulas for HDS have not been published by NCHS. Moreover, it is the authors' opinion that for HDS the effect would be negligible. The second point is less straightforward; however, there is wide consensus that for the study of associations the use of unweighted data is valid.^{28,29} The third consideration is most relevant since the HDS data tape weights contain an adjustment for non-response.³¹ In this circumstance it has been noted that the use of sampling weights may spuriously inflate the significance of observed associations.³²

The log-linear models used in the regional analyses are summarized in Appendix Table A-1. The models are read down the column and each letter code represents controlled variables and the level of association required to characterize the data for a given region. In this analysis the null hypothesis is that abortion type (O) is independent of year (Y). Thus, conditional final models were used only when necessary to isolate the O by Y association parameters (OY). The significance of the association is determined by deleting the OY margin from the final model. The estimated OY parameters represent the magnitude of departure from the null hypothesis and measure the dependence of the type of abortion on year. If H_0 is true then the OY parameter = 0. The OY parameters correspond to the u-terms discussed by Bishop, Fienberg, and Holland.²² We emphasize that our log-linear analysis requires careful interpretation—the trends in abortion diagnosis show changes in the relative proportion of different diagnostic categories and do *not* reflect true rates.

The analysis of temporal changes in length of stay is shown in Appendix Table A-2. The 1970 value for medical-legal abortion was found to contribute significantly and was included in the final model. The reduced length of stay for medical-legal abortion over the eight-year period was found to be all due to the high 1970 value. This contrasts to spontaneous and "other" abortion in which the 1970 values were tested, found to be O and, therefore, included in the error term. Thus the reduction in length of stay for spontaneous and "other" abortion occurred across all years.

TABLE A-1—Summary of Log-Linear Models by Geographic Region and Likelihood Ratio Goodness of Fit Chi-Square

Parameters ¹	Region ³								
	NE	MA	ENC	WNC	SA	ESC	WSC	MT	PAC
OY	x	x	x	x	x	x	x	x	x
OM	x	x	x	x	x	x	x	x	x
OA	x	x	x	o	x	o	x	x	x
YM	o	x	x	x	o	o	x	o	x
YA	o	x	o	x	o	x	o	o	x
MA	x	x	x	x	x	x	x	x	x
OMA	x	x	x	o	x	o	x	x	x
YAM	o	o	o	x	o	o	o	o	o
OYM	o	x	o	o	o	o	x	o	o
Chi. Square ²	167.05	119.10	146.61	143.55	161.28	138.24	132.44	156.36	118.96
df	147	105	140	110	147	138	126	147	119

- 1) x = Parameter Used o = Parameter is zero
 O = Abortion diagnosis (outcome)
 Y = Year
 M = Marital Status
 A = Age
- 2) Likelihood Ratio Goodness to Fit Chi Square
- 3) NE: New England
 MA: Middle Atlantic
 ENC: East North Central
 WNC: West North Central
 SA: South Atlantic
 ESC: East South Central
 WSC: West South Central
 MT: Mountain
 PAC: Pacific

TABLE A-2—Analysis of Percentage of Abortions with a Stay of Two or More Days

General Model: $P = a_i + b_i X_1 + c_i X_2 \quad i = 1, 2, 3$
 (P denotes %; $X_1 = 1, 2, \dots, 8$ for year; $X_2 = 1$ if 1970, 0 if otherwise)

Abortion Type (i)	a	Parameters (Standard Error) b	c
Medical-Legal	36.2 (2.1)	-0.4 (0.4)	21.1 (3.1)
Spontaneous	73.8 (2.9)	-2.8 (0.6)	0 (0)
Other	71.3 (1.5)	-2.8 (0.3)	0 (0)

Source	Analysis of Variation			
	Contrast	df	Q	P-Value
Model	$a_1 = a_2 = a_3 \quad b_1 = b_2 = b_3 = c_1 = 0$	6	771.51	0.00
Abortion Type (1970)	$a_1 = a_2 = a_3$	2	208.16	0.00
Rate of Change	$b_1 = b_2 = b_3 = c_1 = 0$	4	178.80	0.00
1970 Change	$c_1 = 0$	1	45.76	0.00
Medical-Legal Change	$b_1 = 0$	1	.89	0.35
Spontaneous Change	$b_2 = 0$	1	22.07	0.00
"Other" Change	$b_3 = 0$	1	86.37	0.00
Error		17	11.94	0.80
TOTAL		23	783.45	0.00