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Medical X-ray Visits and Examinations During Pregnancy

United States 1963

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Statistics on the number of medical X-ray visits and examinations during pregnancy for women having a live birth, by selected demographic characteristics of the women by trimester, previous pregnancy experience and type of examination, and by type of facility. Based on data collected in a survey of physicians and hospitals providing care to a sample of women having a live birth in 1963.

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IN THIS REPORT statistics are presented on the number of medical X-ray visits and examinations during pregnancy of women who had a live birth during 1963. Differences in the volume of medical X-ray care are shown by such demographic characteristics as color, age, income, geographic region, and residence in metropolitan or nonmetropolitan areas. Other variables include type of medical facility, type of examination, trimester of examination, and previous pregnancy experience. The data are based on a probability sample of 4,096 live births occurring in 1963.

About 900,000, or 23 percent, of the women giving birth in 1963 had 1,085,000 medical X-ray visits during pregnancy. A higher proportion of nonwhite mothers than white had medical X-ray visits. Nonwhite females making visits showed greater variability by age than white females. The visit rate was 27 visits per 100 pregnant women. Both visit rates and examination rates were higher for nonwhite females in each age group than for white. The greatest difference in visit rates was for mothers aged 25-29 years, and in examination rates it was for mothers aged 25-29 and 30-34 years. Mothers in the West Region had the highest visit and examination rates; those in the South and Northeast had the lowest. Mothers in metropolitan areas had higher visit and examination rates than those in nonmetropolitan areas. Both rates were fairly uniform in metropolitan areas by region, and quite variable in nonmetropolitan areas.

Almost 84 percent of the examinations reported during pregnancy were performed in such facilities as hospitals and clinics. The variation in type of facility according to type of examination shows that about one-fourth of the examinations of the uterus and pelvic region were performed in physicians' offices; one-third of these were performed by general practitioners and one-third by obstetricians and gynecologists. About one-third of the examinations during the last trimester were for X-ray pelvimetry and 24 percent were examinations of the abdomen, which were related to pregnancy. Examinations during the first and second trimesters were predominantly of the chest. Rates for chest examinations were higher for nonwhite females than for white; those for examinations of the abdomen were about the same for white and nonwhite females, and for pelvimetry they were somewhat higher for white. The rate for pelvimetry was higher for primiparous than for multiparous women. Rates for other examinations of the abdomen were somewhat higher at higher parities. At each parity the medical X-ray examination rate was significantly higher for women who had had a prior fetal loss. Most of the differences here relate to examinations of the abdomen.

X-ray examination rates generally do not appear to be related to income.

SYMBOLS

Data not available-----	---
Category not applicable-----	...
Quantity zero-----	-
Quantity more than 0 but less than 0.05-----	0.0
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MEDICAL X-RAY VISITS AND EXAMINATIONS DURING PREGNANCY

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INTRODUCTION

The importance of X-rays as a major source of radiation exposure has been recognized in recent years. The need to obtain reliable data on the extent of medical X-ray exposure to various segments of the population underlies the development of programs to promote the most efficient use of the X-ray. One segment of the population for which information is of particular significance is that represented by pregnant women, since exposure to this group may have implications not only for the woman herself but also for the developing fetus.

This report provides estimates of the extent of medical X-ray visits and examinations during pregnancy of women who had a live birth during 1963. It is based on data collected in the National Natality Survey for a probability sample of 4,096 women. Information about medical X-ray care received by these women was obtained from physicians, hospitals, clinics, and other institutions which provided the care. The data derived from this survey provide national estimates not previously available.

In this report data are presented describing the volume of medical X-ray care received by women during pregnancy in terms of the amount of such care and its relationship to selected characteristics.

SELECTED FINDINGS

About 23 percent of all women having liveborn infants during 1963 had one medical X-ray visit

or more during pregnancy, with the proportion of nonwhite mothers (26 percent) being higher than that of white (22 percent). The rate for medical X-ray visits was more variable by age for nonwhite mothers than for white: this rate was somewhat higher for nonwhite mothers under 20 years of age and 25-29 years than for white.

The rate of medical X-ray visits for all mothers was 27 visits per 100 pregnant women. This rate was higher for nonwhite mothers than for white in each age group. For both white and nonwhite mothers the rate was fairly uniform for each age group except for the comparatively low rate for white mothers aged 25-29 years. The visit rate for nonwhite mothers was 58 percent above that for white mothers in this age group. For white and nonwhite mothers the examination rate was slightly above the visit rate at all ages except 25-29 and 30-34, where there was a substantially higher examination rate among nonwhite mothers.

Many of the mothers who made medical X-ray visits during pregnancy had more than one visit. When visit and examination rates are based on these mothers, the rates reached a peak for white mothers at ages 25-29 and a low point at ages 30-34. In contrast, rates were relatively high for nonwhite mothers aged 30-34 and relatively low for those 25-29.

Mothers in the West Region had the highest visit and examination rates; those in the South and Northeast had the lowest. Mothers in metropolitan areas had higher visit and examination rates than those in nonmetropolitan areas. The visit and examination rates by region in metro-

politan areas were fairly uniform; those in non-metropolitan areas were quite variable—visit rates ranged from a low of 17 per 100 mothers in the Northeast Region to 27 per 100 mothers in the West.

Visit and examination rates show little relationship to family income. However, higher rates were shown for nonwhite mothers than for white in families with income levels of \$2,000-\$3,999 and \$4,000-\$6,999.

Almost 84 percent of the medical X-ray examinations during pregnancy were performed in places other than physicians' private offices. Of the remaining 16 percent, one-fourth were performed by general practitioners, one-third by obstetricians or gynecologists, and the balance by other specialists, including radiologists. Almost one-fourth of the examinations of the uterus and pelvic region were performed in physicians' offices. Of these, approximately one-third were done by general practitioners and one-third by obstetricians and gynecologists.

More than one-half of the medical X-ray examinations during pregnancy were done during the third trimester. Approximately one-third of the examinations during the third trimester were for X-ray pelvimetry and one-fourth were for other examinations of the abdomen related to pregnancy. During the first and second trimesters a large proportion of the examinations were of the chest. Virtually all X-ray pelvimetry was done during the last trimester as were over nine-tenths of the other abdominal examinations related to pregnancy.

Nonwhite women had higher rates for chest examinations than did white women. Rates for examinations of the abdomen were about the same for white women as for nonwhite; however, the rate of X-ray pelvimetry for white mothers was higher than that for nonwhite. The rate of women having X-ray pelvimetry during pregnancy appeared generally to decline with increasing age, while the rate for other examinations related to pregnancy generally increased with age.

The rate of X-ray pelvimetry was significantly higher among primiparous women than among multiparous women. Correspondingly, other examinations of the abdomen had somewhat higher rates at high parities. At each parity the medical examination rate appeared to be signifi-

cantly higher for women who had one fetal loss or more prior to the present pregnancy. Most of the difference in examination rates were for examinations of the abdomen.

Examination rates for X-ray pelvimetry and other examinations of the abdomen did not appear to be significantly related to income. However, the rate for chest examinations, particularly for white mothers, appeared to decline with increasing income.

SOURCES AND LIMITATIONS OF DATA

Statistics presented in this report are based on information obtained in a mail survey of mothers and physicians, hospitals, or other medical facilities identified in a representative sample of live births occurring during 1963. The sample of 4,096 live births was selected from among the more than 4 million events that occurred that year. Birth records were selected independently from within the file for each State and other independent registration areas at a rate of one record per 1,000 live births.

Data for the survey were obtained from five sources: the birth record itself, the mother as identified on the birth record, physicians, dentists, and hospitals or other medical facilities providing care to the mother during the year prior to the birth. The birth record provided data on color and age of mother, mother's place of residence, and live-birth order of the child as well as the name of the attending physician and hospital (if any). The mother was questioned about selected socioeconomic characteristics and was asked to identify the physicians, dentists, and medical facilities which had provided her care. The sources named by the mother, those named on the birth certificate, and any additional sources named by these primary sources were questioned by mail concerning possible medical X-ray examination or treatment of the mother. Their responses represent the sole source of X-ray information, since the mother was not directly asked about her medical X-ray visits and examinations. Mothers of illegitimate children were not asked for information. However, medical sources identified on the birth record

were questioned about possible X-ray care given the mother, and referrals from their sources were also questioned.

Although the survey design included all uses of medical X-ray for diagnosis or therapy, it should be noted that all of the data reported in the survey related to diagnostic uses rather than to X-ray therapy. Facsimiles of the questionnaires sent to hospitals, physicians, dentists, and informants appear in Appendix III. A description of methods and procedures followed in the survey may be found in Appendix I along with a description of the estimation procedures. Terms used in this report are defined in Appendix II.

The data in this report are based on a sample and are therefore subject to sampling error. Tables of approximate sampling errors and instructions for their use are presented in Appendix I. Sources of error associated with nonresponse, with possible misunderstanding of questions in the survey, and with processing and compilation of data affect the quality of the data presented in this report and may create bias in the statistics. Nonsampling errors and some measures relating to bias in the survey are also discussed in Appendix I.

MOTHERS WITH MEDICAL X-RAY VISITS

Over 900,000 mothers had one medical X-ray visit or more during pregnancy in 1963 (table 1). A higher proportion of nonwhite mothers than of white had medical X-ray visits during pregnancy (26 percent and 22 percent, respectively).

The proportion of mothers at different ages who had medical X-ray visits is shown in figure 1. The data for white mothers show little variation by age, except for a comparatively low proportion having X-ray visits at ages 25-29 years (17 percent). Among nonwhite mothers there was greater variability by age. The experience of nonwhite mothers was about the same as that of white mothers at ages 20-24 and 30-34; at ages under 20 and 25-29, however, nonwhite mothers had a considerably higher proportion of X-ray visits than did white mothers. A lower percent of nonwhite mothers than of white had medical X-ray visits at ages 35 and above.

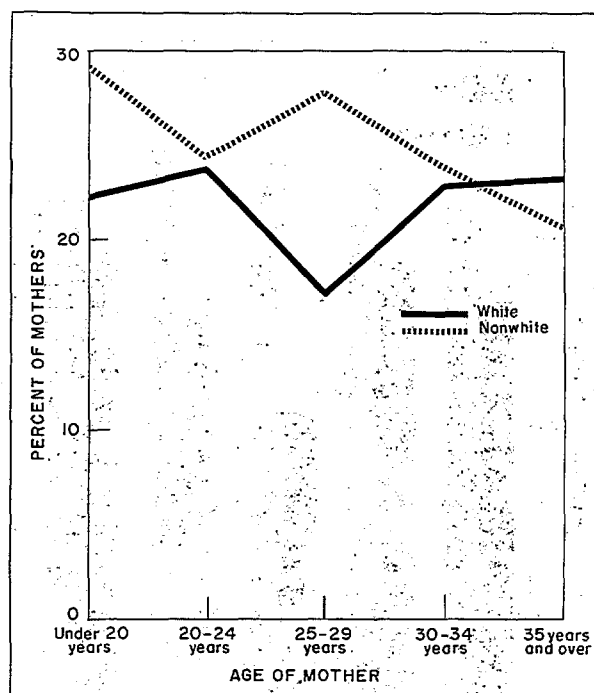


Figure 1. Percent of mothers with one medical X-ray visit or more during pregnancy, by age of mother and color.

X-RAY VISITS AND EXAMINATIONS

A substantial proportion of mothers who had medical X-ray visits during pregnancy made more than one such visit. The total number of X-ray visits was 1,085,000, representing about 1.2 visits per woman having medical X-ray visits. The overall visit rate was 27 visits per 100 pregnant women (table 2).

Color and Age of Mother

The rate of visits for white mothers was about 22 percent below that for nonwhite mothers. Except for a comparatively low rate of 21 visits per 100 pregnancies for mothers 25-29 years of age, the visit rate for white mothers was fairly uniform at 26 to 28 visits per 100 pregnancies (fig. 2). For nonwhite mothers the visit rate showed even greater uniformity, varying from 31 to 35 visits per 100 mothers. The greatest difference in visit rates for white and nonwhite

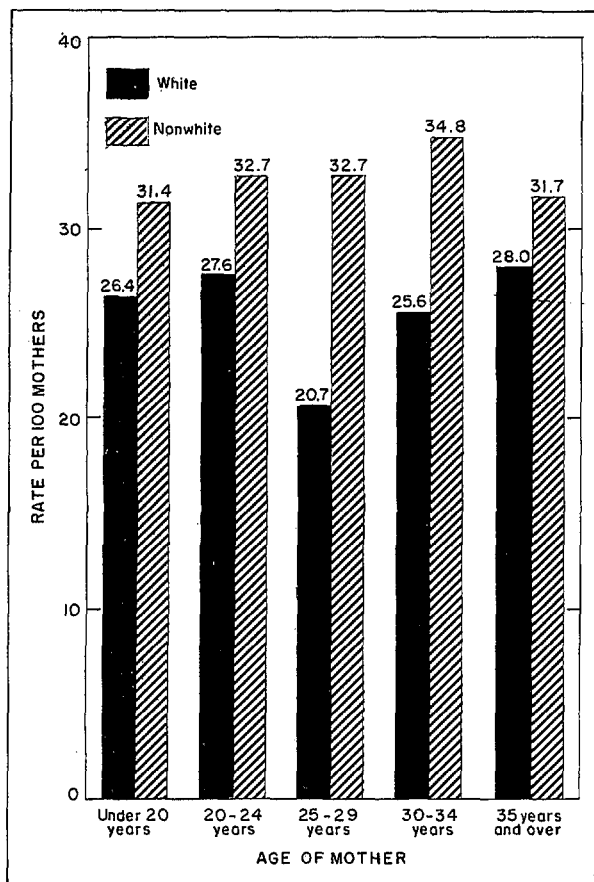


Figure 2. Rate per 100 mothers of medical X-ray visits during pregnancy, by age of mother and color.

mothers was in the age group 25-29 years, where the rate for nonwhite mothers was 58 percent above that for white.

The examination rates for all mothers were slightly above the visit rates for all mothers in each age group. This was also true of the examination and visit rates by age for white females. Among nonwhite females, the examination rate was substantially higher than the visit rate at ages 25-29 and 30-34.

Visit rates which are based on all mothers do not adequately measure the impact of the relatively small numbers of mothers who had more than one X-ray visit. For this reason, rates per 100 mothers with one medical X-ray visit or more were also calculated and are shown in table 2. A comparison of these rates

by age shows some differences from the rates based on all mothers in the survey. In particular, white females had a higher visit rate at ages 25-29; nonwhite females showed a greater variability in rates, with low rates for ages under 20 and for 25-29 years. Examination rates by age present somewhat the same picture as visit rates. In addition the examination rates for white females were substantially higher than the visit rates except for age groups 20-24 and 30-34 years. For nonwhite females they were substantially higher for ages 25-29 and 30-34.

Geographic Region and Metropolitan Status

Mothers in the West Region had the highest visit rate, and those in the South and Northeast had the lowest (table 3 and fig. 3). The examination rates followed about the same pattern as the visit rates. The visit rate for mothers with one X-ray visit or more differed from the visit rates for all mothers in that both the South and West Regions had high rates. The examination rates for mothers with one X-ray visit or more were highest in the South Region and lowest in the North Central.

Mothers in metropolitan areas had higher visit rates and examination rates than those in nonmetropolitan areas. This was true for each region. In regional comparisons both visit and examination rates were fairly uniform for metropolitan areas but quite variable for nonmetropolitan areas. The visit rates for nonmetropolitan areas varied from a low of 17 visits per 100 mothers for the Northeast to a high of 27 visits per 100 mothers for the West. The examination rates followed about the same pattern.

When the rates are based on the number of mothers with one X-ray visit or more, there is greater variability in both visit and examination rates and a changing relationship between metropolitan and nonmetropolitan areas. Both visit rates and examination rates for metropolitan areas were highest in the South and lowest in the North Central. In nonmetropolitan areas the visit rate was highest for the West and lowest for the Northeast. The examination rates for nonmetropolitan areas were lower than those for metropolitan areas in each region except the West, where the rate for nonmetropolitan areas was higher than that for metropolitan areas.

The rates for visits and for examinations for mothers with one X-ray visit or more showed about the same relationship to income as that shown above. Also, a comparison of rates for white and nonwhite mothers with one visit or more showed about the same relationship to income as did the rates for all mothers.

TYPE OF EXAMINATION

Type of Facility by Type of Examination

Almost 84 percent of the examinations reported during pregnancy were not performed in physicians' private offices (tables 5 and A). Of the 16 percent done in physicians' offices, about one-fourth were performed by general practitioners,

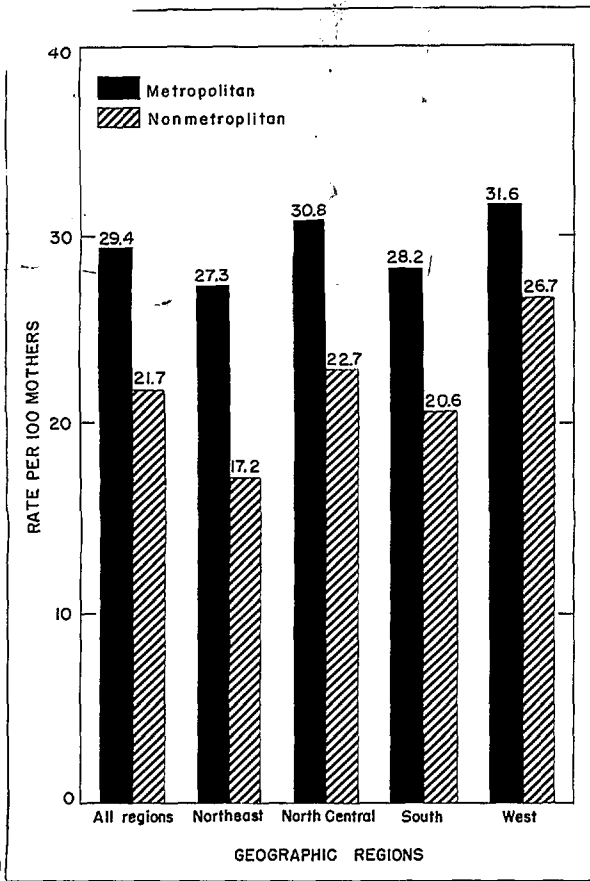


Figure 3. Rate per 100 mothers of medical X-ray visits during pregnancy, by geographic region and residence in metropolitan and nonmetropolitan areas.

Color and Family Income

Visit and examination rates do not show much relationship to family income for either white or nonwhite mothers (table 4 and fig. 4). Rates were lower for nonwhite mothers in families with income less than \$2,000 than for those with income levels of \$2,000-\$3,999 and \$4,000-\$6,999. However, the same was not true for white mothers. Comparison of white and nonwhite mothers by income levels showed higher rates among nonwhite mothers in families with incomes of \$2,000-\$3,999 and \$4,000-\$6,999 than among white mothers in these same income groups. This difference may reflect relatively greater use by nonwhite women of medical care provided by public clinics and hospitals.

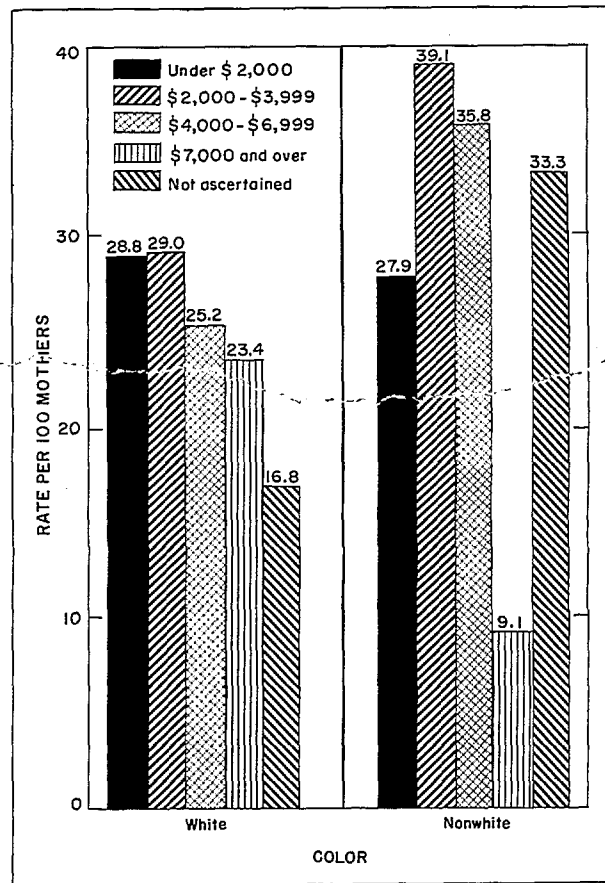


Figure 4. Rate per 100 mothers of medical X-ray visits during pregnancy, by color and family income.

Table A. Percent distribution of X-ray examinations during pregnancy, facility according to type of examination: United States, 1950

Type of examination	Type of facility					
	All facilities	Physician's office				Other places
		Total	General practitioner	Obstetrician-gynecologist	Other	
	Percent distribution					
Total-----	100.0	16.3	4.3	5.2	6.8	83.7
Examination of the abdomen:						
Pelvimetry-----	100.0	21.6	7.7	6.2	7.7	78.4
Other related to pregnancy----	100.0	23.5	7.6	7.6	8.3	76.5
Lower abdomen not related to pregnancy-----	100.0	15.2	-	9.1	6.1	84.8
Upper abdomen not related to pregnancy-----	100.0	16.7	-	16.7	-	83.3
Examination of:						
Chest-----	100.0	12.2	2.9	4.2	5.1	87.8
Extremities-----	100.0	22.9	2.9	2.9	17.1	77.1
Head and neck-----	100.0	26.3	-	-	26.3	73.7

almost one-third by obstetricians and gynecologists, and the balance by other specialists, including radiologists. The variation in type of facility according to type of examination shows that almost one-fourth of the examinations of the uterus and pelvic region were performed in physicians' offices; approximately one-third of these were done by general practitioners and one-third by obstetricians and gynecologists. Only 12 percent of the radiographic chest examinations and only 10 percent of photofluorographic chest films (mass miniature screening films) were performed in physicians' offices.

Trimester of Examination

Approximately one-third of the examinations done during the last trimester of pregnancy were for X-ray pelvimetry, while an additional 24 percent were other examinations of the abdomen related to pregnancy (tables 6 and B). Less than

40 percent of the examinations during the last trimester were of the chest; however, the first and second trimesters were more heavily weighted by such examinations. Chest examinations amounted to 77 percent of the examinations during the first trimester, and over 85 percent of those during the second trimester (table B).

Virtually all X-ray pelvimetry was done during the last trimester, as were over 90 percent of the other abdominal examinations related to pregnancy (table C). Over half of the abdominal examinations not related to pregnancy were done during the first trimester; about one-fourth were done during the third trimester. Most of the photofluorographic (mass miniature screening) examinations were done during the third trimester, many on admission for delivery. However, other chest examinations (primarily radiographic) were more evenly distributed over the three trimesters.

Table B. Percent distribution of X-ray examinations during pregnancy, by type of examination according to trimester of examination: United States, 1963

Trimester	Total medical examinations	Abdomen			Chest		All other examinations
		Pelvimetry	Other related to pregnancy	Other not related to pregnancy	Photo-fluorographic	Other chest	
Total-----	100.0	18.7	14.1	4.2	7.5	50.4	5.1
First trimester-----	100.0	0.4	1.4	11.5	6.5	70.6	9.6
Second trimester-----	100.0	1.4	3.1	2.8	8.6	77.3	6.8
Third trimester-----	100.0	33.7	24.1	2.1	7.4	30.2	2.5

Color and Age of Mother

Number of examinations and rates per 100 women by type of examination and by color and age of mother are presented in tables 7 and 8. The overall rates for nonwhite mothers were significantly higher than those for white mothers at every age. However, this differential was largely accounted for by the higher rates of chest examinations for nonwhite women. It is probable

that this difference may reflect a higher incidence of tuberculosis and other chest diseases among nonwhite women. Rates for examinations of the abdomen appear not to vary significantly between the two groups. There is some evidence, however, that the rate of X-ray pelvimetry is somewhat higher for white women than for nonwhite.

The rate of women having X-ray pelvimetry during pregnancy appears to decline generally with increasing age (table D). This is undoubt-

Table C. Percent distribution of X-ray examinations during pregnancy, by trimester of examination according to type of examination: United States, 1963

Trimester	Total medical examinations	Abdomen			Chest		All other examinations
		Pelvimetry	Other related to pregnancy	Other not related to pregnancy	Photo-fluorographic	Other chest	
Total-----	100.0	100.0	100.0	100.0	100.0	100.0	100.0
First trimester-----	20.8	0.5	2.0	56.9	17.9	29.1	39.7
Second trimester-----	25.1	1.9	5.6	16.4	28.6	38.4	33.8
Third trimester-----	54.1	97.6	92.4	26.7	53.5	32.5	26.5

Table D. Percent distribution of X-ray examinations during pregnancy, by age of mother according to type of examination: United States, 1963

Age of mother	All mothers	Total medical examinations	Abdomen			Chest		All other examinations
			Pelvimetry	Other related to pregnancy	Other not related to pregnancy	Photo-fluorographic	Other chest	
Percent distribution								
Total----	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Under 20 years-	14.4	15.0	20.0	6.7	13.9	20.9	14.5	16.5
20-24 years----	35.4	37.2	42.1	37.8	23.4	35.6	37.6	26.6
25-29 years----	25.0	21.7	16.6	22.3	27.9	17.8	23.4	23.0
30-34 years----	14.9	15.1	14.0	19.5	11.2	13.7	13.9	24.9
35+ years-----	10.1	11.0	7.3	13.7	23.6	12.0	10.6	9.0

edly a function of the relationship between higher parity and increasing age. The rate for other examinations of the abdomen related to pregnancy appears generally to rise with age. The rates for examinations of the chest appear not to be related to age (table 8).

Previous Pregnancy Experience

As might be expected, the rate of X-ray pelvimetry for primiparous women was significantly higher than that for multiparous women (table E). Eleven women per 100 with no previous

Table E. Medical X-ray examination rates during pregnancy, by type of examination and live-birth order: United States, 1963

Live-birth order	Total medical examinations	Abdomen			Chest	All other examinations
		Total	Pelvimetry	Other		
Rate per 100 women						
Total-----	27	10	5	5	16	1
First live birth-----	35	16	11	5	18	1
Second live birth-----	23	7	3	4	15	1
Third or fourth live birth-----	23	7	2	5	15	1
Fifth live birth or more-----	27	10	3	7	15	2

pregnancy had X-ray pelvimetry as compared with only 2 per 100 with third or fourth order births. There is some evidence to suggest that other examinations of the abdomen have somewhat higher rates at high parities. It should be kept in mind that these are older women who may experience a different pattern of morbidity than those at low parities. The rate of chest examinations appears to be unrelated to birth order (tables E and 9).

At each parity, the medical X-ray examination rate seems significantly higher for women who have had one fetal loss or more prior to the present pregnancy (table F). For women having a first live birth, the examination rate for those with a previous fetal loss was 42 per 100 compared with only 35 per 100 women with no previous pregnancy. Similar differentials were observed at each of the other parities. Again, most of the difference is represented by examinations of the

Table F. Medical X-ray examination rates during pregnancy, by type of examination and pregnancy history: United States, 1963

Pregnancy history	Total medical examinations	Examination of abdomen	Examination of chest	All other examinations
<u>All live births</u>				
Total-----	27	10	16	1
No fetal death prior to this live birth-----	27	10	16	1
One fetal death or more prior to this live birth--	31	13	16	3
<u>First live birth</u>				
Total-----	35	16	18	1
No fetal death prior to this live birth-----	35	15	18	1
One fetal death or more prior to this live birth--	42	27	*	*
<u>Second live birth</u>				
Total-----	23	7	15	1
No fetal death prior to this live birth-----	23	6	15	1
One fetal death or more prior to this live birth--	29	13	15	*
<u>Third or fourth live birth</u>				
Total-----	23	7	15	1
No fetal death prior to this live birth-----	23	7	14	1
One fetal death or more prior to this live birth--	25	8	16	*
<u>Fifth live birth or more</u>				
Total-----	27	10	15	2
No fetal death prior to this live birth-----	25	10	15	*
One fetal death or more prior to this live birth--	37	13	18	*

abdomen. Examinations of the chest do not appear to be significantly related to previous history of fetal loss during pregnancy.

Color and Family Income

The rate of medical X-ray examinations during pregnancy does not generally appear to be related to income (tables 10 and 11). However, the data do suggest that the rate of chest examinations, particularly for white mothers, declines with increasing income. This differential may reflect the concentration of chest screening programs among the lower income segments of the population.

COMPARISON WITH RATES FOR WOMEN IN GENERAL POPULATION

Medical X-ray visit rates derived from the 1963 National Natality Survey were compared with similar data for women aged 15-44 years in the general population. The latter data were derived from the 1960-61 Household Interview Survey of the National Health Survey.¹ To facilitate the comparison, X-ray visit rates during pregnancy have been adjusted on an annual basis.

The annual medical X-ray visit rate of 59 per 100 women estimated for the general population is significantly higher than the estimate of 35 per 100 pregnant women. A comparison of visit rates by age group, color, geographic region, and type of examination (table G) indicates that for all of these characteristics the estimated annual visit rates applicable to pregnant women are significantly lower than those found for women aged 15-44 in the general population. It is likely that the lower rates for pregnant women result both from a generally better health status enjoyed by women who deliver a live birth than by women in the general population and from the increasing attention given by physicians to the possible risks of X-ray examination of pregnant women.

Table G. Comparison of medical visit rates for women during pregnancy with those for women in the general population, by selected characteristics

Characteristic	General population	During pregnancy
	Rate per 100 women ^a	
Total-----	59	35
<u>Age</u>		
15-29 years-----	56	35
30-44 years-----	61	36
<u>Color</u>		
White-----	57	33
Nonwhite-----	74	43
<u>Geographic region</u>		
Northeast-----	53	33
North Central-----	57	36
South-----	59	32
West-----	70	40
<u>Type of examination</u>		
Chest-----	38	20
Other medical-----	24	16

^aPregnancy data are based on X-ray examinations reported during pregnancy, expressed as annual visit rates per 100 pregnant women. General population data are based on National Health Survey estimates for women aged 15-44 years only; rates are estimated per 100 women in the civilian, noninstitutional population.

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⁴National Center for Health Statistics: Episodes and duration of hospitalization in the last year of life, United States, 1961. *Vital and Health Statistics*. PHS Pub. No. 1000-Series 22-No. 2. Public Health Service. Washington. U.S. Government Printing Office, June 1966.

⁵U.S. Bureau of the Census: *U.S. Census of Population, 1960*. Vol I, *Characteristics of the Population*. Part I, United States Summary. Washington. U.S. Government Printing Office, 1964. pp. XXXI and XXXII.



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Table 1. Number of all mothers and number and percent of all mothers with one medical X-ray visit or more during pregnancy, by color and age of mother: United States, 1963

Color and age of mother	All mothers in thousands	Mothers with one medical X-ray visit or more during pregnancy	
		Number in thousands	Percent of all mothers
<u>Total</u>			
All ages-----	4,071	915	22.5
Under 20 years-----	588	142	24.1
20-24 years-----	1,442	347	24.1
25-29 years-----	1,018	189	18.6
30-34 years-----	608	140	23.0
35 years and over-----	412	94	22.8
<u>White</u>			
All ages-----	3,414	744	21.8
Under 20 years-----	451	101	22.4
20-24 years-----	1,228	294	23.9
25-29 years-----	871	148	17.0
30-34 years-----	515	118	22.9
35 years and over-----	347	81	23.3
<u>Nonwhite</u>			
All ages-----	656	170	25.9
Under 20 years-----	137	40	29.2
20-24 years-----	214	52	24.3
25-29 years-----	147	41	27.9
30-34 years-----	92	22	23.9
35 years and over-----	63	13	20.6

Table 2. Number and rate per 100 mothers of medical X-ray visits and examinations during pregnancy for all mothers, and visit and examination rates for mothers with one medical X-ray visit or more, by color and age of mother: United States, 1963

Color and age of mother	All mothers	Medical X-ray visits and examinations during pregnancy				One medical X-ray visit or more		
		Visits	Examinations	Visits	Examinations	Number of mothers	Visits	Examinations
<u>Total</u>		Number in thousands		Rate per 100 mothers		Number in thousands	Rate per 100 mothers	
All ages-----	4,071	1,085	1,120	26.7	27.5	915	118.6	122.4
Under 20 years-----	588	162	167	27.6	28.4	142	114.1	117.6
20-24 years-----	1,442	409	418	28.4	29.0	347	117.9	120.5
25-29 years-----	1,018	228	242	22.4	23.8	189	120.6	128.0
30-34 years-----	608	164	169	27.0	27.8	140	117.1	120.7
35 years and over-----	412	118	122	28.6	29.6	94	125.5	129.8
<u>White</u>								
All ages-----	3,414	870	893	25.5	26.2	744	116.9	120.0
Under 20 years-----	451	119	123	26.4	27.3	101	117.8	121.8
20-24 years-----	1,228	339	346	27.6	28.2	294	115.3	117.7
25-29 years-----	871	180	188	20.7	21.6	148	121.6	127.0
30-34 years-----	515	132	133	25.6	25.8	118	111.9	112.7
35 years and over-----	347	97	101	28.0	29.1	81	119.8	124.7
<u>Nonwhite</u>								
All ages-----	656	214	227	32.6	34.6	170	125.9	133.5
Under 20 years-----	137	43	43	31.4	31.4	40	107.5	107.5
20-24 years-----	214	70	72	32.7	33.6	52	134.6	138.5
25-29 years-----	147	48	54	32.7	36.7	41	117.1	131.7
30-34 years-----	92	32	35	34.8	38.0	22	145.5	159.1
35 years and over-----	63	20	20	31.7	31.7	13	153.8	153.8

Table 3. Number and rate per 100 mothers of medical X-ray visits and examinations during pregnancy for all mothers, and visit and examination rates for mothers with one medical X-ray visit or more, by geographic region and metropolitan and nonmetropolitan area: United States, 1963

Geographic region and metropolitan status	All mothers	Medical X-ray visits and examinations during pregnancy				One medical X-ray visit or more		
		Visits	Examinations	Visits	Examinations	Number of mothers	Visits	Examinations
<u>All regions</u>	Number in thousands			Rate per 100 mothers		Number in thousands	Rate per 100 mothers	
Total-----	4,071	1,085	1,120	26.7	27.5	915	118.6	122.4
Metropolitan-----	2,639	775	801	29.4	30.4	650	119.2	123.2
Nonmetropolitan-----	1,431	310	319	21.7	22.3	265	117.0	120.4
<u>Northeast</u>								
Total-----	936	237	245	25.3	26.2	201	117.9	121.9
Metropolitan-----	750	205	212	27.3	28.3	171	119.9	124.0
Nonmetropolitan-----	186	32	33	17.2	17.7	29	110.3	113.8
<u>North Central</u>								
Total-----	1,133	315	325	27.8	28.7	279	112.9	116.5
Metropolitan-----	711	219	227	30.8	31.9	193	113.5	117.6
Nonmetropolitan-----	422	96	97	22.7	23.0	85	112.9	114.1
<u>South</u>								
Total-----	1,316	323	337	24.5	25.6	264	122.3	127.7
Metropolitan-----	670	189	198	28.2	29.6	152	124.3	130.3
Nonmetropolitan-----	645	133	139	20.6	21.6	112	118.8	124.1
<u>West</u>								
Total-----	684	208	212	30.4	31.0	170	122.4	124.7
Metropolitan-----	507	160	163	31.6	32.1	132	121.2	123.5
Nonmetropolitan-----	176	47	49	26.7	27.8	37	127.0	132.4

Table 4. Number and rate per 100 mothers of medical X-ray visits and examinations during pregnancy for all mothers, and visit and examination rates for mothers with one medical X-ray visit or more, by color and family income: United States, 1963

Color and family income	All mothers	Medical X-ray visits and examinations during pregnancy				One medical X-ray visit or more		
		Visits	Examinations	Visits	Examinations	Number of mothers	Visits	Examinations
<u>Total</u>	Number in thousands		Rate per 100 mothers		Number in thousands	Rate per 100 mothers		
All incomes-----	4,071	1,085	1,120	26.7	27.5	915	118.6	122.4
Under \$2,000-----	458	131	134	28.6	29.3	114	114.9	117.5
\$2,000-\$3,999-----	838	259	271	30.9	32.3	209	123.9	129.7
\$4,000-\$6,999-----	1,473	382	397	25.9	27.0	322	118.6	123.3
\$7,000 and over-----	973	224	227	23.0	23.3	197	113.7	115.2
Not ascertained-----	327	85	88	26.0	26.9	71	119.7	123.9
<u>White</u>								
All incomes-----	3,414	870	893	25.5	26.2	744	116.9	120.0
Under \$2,000-----	274	79	80	28.8	29.2	68	116.2	117.6
\$2,000-\$3,999-----	686	199	209	29.0	30.5	167	119.2	125.1
\$4,000-\$6,999-----	1,363	343	352	25.2	25.8	290	118.3	121.4
\$7,000 and over-----	939	220	223	23.4	23.7	193	114.0	115.5
Not ascertained-----	149	25	25	16.8	16.8	23	108.7	108.7
<u>Nonwhite</u>								
All incomes-----	656	214	227	32.6	34.6	170	125.9	133.5
Under \$2,000-----	183	51	53	27.9	29.0	46	110.9	115.2
\$2,000-\$3,999-----	151	59	62	39.1	41.1	41	143.9	151.2
\$4,000-\$6,999-----	109	39	45	35.8	41.3	31	125.8	145.2
\$7,000 and over-----	33	3	3	9.1	9.1	3	100.0	100.0
Not ascertained-----	177	59	62	33.3	35.0	47	125.5	131.9

Table 5. Number of X-ray examinations during pregnancy, by type of examination and type of facility: United States, 1963

Type of facility	Total medical examinations	Abdomen			Chest	All other examinations
		Pelvimetry	Other related to pregnancy	Other not related to pregnancy		
Number of X-ray examinations						
All facilities-----	1,117,000	209,000	158,000	47,000	648,000	56,000
Physicians' offices-----	182,000	45,000	37,000	7,000	79,000	14,000
General practitioners-----	48,000	16,000	12,000	-	19,000	1,000
Obstetricians and gynecologists-----	58,000	13,000	12,000	5,000	27,000	1,000
Others-----	76,000	16,000	13,000	2,000	33,000	12,000
All other places-----	935,000	163,000	121,000	40,000	569,000	42,000

Table 6. Number of X-ray examinations during pregnancy, by type of examination, trimester of examination, and age of mother: United States, 1963

Trimester and age of mother	Total medical examinations	Abdomen			Chest		All other examinations
		Pelvimetry	Other related to pregnancy	Other not related to pregnancy	Photo-fluorographic	Other chest	
<u>Total</u>	Number of X-ray examinations						
All ages-----	1,117,000	209,000	158,000	47,000	84,000	564,000	56,000
Under 20 years-----	167,000	42,000	11,000	7,000	18,000	82,000	9,000
20-24 years-----	415,000	88,000	60,000	11,000	30,000	212,000	15,000
25-29 years-----	243,000	35,000	35,000	13,000	15,000	132,000	13,000
30-34 years-----	169,000	29,000	31,000	5,000	12,000	78,000	14,000
35 years and over-----	123,000	15,000	22,000	11,000	10,000	60,000	5,000
<u>First trimester</u>							
All ages-----	232,000	1,000	3,000	27,000	15,000	164,000	22,000
Under 20 years-----	28,000	1,000	-	4,000	2,000	17,000	4,000
20-24 years-----	84,000	-	1,000	6,000	5,000	64,000	8,000
25-29 years-----	55,000	-	1,000	8,000	3,000	35,000	7,000
30-34 years-----	30,000	-	-	1,000	2,000	25,000	2,000
35 years and over-----	35,000	-	1,000	8,000	2,000	22,000	2,000
<u>Second trimester</u>							
All ages-----	280,000	4,000	9,000	8,000	24,000	217,000	19,000
Under 20 years-----	48,000	-	-	1,000	8,000	36,000	3,000
20-24 years-----	97,000	-	2,000	2,000	7,000	81,000	4,000
25-29 years-----	63,000	1,000	3,000	3,000	6,000	48,000	3,000
30-34 years-----	48,000	1,000	3,000	1,000	1,000	33,000	8,000
35 years and over-----	25,000	2,000	1,000	1,000	1,000	19,000	1,000
<u>Third trimester</u>							
All ages-----	605,000	204,000	146,000	13,000	45,000	183,000	15,000
Under 20 years-----	92,000	41,000	11,000	2,000	7,000	29,000	3,000
20-24 years-----	234,000	88,000	56,000	3,000	17,000	66,000	3,000
25-29 years-----	125,000	34,000	31,000	3,000	5,000	49,000	3,000
30-34 years-----	91,000	28,000	28,000	3,000	8,000	20,000	4,000
35 years and over-----	63,000	13,000	20,000	2,000	7,000	19,000	2,000

Table 7. Number of X-ray examinations during pregnancy, by type of examination, color, and age of mother: United States, 1963

Color and age of mother	Total medical examinations	Abdomen			Chest		All other examinations
		Pelvimetry	Other related to pregnancy	Other not related to pregnancy	Photo-fluorographic	Other chest	
<u>Total</u>	Number of X-ray examinations						
All ages-----	1,117,000	209,000	158,000	47,000	84,000	564,000	56,000
Under 20 years-----	167,000	42,000	11,000	7,000	18,000	82,000	9,000
20-24 years-----	415,000	88,000	60,000	11,000	30,000	212,000	15,000
25-29 years-----	243,000	35,000	35,000	13,000	15,000	132,000	13,000
30-34 years-----	169,000	29,000	31,000	5,000	12,000	78,000	14,000
35 years and over-----	123,000	15,000	22,000	11,000	10,000	60,000	5,000
<u>White</u>							
All ages-----	893,000	182,000	136,000	30,000	60,000	438,000	47,000
Under 20 years-----	123,000	34,000	6,000	7,000	8,000	61,000	9,000
20-24 years-----	346,000	79,000	55,000	7,000	22,000	170,000	13,000
25-29 years-----	188,000	30,000	27,000	9,000	10,000	99,000	12,000
30-34 years-----	133,000	25,000	29,000	4,000	11,000	58,000	7,000
35 years and over-----	102,000	14,000	19,000	3,000	10,000	51,000	5,000
<u>Nonwhite</u>							
All ages-----	224,000	27,000	22,000	17,000	24,000	125,000	9,000
Under 20 years-----	44,000	8,000	5,000	-	10,000	21,000	-
20-24 years-----	69,000	9,000	5,000	4,000	8,000	42,000	2,000
25-29 years-----	55,000	4,000	8,000	4,000	5,000	32,000	1,000
30-34 years-----	36,000	5,000	2,000	1,000	1,000	21,000	7,000
35 years and over-----	21,000	1,000	2,000	8,000	-	9,000	-

Table 8. Rate of X-ray examinations per 100 women during pregnancy, by type of examination, color, and age of mother: United States, 1963

Color and age of mother	Total medical examinations	Abdomen			Chest		All other examinations
		Pelvimetry	Other related to pregnancy	Other not related to pregnancy	Photo-fluorographic	Other chest	
<u>Total</u>	Rate per 100 women						
All ages-----	27.4	5.1	3.9	1.2	2.1	13.8	1.4
Under 20 years-----	28.5	7.1	1.8	1.1	3.0	14.0	1.6
20-24 years-----	28.8	6.1	4.1	0.8	2.1	14.7	1.0
25-29 years-----	23.8	3.4	3.4	1.3	1.5	12.9	1.3
30-34 years-----	27.8	4.8	5.0	0.9	1.9	12.8	2.3
35 years and over-----	29.8	3.7	5.3	2.7	2.5	14.5	1.2
<u>White</u>							
All ages-----	26.1	5.3	4.0	0.9	1.8	12.8	1.4
Under 20 years-----	27.4	7.5	1.3	1.4	1.7	13.5	2.1
20-24 years-----	28.2	6.5	4.5	0.6	1.8	13.8	1.0
25-29 years-----	21.6	3.5	3.1	1.0	1.1	11.4	1.4
30-34 years-----	25.8	4.8	5.6	0.8	2.0	11.2	1.4
35 years and over-----	29.3	4.0	5.6	0.9	2.9	14.5	1.5
<u>Nonwhite</u>							
All ages-----	34.2	4.1	3.3	2.6	3.7	19.1	1.4
Under 20 years-----	32.1	5.9	3.6	-	7.3	15.3	-
20-24 years-----	32.2	4.0	2.2	1.7	3.8	19.5	1.0
25-29 years-----	37.1	3.0	5.4	2.8	3.4	22.1	0.5
30-34 years-----	38.5	5.1	2.0	1.0	1.0	22.3	7.1
35 years and over-----	32.6	1.8	3.6	12.7	-	14.5	-

Table 9. Number of X-ray examinations during pregnancy, by type of examination and pregnancy history: United States, 1963

Pregnancy history	Total medical examinations	Abdomen			Chest		All other examinations
		Pelvimetry	Other related to pregnancy	Other not related to pregnancy	Photo-fluorographic	Other chest	
Number of X-ray examinations							
Total live births-----	1,117,000	209,000	158,000	47,000	84,000	564,000	56,000
No fetal death prior to this live birth-----	996,000	188,000	137,000	40,000	78,000	507,000	47,000
One fetal death prior to this live birth-----	100,000	15,000	17,000	6,000	6,000	45,000	10,000
Two fetal deaths or more prior to this live birth-----	22,000	5,000	4,000	1,000	-	11,000	-
First live birth-----	404,000	128,000	38,000	15,000	29,000	179,000	15,000
No fetal death prior to this live birth-----	388,000	124,000	33,000	12,000	28,000	175,000	15,000
One fetal death prior to this live birth-----	12,000	3,000	3,000	2,000	1,000	3,000	-
Two fetal deaths or more prior to this live birth-----	*	*	*	*	*	*	*
Second live birth-----	224,000	33,000	27,000	6,000	15,000	131,000	12,000
No fetal death prior to this live birth-----	199,000	26,000	23,000	6,000	14,000	119,000	11,000
One fetal death prior to this live birth-----	22,000	7,000	4,000	-	1,000	9,000	1,000
Two fetal deaths or more prior to this live birth-----	*	*	*	*	*	*	*
Third live birth-----	186,000	16,000	41,000	4,000	17,000	102,000	7,000
No fetal death prior to this live birth-----	168,000	15,000	35,000	4,000	17,000	91,000	6,000
One fetal death prior to this live birth-----	17,000	1,000	5,000	-	-	9,000	1,000
Two fetal deaths or more prior to this live birth-----	*	*	*	*	*	*	*
Fourth live birth-----	105,000	9,000	17,000	6,000	3,000	61,000	8,000
No fetal death prior to this live birth-----	89,000	7,000	15,000	6,000	3,000	50,000	8,000
One fetal death prior to this live birth-----	13,000	1,000	1,000	-	-	10,000	-
Two fetal deaths or more prior to this live birth-----	*	*	*	*	*	*	*
Fifth live birth-----	199,000	23,000	36,000	17,000	19,000	90,000	14,000
No fetal death prior to this live birth-----	151,000	16,000	31,000	12,000	15,000	72,000	6,000
One fetal death prior to this live birth-----	36,000	4,000	3,000	4,000	4,000	13,000	8,000
Two fetal deaths or more prior to this live birth-----	12,000	3,000	2,000	1,000	-	5,000	-

Table 10. Number of X-ray examinations during pregnancy, by type of examination, color, and family income: United States, 1963

Color and family income	Total medical examinations	Abdomen			Chest		All other examinations
		Pelvimetry	Other related to pregnancy	Other not related to pregnancy	Photo-fluorographic	Other chest	
<u>Total</u>		Number of X-ray examinations					
All incomes-----	1,117,000	209,000	158,000	47,000	84,000	564,000	56,000
Under \$2,000-----	134,000	24,000	16,000	5,000	12,000	74,000	3,000
\$2,000-\$3,999-----	271,000	46,000	38,000	16,000	16,000	141,000	13,000
\$4,000-\$6,999-----	398,000	79,000	66,000	17,000	25,000	191,000	20,000
\$7,000 and over-----	229,000	49,000	32,000	8,000	15,000	109,000	17,000
Not ascertained-----	85,000	11,000	6,000	1,000	17,000	48,000	3,000
<u>White</u>							
All incomes-----	893,000	182,000	136,000	30,000	60,000	438,000	47,000
Under \$2,000-----	81,000	16,000	10,000	4,000	5,000	42,000	3,000
\$2,000-\$3,999-----	209,000	41,000	32,000	7,000	13,000	107,000	9,000
\$4,000-\$6,999-----	353,000	72,000	61,000	12,000	23,000	167,000	18,000
\$7,000 and over-----	225,000	49,000	32,000	8,000	14,000	106,000	17,000
Not ascertained-----	25,000	3,000	1,000	-	5,000	16,000	-
<u>Nonwhite</u>							
All incomes-----	224,000	27,000	22,000	17,000	24,000	125,000	9,000
Under \$2,000-----	54,000	8,000	5,000	2,000	6,000	32,000	-
\$2,000-\$3,999-----	61,000	4,000	6,000	9,000	4,000	34,000	5,000
\$4,000-\$6,999-----	45,000	7,000	6,000	5,000	2,000	24,000	2,000
\$7,000 and over-----	*	*	*	*	*	*	*
Not ascertained-----	60,000	8,000	5,000	1,000	12,000	32,000	3,000

Table 11. Rate of X-ray examinations per 100 women during pregnancy, by type of examination, color, and family income: United States, 1963

Color and family income	Total medical examinations	Abdomen			Chest		All other examinations
		Pelvimetry	Other related to pregnancy	Other not related to pregnancy	Photo-fluorographic	Other chest	
<u>Total</u>	Rate per 100 women						
All incomes-----	27.4	5.1	3.9	1.2	2.1	13.8	1.4
Under \$2,000-----	29.3	5.3	3.4	1.2	2.5	16.2	0.7
\$2,000-\$3,999-----	32.3	5.5	4.5	1.9	2.0	16.8	1.6
\$4,000-\$6,999-----	27.0	5.4	4.5	1.1	1.7	13.0	1.3
\$7,000 and over-----	21.3	4.5	2.9	0.7	1.4	10.2	1.6
Not ascertained-----	26.1	3.3	1.9	0.3	5.1	14.7	0.9
<u>White</u>							
All incomes-----	26.2	5.3	4.0	0.9	1.8	12.8	1.4
Under \$2,000-----	29.4	6.0	3.8	1.4	1.9	15.3	1.2
\$2,000-\$3,999-----	30.5	6.0	4.7	1.0	1.9	15.6	1.3
\$4,000-\$6,999-----	25.9	5.3	4.4	0.9	1.7	12.3	1.3
\$7,000 and over-----	24.0	5.2	3.4	0.8	1.5	11.3	1.8
Not ascertained-----	17.1	2.1	0.6	-	3.4	11.0	-
<u>Nonwhite</u>							
All incomes-----	34.2	4.1	3.3	2.6	3.7	19.1	1.4
Under \$2,000-----	29.2	4.3	2.8	0.9	3.5	17.6	-
\$2,000-\$3,999-----	40.6	2.9	3.9	6.1	2.3	22.4	3.0
\$4,000-\$6,999-----	41.6	6.4	5.1	4.5	1.6	22.1	1.8
\$7,000 and over-----	*	*	*	*	*	*	*
Not ascertained-----	33.9	4.2	3.0	0.5	6.5	18.0	1.7

APPENDIX I

TECHNICAL NOTES ON METHODS

Statistical Design of National Natality Survey

Survey procedures.—The procedures used for the National Natality Survey may be viewed as an extension of the birth registration system of the United States. The birth record was used as the sampling unit, and births to be included in the survey were selected from the frame of records representing all registered births. The survey was conducted both with primary sources of information identified on the birth record (mother of child, attending physician, institution of birth) and with referral or secondary sources reported by a primary source (other physicians who saw or treated the mother, other institutions at which the mother received care, and dentists from whom the mother received care).

The principal method of data collection for the National Natality Survey was by mail questionnaire. Mailing addresses for primary sources were almost always reported on the birth certificate or were readily ascertained by consulting available directory sources. Mailing addresses of referral or secondary sources were usually reported by the primary sources identifying these reporters. Provision was also made for collecting data by means other than mail, including telephone and personal interviews.

In order to facilitate sampling of births, the sample was selected from the file of microfilmed birth records which were received at approximately monthly intervals by the National Center for Health Statistics (NCHS) from the 54 birth-registration areas of the United States. As a general rule, these microfilm images are assigned a number prior to or during filming of the birth record by each of the registration areas. Each thousand consecutively numbered images are defined as a "reel" and are assigned an identifying reel number starting with zero. Within each reel, the images were numbered from 1 to 1,000.

The sampling for the survey was based on a probability design which used these preassigned reel and image numbers on the birth records. Each reel was considered a primary sampling unit; within each reel, one record was chosen on a random basis. Thus a sam-

ple of 1 out of every 1,000 births was selected from the monthly shipment of records from the registration areas. This procedure produced a sample of 4,096 births for the year 1963.

As copies of the selected birth certificates were received in NCHS, they were reviewed to ascertain which sources would be queried and at what addresses. For all births occurring in institutions (primarily hospitals) a questionnaire as shown in Appendix III was prepared for mailing. Information was requested about care received during the 1-year period preceding the date of birth, in particular, care involving X-ray examinations or treatments. The attendant at birth was also queried for similar information, except for those cases where the attendant signing the certificate was an intern at the hospital where the birth occurred. With the exception of births reported as illegitimate or inferred to be illegitimate on the basis of indirect evidence from the birth certificate, a questionnaire was also prepared for mailing to the mother (Appendix III). This questionnaire was devised to obtain the names of physicians, dentists, clinics, and hospitals from which the mother had received care during the year prior to the birth of her child and also to obtain such information as education, family income, and employment during pregnancy.

Any physicians, clinics, hospitals, or dentists identified by the mother as having provided care during the 1-year period who had not already been queried were subsequently queried for information on X-ray treatments or examinations received by the mother.

Followup mailings were routinely sent to all sources not responding to the original questionnaire. Additional mailings were also made to obtain complete and consistent information on questionnaires rejected as "inadequate" by a concurrent editing procedure. A more detailed description of survey procedures used in the National Natality Survey can be found in another report in this series.²

Estimating methods.—The statistics shown in this report are estimates prepared by means of a post-

stratified ratio estimation procedure. This procedure was used for each of the following groups:

Group	Age of mother	Color	Live-birth order
1-----	Under 20 years	White	1
2-----	1-19 years	White	2+
3-----	20-24 years	White	1
4-----	20-24 years	White	2
5-----	20-24 years	White	3+
6-----	25-29 years	White	1
7-----	25-29 years	White	2
8-----	25-29 years	White	3-4
9-----	25-29 years	White	5+
10-----	30-34 years	White	1-2
11-----	30-34 years	White	3-4
12-----	30-34 years	White	5+
13-----	35+ years	White	1-4
14-----	35+ years	White	5+
15-----	Under 20 years	Nonwhite	1
16-----	Under 20 years	Nonwhite	2+
17-----	20-24 years	Nonwhite	1-2
18-----	20-24 years	Nonwhite	3+
19-----	25-29 years	Nonwhite	1-2
20-----	25-29 years	Nonwhite	3-4
21-----	25-29 years	Nonwhite	5+
22-----	30-34 years	Nonwhite	1-4
23-----	30-34 years	Nonwhite	5+
24-----	35+ years	Nonwhite	All

The national count of births was obtained for each of the 24 groups, and the ratio of this count to the sample count was determined. Each birth in the group was then assigned a constant weight so that the sum of the weights equalled the national total for that group.

Rounding of numbers.—The tabulations on which the tables in this report were based show figures to the nearest unit, except for selected tables in which figures were truncated to the nearest thousand in tabulation. The tables in this report have all been rounded or truncated to the nearest thousand. Neither numbers nor derived figures such as percents, rates, and averages are necessarily accurate in the detail shown.

Reliability of Estimates

The errors to which a survey such as the National Natality Survey is subject may be conveniently grouped into two classes. On the one hand, the statistics derived from the survey are estimates based on a sample rather than on a complete enumeration. Such estimates are subject to variability from the figure which might have been obtained had a survey covering all births been conducted using the same questionnaires and procedures. Apart from sampling errors, the results of such a survey are also subject to errors of measurement, which may include those errors which arise from formation of concepts, ambiguities in definition, construction of the questionnaire, nonresponses or incomplete

responses, and problems associated with the processing of survey data (such as coding errors, editing mistakes, and tabulation errors).

Sampling error.—The standard error is primarily a measure of the sampling variations that occur by chance because only a sample rather than an entire population is surveyed. The chances are about 68 out of 100 that an estimate from the sample differs from the value obtained from a survey of the entire population by less than the standard error. The chances are about 95 out of 100 that the difference is less than twice the standard error.

The relative standard error of an estimate is obtained by dividing the standard error of the estimate by the estimate itself; it is expressed as a percentage of the estimate.

The variance of a statistic depends not only on the design of the sample, but also on the distribution of the statistic itself; the variance is greater for measurements which are highly variable from one individual to another and lower for measurements which are less variable. Since the estimates of the sampling error are obtained from the sample data, they are themselves subject to sampling error, which may be large in some instances.

Estimates of sampling variability for the statistics derived from this survey were based on 20 random half-sample replications. This technique yields overall estimates of variability through observation of variability among random subsamples of the total sample. It reflects both the error that arises from sampling and a part of the measurement error; it does not, however, measure any systematic biases in the data. A general discussion of the development and evaluation of a replication technique for estimating variance has been published.³ The procedures and computations used to estimate variances by this method in the 1963 National Natality Survey are briefly described below.

For the survey each record from the entire file of records was assigned systematically to a random group between 1 and 40. Twenty pairs of random groups were created from these 40 groups. A half sample was formed by randomly selecting one group from each of the 20 pairs. This process was repeated until 20 replicate half samples were formed from which variance estimates were derived. The composition of the 20 half samples shown in table I was determined by an orthogonal plan.

After the composition of each of the half samples was determined, the estimation procedures used to produce the final estimates from the entire sample were applied separately to each of the resulting half samples. An estimated variance S_x^2 of an estimated statistic x' of the parameter X is obtained by applying the following formula:

$$S_x^2 = \frac{1}{20} \sum_{i=1}^{20} (x_i'' - x')^2$$

Table I. Composition of the 20 half-sample replicates

Half-sample replicates	Random groups included																			
1-----	1	3	6	8	9	11	13	15	18	19	22	23	26	28	30	32	33	35	38	40
2-----	1	4	6	7	9	11	13	16	17	20	21	24	26	28	30	31	33	36	37	40
3-----	2	4	5	7	9	11	14	15	18	19	22	24	26	28	29	31	34	35	37	40
4-----	2	3	5	7	9	12	13	16	17	20	22	24	26	27	29	32	33	35	38	40
5-----	1	3	5	7	10	11	14	15	18	20	22	24	25	27	30	31	33	36	38	40
6-----	1	3	5	8	9	12	13	16	18	20	22	23	25	28	29	31	34	36	37	40
7-----	1	3	6	7	10	11	14	16	18	20	21	23	26	27	29	32	34	35	37	40
8-----	1	4	5	8	9	12	14	16	18	19	21	24	25	27	30	32	33	35	37	40
9-----	2	3	6	7	10	12	14	16	17	19	22	23	25	28	30	31	33	35	37	40
10-----	1	4	5	8	10	12	14	15	17	20	21	23	26	28	29	31	33	35	38	40
11-----	2	3	6	8	10	12	13	15	18	19	21	24	26	27	29	31	33	36	37	40
12-----	1	4	6	8	10	11	13	16	17	19	22	24	25	27	29	31	34	35	38	40
13-----	2	4	6	8	9	11	14	15	17	20	22	23	25	27	29	32	33	36	37	40
14-----	2	4	6	7	9	12	13	15	18	20	21	23	25	27	30	31	34	35	38	40
15-----	2	4	5	7	10	11	13	16	18	19	21	23	25	28	29	32	33	36	38	40
16-----	2	3	5	8	9	11	14	16	17	19	21	23	26	27	30	31	34	36	38	40
17-----	1	3	6	7	9	12	14	15	17	19	21	24	25	28	29	32	34	36	38	40
18-----	1	4	5	7	10	12	13	15	17	19	22	23	26	27	30	32	34	36	37	40
19-----	2	3	5	8	10	11	13	15	17	20	21	24	25	28	30	32	34	35	37	40
20-----	2	4	6	8	10	12	14	16	18	20	22	24	26	28	30	32	34	36	38	40

where

x' is the estimate of X based on the entire sample, and x''_i is the estimate of X based on the i th half sample.

Estimates of standard errors.—Approximate relative standard errors and corresponding standard errors of estimated numbers are shown in table II. Table III contains the approximate standard errors for the estimated percentages. Relative standard errors of number of medical X-ray examinations or visits are given in table IV. Table V presents estimates of relative standard errors of medical X-ray visit or examination rates by the size of the base on which the rate was calculated.

Difference between two sample estimates.—The standard error of a difference is approximately the square root of the sum of the squares of each standard

Table III. Approximate standard errors for estimated percentages shown in this report

Base of percentage	Estimated percent					
	2 or 98	5 or 95	10 or 90	20 or 80	30 or 70	50
	Standard error					
30,000-----	2.0	3.1	4.2	5.6	6.4	7.0
50,000-----	1.5	2.4	3.3	4.3	5.0	5.4
100,000----	1.1	1.7	2.3	3.1	3.5	3.8
250,000----	0.7	1.1	1.5	1.9	2.2	2.4
500,000----	0.5	0.7	1.0	1.4	1.6	1.7
1,000,000--	0.3	0.5	0.7	1.0	1.1	1.2
2,000,000--	0.2	0.4	0.5	0.7	0.8	0.9
3,000,000--	0.2	0.3	0.4	0.6	0.6	0.7
4,000,000--	0.2	0.3	0.4	0.5	0.5	0.6

Table II. Approximate standard errors for estimated numbers shown in this report

Size of estimate	Relative standard error in percent	Standard error
25,000-----	16.8	4,200
50,000-----	12.0	6,000
75,000-----	9.8	7,350
100,000-----	8.5	8,500
250,000-----	5.0	12,500
500,000-----	3.3	16,500
750,000-----	2.5	18,750
1,000,000-----	2.0	20,000
1,500,000-----	1.5	22,500

error considered separately. This formula will represent the actual standard error quite accurately for the difference between separate and uncorrelated characteristics although it is in fact only an approximation.

Errors associated with nonresponse.—Approximately 14 percent of the forms mailed to mothers were either not returned or were returned with the needed information incomplete. The corresponding nonresponse rate was about 7 percent for physicians and about 2 percent for medical facilities. A more complete discussion of nonresponse and response characteristics in this survey will be found in another report in this series.⁴ Of primary concern in the design of the National Natality Survey was the probable impact of non-response on the completeness of coverage of the X-ray

Table IV. Relative standard error of number of X-ray examinations or visits

Number of examinations in thousands	Relative standard error in percent	Number of examinations in thousands	Relative standard error in percent
10-----	28.0	300-----	5.1
20-----	19.8	350-----	4.7
30-----	16.0	400-----	4.4
40-----	14.0	450-----	4.1
50-----	12.4	500-----	3.9
75-----	10.2	600-----	3.6
100-----	8.8	700-----	3.3
125-----	7.8	800-----	3.1
150-----	7.2	900-----	2.9
175-----	6.6	1,000-----	2.8
200-----	6.2	1,500-----	2.2
250-----	5.6	2,000-----	1.9

experience of women during pregnancy. Since this information was collected from the medical sources for each mother, nonresponse rates from physicians and medical facilities may have a significant impact on the completeness of coverage of the survey. The extent of undercoverage is dependent both on the magnitude of nonresponse and on the relative proportion of examinations reported by a single source and those reported by two sources or more. For methodological purposes it may be assumed that if a response is received from any of the sources questioned, all relevant examinations will, in fact, be reported. Thus for examinations reported only by one source, the estimated

Table V. Relative standard errors of medical X-ray visit rates, by size of base for rate

X-ray visit rate per 100 women	Relative standard error in percent for base of--			
	100,000 women	250,000 women	500,000 women	1,000,000 women
5-----	46.0	26.0	16.0	13.0
10-----	33.0	18.0	11.3	9.0
15-----	27.0	15.0	9.3	7.5
20-----	23.0	13.0	8.0	6.5
25-----	20.5	11.6	7.1	5.8
30-----	19.0	10.6	6.6	5.3
35-----	17.6	9.8	6.1	4.9
40-----	16.5	9.2	5.7	4.6
45-----	15.5	8.6	5.4	4.3
50-----	14.7	8.2	5.1	4.1
60-----	13.4	7.5	4.7	3.7
70-----	12.4	6.9	4.3	3.5
80-----	11.6	6.5	4.0	3.2
90-----	11.0	6.1	3.8	3.1
100-----	10.4	5.8	3.6	2.9

value of the total number of examinations which would have been reported had there been no nonresponse is equal to the number of such examinations reported weighted by the inverse of the response rates from each type of reporting source. Thus for examinations reported only by a physician, the estimated total number of such examinations would be equal to 100/93 multiplied by the actual number of reported examinations. For examinations which were reported by more than one source (which amounted to about 30 percent of all examinations), it may be shown that the joint probability of nonresponse from two sources is virtually zero.

Table VI presents estimates of the number of examinations reported in the survey and the estimated number including adjustment for nonresponse.

Error associated with incomplete response.—Nonresponse to items on questionnaires returned by the mothers was minimal in most instances and amounted to no more than 3.1 percent for any single item.

Table VII shows the percent not ascertained for specific socioeconomic items by age of mother and by live-birth order. In order to reduce the effect of such incomplete reporting on survey estimates, statistics derived from querying the mother were adjusted for incomplete reporting by imputing to those who did not respond the characteristics of similar respondents. The procedure used is described in greater detail in another report in this series.⁴

Virtually all items on the questionnaire sent to medical sources were satisfactorily completed. The few cases for which information was missing were mainly imputed by consulting a staff radiologist.

Table VI. Unadjusted and adjusted estimates of X-ray examinations received during pregnancy

Class of examination	Number of examinations reported in survey	Adjustment factor for non-response	Adjusted number of examinations
Total-----	1,370	...	1,407
Reported by 1 physician-----	263	100/93.1	282
Reported by 1 hospital-----	732	100/97.6	750
Reported by 2 sources-----	297	...	297
Reported by 3 or more sources-	78	...	78

Table VII. Percent of respondents for whom specified items were not ascertained, by age of mother and live-birth order: 1963 National Natality Survey

Age of mother and live-birth order	Total number of respondents	Family income	Education of mother	Education of father	Mother's employment status	Father's employment status
Total-----	3,218	3.1	0.2	0.8	0.1	0.7
Percent not ascertained						
<u>Age of mother</u>						
Under 20 years-----	373	6.2	-	0.3	-	0.8
20-24 years-----	1,074	3.0	0.1	0.6	-	0.8
25-29 years-----	948	1.8	0.3	0.8	0.1	0.3
30-34 years-----	486	3.3	0.6	1.0	0.4	1.4
35 years and over-----	337	3.9	0.3	1.2	-	0.3
<u>Live-birth order</u>						
First-----	864	4.2	-	0.2	-	0.6
Second-----	777	2.1	-	0.4	-	0.4
Third-----	595	2.4	0.2	1.3	-	1.0
Fourth-----	409	2.2	0.5	1.0	-	0.7
Fifth birth and over-----	573	4.5	0.9	1.4	0.5	1.0

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APPENDIX II

DEFINITIONS OF CERTAIN TERMS USED IN THIS REPORT

Age of mother.—Age of mother is recorded or derived from entries on the birth certificate.

Color.—Color is recorded or derived from entries on the birth certificate for color or race as white or nonwhite. Nonwhite includes persons classified as Negro, American Indian, Chinese, Japanese, Aleut, Eskimo, Hawaiian, or part-Hawaiian. The category white includes all other persons. Persons stated to be Mexican or Puerto Rican are included with white.

Fetal loss.—This term is used synonymously with fetal death. A fetal death is death prior to the complete expulsion or extraction from its mother of a product of conception, irrespective of the duration of pregnancy. The death is indicated by the fact that after such separation the fetus does not breathe or show any other evidence of life such as beating of the heart, pulsation of the umbilical cord, or definite movement of voluntary muscles. Variation in the registration requirements in regard to completed weeks of gestation has an important bearing on this definition. Many States require the registration of fetal deaths of 20 or more completed weeks of gestation, while some require the registration of all products of conception irrespective of the duration of pregnancy.

Live-birth order.—Live-birth order is derived from entries on the birth certificate and refers to the number of children born alive to the mother, including the sample child.

Legitimacy status.—For States reporting legitimacy data on the birth record, legitimacy status of a birth is recorded from entries on the birth certificate; for States not reporting legitimacy on the birth record, it is inferred from other evidence on the birth certificate. The following 16 States did not report legitimacy statistics on the birth record in 1963: Arizona, Arkansas, California, Colorado, Connecticut, Georgia, Idaho, Maryland, Massachusetts, Montana, Nebraska, New Hampshire, New Mexico, New York, Oklahoma, and Vermont.

Family income.—Family income refers to the total of all income received during the preceding year by all persons related to each other by blood, marriage, or adoption and living in the same household when the baby was born. Income from all sources is included, such as wages, salaries, unemployment compensation, and help from relatives.

Metropolitan status.—Usual residence of mother was classified by location inside or outside counties falling in standard metropolitan statistical areas (metropolitan State economic areas in New England) as delineated by the Office of Statistical Standards, U.S. Bureau of the Budget, for the 1960 census.⁵ Although metropolitan status does not correspond exactly to the conventional urban-rural differentiation, it may be useful in classifying the population into those living in or near metropolitan areas and those living elsewhere.

Region.—State of usual residence of mothers is classified according to four regions which correspond to the regions used by the U.S. Bureau of the Census. These are comprised as follows:

<i>Region</i>	<i>States Included</i>
Northeast -----	Connecticut, Maine, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, Vermont
North Central ---	Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Missouri, Nebraska, North Dakota, Ohio, South Dakota, Wisconsin
South -----	Alabama, Arkansas, Delaware, District of Columbia, Florida, Georgia, Kentucky, Louisiana, Maryland, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, Texas, Virginia, West Virginia
West -----	Alaska, Arizona, California, Colorado, Hawaii, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington, Wyoming

Medical X-ray visit.—A medical X-ray visit is defined as a visit to a physician's office, hospital, mobile X-ray unit, Public Health Department, and so forth, during the course of which X-ray equipment is used for diagnosis or treatment. X-ray includes X-ray film photography and X-ray emission for treatment and fluoroscopy but excludes the use of radioisotopes. Only one visit is counted for any single day, regardless of the number of X-ray examinations made. Medical X-ray visits exclude dental examinations taken for the primary

purpose of studying the condition or formation of the teeth.

Medical X-ray examination.—A medical X-ray examination is defined as the use of X-ray or fluoroscopic procedures to determine the presence, absence, or state of a disease or condition. For the purposes of this report, examinations also include the use of X-rays for treatment of a condition which has already been diagnosed. An X-ray visit may include several X-ray examinations.

Radiographic examination.—A radiographic examination is one in which the X-ray beam is passed through the patient's body and is recorded on X-ray film.

Photofluorographic examination.—A photofluorographic examination (usually of the chest) is one in which the X-ray beam is passed through the patient's body and excites a fluorescing screen, which is then photographed by a miniature format camera using photographic film.

Type of examination.—For the purposes of this report, examinations were classified into major groups, based primarily on the part of the body toward which the X-rays were directed. Examinations of the uterus and pelvic region related to pregnancy include pri-

marily X-ray pelvimetry (measurement of fetal size and pelvic proportions), fetography (direct examination of the fetus), placentography (examination of the placental structure), and a small number of other examinations of the pelvic area. In the tables showing this data, this category has been subdivided into two subcategories: (a) pelvimetry, and (b) other examinations of the abdomen related to pregnancy.

Type of facility.—Type of facility is a classification of the types of places at which an X-ray visit or examination took place. The definitions of the two categories are as follows:

1. *Physician's office* is defined as the office of any doctor who has his own X-ray equipment; these may be subdivided according to the medical speciality of the physician's practice.
2. *Other places* is defined as including hospitals (both inpatient and outpatient services) as well as other places at which X-ray services are provided, including private clinics, schools, mobile units, Public Health Departments, and so forth.



Survey Questionnaire for Mothers



DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE

PUBLIC HEALTH SERVICE

WASHINGTON 25, D. C.

F

L

The U. S. Public Health Service is doing a national study to find out how much and what kinds of medical and dental care women are receiving during the year before the birth of a child. Nothing is known about the extent of the care received by expectant mothers, even though such care is of the greatest importance for the future health of both mother and baby. A knowledge of what is actually happening throughout the Nation will go a long way in helping to improve the health of mothers and babies.

The information needed for this study will be based on the experience of the mothers of 4,000 babies out of the 4 million born during 1963. These mothers were selected as a random sample of all mothers who have a baby, and you are one of those so selected. We are therefore asking you to answer the questions on the following pages of this form, and to return it to us in the enclosed envelope which requires no postage.

Please notice that in the first part of the form the questions ask about every doctor, dentist, hospital, or clinic from which you received any care during the entire year before your baby was born. Your answers should not be just for the care connected with pregnancy, but for any and all medical and dental care or checkups during these 12 months.

All information about you and your baby will be kept completely confidential. Your answers will be used for health research only and for no other purpose. As you might expect, it is particularly important that we receive your answers and those of all the other 4,000 mothers, since each of you really represents 1,000 mothers.

Your cooperation in this study is deeply appreciated.

Sincerely yours,

O. K. Sagen, Ph. D., Chief
National Vital Statistics Division
National Center for Health Statistics

Name of Child	
Date of Birth	File Number

M

SURVEY OF MEDICAL AND DENTAL CARE

PART I. SOURCES OF MEDICAL AND DENTAL CARE DURING ONE-YEAR PERIOD BEFORE CHILDBIRTH																			
<p>1. Please provide the information requested below about the physician, chiropractor or midwife who attended you at the recent birth of your child.</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr><td style="padding: 2px;">Name</td></tr> <tr><td style="padding: 2px;">Address</td></tr> <tr><td style="padding: 2px;">City (town) and State</td></tr> <tr><td style="padding: 2px;">How many times were you seen by this doctor during the one-year period?</td></tr> </table>	Name	Address	City (town) and State	How many times were you seen by this doctor during the one-year period?	<p>3. Were you seen by a dentist during this one-year period?</p> <p style="text-align: center;"><input type="checkbox"/> YES <input type="checkbox"/> NO (Go on to Question 4)</p> <p style="text-align: center;">↓</p> <p style="text-align: center;">Complete a section below for each dentist.</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr><td style="padding: 2px;">Name</td></tr> <tr><td style="padding: 2px;">Address</td></tr> <tr><td style="padding: 2px;">City (town) and State</td></tr> <tr><td style="padding: 2px;">How many times were you seen by this dentist during the one-year period?</td></tr> </table> <p style="text-align: center;">I</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr><td style="padding: 2px;">Name</td></tr> <tr><td style="padding: 2px;">Address</td></tr> <tr><td style="padding: 2px;">City (town) and State</td></tr> <tr><td style="padding: 2px;">How many times were you seen by this dentist during the one-year period?</td></tr> </table> <p style="text-align: center;">II</p>	Name	Address	City (town) and State	How many times were you seen by this dentist during the one-year period?	Name	Address	City (town) and State	How many times were you seen by this dentist during the one-year period?						
Name																			
Address																			
City (town) and State																			
How many times were you seen by this doctor during the one-year period?																			
Name																			
Address																			
City (town) and State																			
How many times were you seen by this dentist during the one-year period?																			
Name																			
Address																			
City (town) and State																			
How many times were you seen by this dentist during the one-year period?																			
<p>2. Were you seen by any other physician or chiropractor during the one-year period before the recent birth of your child?</p> <p style="text-align: center;"><input type="checkbox"/> YES <input type="checkbox"/> NO (Go on to Question 3)</p> <p style="text-align: center;">↓</p> <p style="text-align: center;">Complete a section below for each doctor or chiropractor.</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr><td style="padding: 2px;">Name</td></tr> <tr><td style="padding: 2px;">Address</td></tr> <tr><td style="padding: 2px;">City (town) and State</td></tr> <tr><td style="padding: 2px;">How many times were you seen by this doctor during the one-year period?</td></tr> </table> <p style="text-align: center;">I</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr><td style="padding: 2px;">Name</td></tr> <tr><td style="padding: 2px;">Address</td></tr> <tr><td style="padding: 2px;">City (town) and State</td></tr> <tr><td style="padding: 2px;">How many times were you seen by this doctor during the one-year period?</td></tr> </table> <p style="text-align: center;">II</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr><td style="padding: 2px;">Name</td></tr> <tr><td style="padding: 2px;">Address</td></tr> <tr><td style="padding: 2px;">City (town) and State</td></tr> <tr><td style="padding: 2px;">How many times were you seen by this doctor during the one-year period?</td></tr> </table> <p style="text-align: center;">III</p>	Name	Address	City (town) and State	How many times were you seen by this doctor during the one-year period?	Name	Address	City (town) and State	How many times were you seen by this doctor during the one-year period?	Name	Address	City (town) and State	How many times were you seen by this doctor during the one-year period?	<p>4. During this one-year period, were you treated or examined in a clinic or hospital not reported above? (Include health checkups at work, visits to mobile health units, etc.)</p> <p style="text-align: center;"><input type="checkbox"/> YES <input type="checkbox"/> NO (Go on to next page)</p> <p style="text-align: center;">↓</p> <p style="text-align: center;">Complete a section below for each place where you were treated or examined.</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr><td style="padding: 2px;">Name</td></tr> <tr><td style="padding: 2px;">Address</td></tr> <tr><td style="padding: 2px;">City (town) and State</td></tr> </table> <p style="text-align: center;">I</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr><td style="padding: 2px;">Name</td></tr> <tr><td style="padding: 2px;">Address</td></tr> <tr><td style="padding: 2px;">City (town) and State</td></tr> </table> <p style="text-align: center;">II</p>	Name	Address	City (town) and State	Name	Address	City (town) and State
Name																			
Address																			
City (town) and State																			
How many times were you seen by this doctor during the one-year period?																			
Name																			
Address																			
City (town) and State																			
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Name																			
Address																			
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Name																			
Address																			
City (town) and State																			
Name																			
Address																			
City (town) and State																			

PLEASE GO ON TO PART II →

SURVEY OF RADIOLOGICAL EXAMINATIONS

PART I. RADIOLOGICAL EXAMINATIONS OR TREATMENTS DURING ONE-YEAR PERIOD BEFORE CHILDBIRTH

To your knowledge, was the mother examined or treated by X-ray or fluoroscope at any time during the one-year period before childbirth as specified at the bottom of the preceding page?

NO (Skip to Part II on last page)

YES → How many radiological examinations or treatments did she receive during this one-year period?

_____ (number) (Complete section(s) below, then go on to last page)

- ▶ Complete a separate section below for EACH radiological examination or treatment performed during the ONE-YEAR PERIOD, whether or not related to pregnancy.
- ▶ If the SAME TYPE of procedure was performed MORE THAN ONCE, please report EACH SEPARATELY.
- ▶ If more than one procedure was performed on the SAME DATE, please report EACH SEPARATELY.
- ▶ In reporting NUMBER OF EXPOSURES, please include those which may have been technically unsatisfactory.
- ▶ If necessary, continue on a separate sheet.

SECTION 1. FIRST RADIOLOGICAL EXAMINATION OR TREATMENT DURING ONE-YEAR PERIOD

Date of examination or treatment?	1. Type of radiological equipment used? (check one)	<input type="checkbox"/> DIAGNOSTIC RADIOGRAPHY <input type="checkbox"/> DIAGNOSTIC FLUOROSCOPY <input type="checkbox"/> DIAGNOSTIC PHOTOFLUOROGRAPHY <input type="checkbox"/> X-RAY THERAPY
_____ (month)	2. Primary area of body exposed?	_____
_____ (day)	3. Type of service rendered to mother? (check one)	<input type="checkbox"/> PELVIMETRY <input type="checkbox"/> INTRAVENOUS PYELOGRAM <input type="checkbox"/> PLACENTOGRAPHY <input type="checkbox"/> OTHER (specify) _____ <input type="checkbox"/> ROUTINE CHEST
_____ (year)	4. Number of exposures?	_____ (include those technically unsatisfactory) (number)
	5. Place where examination or treatment was performed?	<input type="checkbox"/> DONE AT MY OWN OFFICE OR <input checked="" type="checkbox"/> Name of physician, hospital or clinic _____ Address _____ City-State _____

SECTION 2. SECOND RADIOLOGICAL EXAMINATION OR TREATMENT DURING ONE-YEAR PERIOD

Date of examination or treatment? _____ (month) _____ (day) _____ (year)	1. Type of radiological equipment used? (check one)	<input type="checkbox"/> DIAGNOSTIC RADIOGRAPHY <input type="checkbox"/> DIAGNOSTIC FLUOROSCOPY <input type="checkbox"/> DIAGNOSTIC PHOTOFLUOROGRAPHY <input type="checkbox"/> X-RAY THERAPY
	2. Primary area of body exposed?	_____
	3. Type of service rendered to mother? (check one)	<input type="checkbox"/> PELVIMETRY <input type="checkbox"/> INTRAVENOUS PYELOGRAM <input type="checkbox"/> PLACENTOGRAPHY <input type="checkbox"/> OTHER (specify) _____ <input type="checkbox"/> ROUTINE CHEST
	4. Number of exposures?	_____ (include those technically unsatisfactory) (number)
	5. Place where examination or treatment was performed?	<input type="checkbox"/> DONE AT MY OWN OFFICE OR Name of physician, hospital or clinic _____ Address _____ City-State _____

SECTION 3. THIRD RADIOLOGICAL EXAMINATION OR TREATMENT DURING ONE-YEAR PERIOD

Date of examination or treatment? _____ (month) _____ (day) _____ (year)	1. Type of radiological equipment used? (check one)	<input type="checkbox"/> DIAGNOSTIC RADIOGRAPHY <input type="checkbox"/> DIAGNOSTIC FLUOROSCOPY <input type="checkbox"/> DIAGNOSTIC PHOTOFLUOROGRAPHY <input type="checkbox"/> X-RAY THERAPY
	2. Primary area of body exposed?	_____
	3. Type of service rendered to mother? (check one)	<input type="checkbox"/> PELVIMETRY <input type="checkbox"/> INTRAVENOUS PYELOGRAM <input type="checkbox"/> PLACENTOGRAPHY <input type="checkbox"/> OTHER (specify) _____ <input type="checkbox"/> ROUTINE CHEST
	4. Number of exposures?	_____ (include those technically unsatisfactory) (number)
	5. Place where examination or treatment was performed?	<input type="checkbox"/> DONE AT MY OWN OFFICE OR Name of physician, hospital or clinic _____ Address _____ City-State _____

SECTION 4. FOURTH RADIOLOGICAL EXAMINATION OR TREATMENT DURING ONE-YEAR PERIOD

Date of examination or treatment? _____ (month) _____ (day) _____ (year)	1. Type of radiological equipment used? (check one)	<input type="checkbox"/> DIAGNOSTIC RADIOGRAPHY <input type="checkbox"/> DIAGNOSTIC FLUOROSCOPY <input type="checkbox"/> DIAGNOSTIC PHOTOFLUOROGRAPHY <input type="checkbox"/> X-RAY THERAPY
	2. Primary area of body exposed?	_____
	3. Type of service rendered to mother? (check one)	<input type="checkbox"/> PELVIMETRY <input type="checkbox"/> INTRAVENOUS PYELOGRAM <input type="checkbox"/> PLACENTOGRAPHY <input type="checkbox"/> OTHER (specify) _____ <input type="checkbox"/> ROUTINE CHEST
	4. Number of exposures?	_____ (include those technically unsatisfactory) (number)
	5. Place where examination or treatment was performed?	<input type="checkbox"/> DONE AT MY OWN OFFICE OR Name of physician, hospital or clinic _____ Address _____ City-State _____

PART II. MEDICAL CARE RECEIVED BY MOTHER DURING ONE-YEAR PERIOD BEFORE CHILDBIRTH

1. How many times did you see this patient during the one-year period? (If exact number not known, please give best estimate)

Number of times

--

2. On what date did you see her for the first time during the one-year period?

Month	Day	Year
		19__

3. On what date did you see her for the last time during the one-year period?

Month	Day	Year
		19__

4. If this patient was referred to you, please give names and addresses of referring physicians, clinics or hospitals.

Name
Address
City-State

Name
Address
City-State

5. If you referred this patient to another physician, or to a hospital or clinic, please give names and addresses of physicians or institutions to which referred.

Name
Address
City-State

Name
Address
City-State

6. If this patient was seen or treated during the one-year period by any other physician, hospital or clinic not reported above or on the previous page, please give names and addresses.

Name
Address
City-State

Name
Address
City-State

(Name of person completing this form)

COMMENTS

SURVEY OF RADIOLOGICAL EXAMINATIONS

PART I. RADIOLOGICAL EXAMINATIONS OR TREATMENTS DURING ONE-YEAR PERIOD BEFORE CHILDBIRTH

To your knowledge, was the mother examined or treated by X-ray or fluoroscope at any time during the one-year period before childbirth as specified at the bottom of the preceding page?

- NO (Skip to Part II on last page)
- YES → How many radiological examinations or treatments did she receive during this one-year period?

_____ (number) (Complete section(s) below, then go on to last page)

- ▶ Complete a separate section below for EACH radiological examination or treatment performed during the ONE-YEAR PERIOD, whether or not related to pregnancy.
- ▶ If the SAME TYPE of procedure was performed MORE THAN ONCE, please report EACH SEPARATELY.
- ▶ If more than one procedure was performed on the SAME DATE, please report EACH SEPARATELY.
- ▶ In reporting NUMBER OF EXPOSURES, please include those which may have been technically unsatisfactory.
- ▶ If necessary, continue on a separate sheet.

SECTION 1. FIRST RADIOLOGICAL EXAMINATION OR TREATMENT DURING ONE-YEAR PERIOD

Date of examination or treatment? _____ (month) _____ (day) _____ (year)	1. Type of radiological equipment used? (check one)	<input type="checkbox"/> DIAGNOSTIC RADIOGRAPHY <input type="checkbox"/> DIAGNOSTIC FLUOROSCOPY <input type="checkbox"/> DIAGNOSTIC PHOTOFLUOROGRAPHY <input type="checkbox"/> X-RAY THERAPY
	2. Primary area of body exposed?	_____
	3. Type of service rendered to mother? (check one)	<input type="checkbox"/> PELVIMETRY <input type="checkbox"/> INTRAVENOUS PYELOGRAM <input type="checkbox"/> PLACENTOGRAPHY <input type="checkbox"/> OTHER (specify) _____ <input type="checkbox"/> ROUTINE CHEST
	4. Number of exposures?	_____ (include those technically unsatisfactory) (number)
	5. Place where examination or treatment was performed?	<input type="checkbox"/> DONE AT THIS INSTITUTION OR <input checked="" type="checkbox"/> Name of physician, hospital or clinic _____ Address _____ City-State _____

SECTION 2. SECOND RADIOLOGICAL EXAMINATION OR TREATMENT DURING ONE-YEAR PERIOD

Date of examination or treatment? _____ (month) _____ (day) _____ (year)	1. Type of radiological equipment used? (check one)	<input type="checkbox"/> DIAGNOSTIC RADIOGRAPHY <input type="checkbox"/> DIAGNOSTIC FLUOROSCOPY <input type="checkbox"/> DIAGNOSTIC PHOTOFLUOROGRAPHY <input type="checkbox"/> X-RAY THERAPY
	2. Primary area of body exposed?	_____
	3. Type of service rendered to mother? (check one)	<input type="checkbox"/> PELVIMETRY <input type="checkbox"/> INTRAVENOUS PYELOGRAM <input type="checkbox"/> PLACENTOGRAPHY <input type="checkbox"/> OTHER (specify) _____ <input type="checkbox"/> ROUTINE CHEST
	4. Number of exposures?	_____ (include those technically unsatisfactory) (number)
	5. Place where examination or treatment was performed?	<input type="checkbox"/> DONE AT THIS INSTITUTION OR Name of physician, hospital or clinic _____ Address _____ City-State _____

SECTION 3. THIRD RADIOLOGICAL EXAMINATION OR TREATMENT DURING ONE-YEAR PERIOD

Date of examination or treatment? _____ (month) _____ (day) _____ (year)	1. Type of radiological equipment used? (check one)	<input type="checkbox"/> DIAGNOSTIC RADIOGRAPHY <input type="checkbox"/> DIAGNOSTIC FLUOROSCOPY <input type="checkbox"/> DIAGNOSTIC PHOTOFLUOROGRAPHY <input type="checkbox"/> X-RAY THERAPY
	2. Primary area of body exposed?	_____
	3. Type of service rendered to mother? (check one)	<input type="checkbox"/> PELVIMETRY <input type="checkbox"/> INTRAVENOUS PYELOGRAM <input type="checkbox"/> PLACENTOGRAPHY <input type="checkbox"/> OTHER (specify) _____ <input type="checkbox"/> ROUTINE CHEST
	4. Number of exposures?	_____ (include those technically unsatisfactory) (number)
	5. Place where examination or treatment was performed?	<input type="checkbox"/> DONE AT THIS INSTITUTION OR Name of physician, hospital or clinic _____ Address _____ City-State _____

SECTION 4. FOURTH RADIOLOGICAL EXAMINATION OR TREATMENT DURING ONE-YEAR PERIOD

Date of examination or treatment? _____ (month) _____ (day) _____ (year)	1. Type of radiological equipment used? (check one)	<input type="checkbox"/> DIAGNOSTIC RADIOGRAPHY <input type="checkbox"/> DIAGNOSTIC FLUOROSCOPY <input type="checkbox"/> DIAGNOSTIC PHOTOFLUOROGRAPHY <input type="checkbox"/> X-RAY THERAPY
	2. Primary area of body exposed?	_____
	3. Type of service rendered to mother? (check one)	<input type="checkbox"/> PELVIMETRY <input type="checkbox"/> INTRAVENOUS PYELOGRAM <input type="checkbox"/> PLACENTOGRAPHY <input type="checkbox"/> OTHER (specify) _____ <input type="checkbox"/> ROUTINE CHEST
	4. Number of exposures?	_____ (include those technically unsatisfactory) (number)
	5. Place where examination or treatment was performed?	<input type="checkbox"/> DONE AT THIS INSTITUTION OR Name of physician, hospital or clinic _____ Address _____ City-State _____

PART II. MEDICAL CARE RECEIVED BY MOTHER DURING ONE-YEAR PERIOD BEFORE CHILDBIRTH

1. How many times was the patient seen at your institution during the one-year period?
(If exact number not known, please give best estimate)

Number of times

--

2. On what date was she seen for the first time during the one-year period?

Month	Day	Year
		19__

3. On what date was she seen for the last time during the one-year period?

Month	Day	Year
		19__

4. If this patient was referred to your institution, please give names and addresses of referring hospitals, clinics or private physicians.

<i>Name</i>
<i>Address</i>
<i>City-State</i>

<i>Name</i>
<i>Address</i>
<i>City-State</i>

5. If your institution referred this patient to another hospital or clinic or to a private physician, please give names and addresses of physicians or institutions to which referred.

<i>Name</i>
<i>Address</i>
<i>City-State</i>

<i>Name</i>
<i>Address</i>
<i>City-State</i>

6. If this patient was seen or treated during the one-year period by any other hospital, clinic or physician not reported above or on the previous page, please give names and addresses.

<i>Name</i>
<i>Address</i>
<i>City-State</i>

<i>Name</i>
<i>Address</i>
<i>City-State</i>

(Name of person completing this form)

COMMENTS



OUTLINE OF REPORT SERIES FOR VITAL AND HEALTH STATISTICS

Public Health Service Publication No. 1000

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