

A review is presented of experience over a two year period with a liberalized abortion program in New York City. Findings are presented and discussed. The abortion program has been associated with a decline in maternal and infant mortality and a decline in births. Needs still to be recognized are outlined.

Two Years Experience in New York City With the Liberalized Abortion Law—Progress and Problems

Introduction

From the time the liberalized law on abortions in New York took effect July 1, 1970, permitting abortions to be performed up to 24 weeks gestation upon the request of a woman and the consent of her physician, the New York City Department of Health has undertaken the surveillance of the abortion program in the city and collected pertinent data. This report is based on the experience encompassing a two-year period from July 1, 1970 to June 30, 1972.

Methodology

Data were collected from certificates designed for reporting all terminations of pregnancy, a weekly reporting system under which a special report is forwarded to the Department of Health and a specially prepared weekly on abortions performed in municipal hospitals. The certificates of termination which are mandated by the New York City Health Code provide the primary source of information. These provided data on residence, the mode of termination and the facility where termination took place, weeks of gestation, race and ethnic group, age and parity of the woman.

However, the certificates which are supposed to be filed within 48 hours after termination were not designed to yield information on complications. The weekly reporting

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system was, therefore, instituted to enable the Department to obtain data on the number and type of complications.

Each method of reporting served as a check on the other and helped estimate the degree of underreporting known to exist.

Results

Residents and Nonresidents (Table 1)

For the two years the total number of abortions reported by certificates filed was 334,865 of which 220,163 were for nonresidents or 65.7% of the total and 114,702 or 34.3% were for residents.

After correcting for underreporting (approximately 16.7%), it is conservatively estimated that 402,000 abortions were actually performed in the two-year period.

The total number of abortions performed in the second year increased by 41%. However, the increase for the nonresidents was greater than for the residents (50% for nonresidents, 25% for residents).

Table 1—Reported Abortions Performed in New York City to Residents and Nonresidents July 1, 1970–June 30, 1972

	Numbers			Per cents		
	July 1, 1970- June 30, 1971	July 1, 1971- June 30, 1972	Total 2 Years	July 1, 1970- June 30, 1971	July 1, 1970 June 30, 1972	Total 2 Years
Residents	50,919	63,783	114,702	36.6	32.6	34.3
Nonresidents	88,123	132,040	220,163	63.4	67.4	65.7
Total:	139,042	195,823	334,865	100.0	100.0	100.0

NOTE: Tables 1 through 9: source: certificate of termination of pregnancy.

Leading Areas for Nonresidents (Table 2)

The ten areas cited in this two-year period accounted for approximately 73% of all nonresidents coming to New York City for abortions.

New Jersey maintained the lead both years in the number of women coming to the city for abortions. In fact, the percentage increased from 13.4% to 14.8%.

Illinois replaced Ohio as the second leading state in the second year. Michigan retained third place. The order of states on the whole did not change substantially.

Facilities for Abortions in New York City (Table 3)

The total number of facilities over the two-year period

Table 2A—Ten Leading Areas for Abortions to Nonresidents July 1, 1970-June 30, 1971

State or area	Number	Per cent of total nonresident abortions
New Jersey	11849	13.4
Ohio	7403	8.4
Michigan	7296	8.3
Illinois	7163	8.1
Pennsylvania	6600	7.5
Florida	5255	6.0
Massachusetts	5107	5.8
New York State (excl. N.Y.C.)	4428	5.0
Connecticut	3729	4.2
Canada & other countries	2788	3.2
Total:	61618	69.9

Table 2B—July 1, 1971-June 30, 1972

New Jersey	19575	14.8
Illinois	13016	9.9
Michigan	12028	9.1
Pennsylvania	11591	8.8
Ohio	11310	8.6
Florida	7897	6.0
Massachusetts	6471	4.9
New York State (excl. N.Y.C.)	6359	4.8
Connecticut	5344	4.0
Canada & other countries	4944	3.7
Total:	98535	74.6

Table 2C—July 1, 1970-June 30, 1972

New Jersey	31424	14.3
Illinois	20179	9.2
Michigan	19324	8.8
Ohio	18713	8.5
Pennsylvania	18191	8.3
Florida	13152	6.0
Massachusetts	11578	5.2
New York State (excl. N.Y.C.)	10787	4.9
Connecticut	9073	4.1
Canada & other countries	7732	3.5
Total:	160153	72.7

comprised 115 of which 14 were municipal hospitals; 52 in voluntary hospitals; 25 in proprietary hospitals, and 24 in free-standing clinics.

The major providers of abortions for residents during the first year were municipal and voluntary hospitals which accounted for 78.6% of the abortions; for the second year this figure dropped to 62.5%.

For the first year the major provider for nonresidents was proprietary hospitals, accounting for 44.5% of their total abortions. However, the second year the free-standing clinics became the chief source for nonresidents, increasing from 39.7% to 58.3% the second year.

During the first year the free-standing clinics accounted for only 6.6% of abortions for residents but in the second year this figure rose to 23.1% indicating the increasing role of free-standing clinics as providers.

In the first year, free-standing clinics accounted for 27.6% of the total abortions for residents and nonresidents combined, increasing to 46.9% in the second year as more free-standing clinics developed.

The proportion of abortions (for residents and nonresidents) performed in hospitals declined, especially in the voluntary hospitals from 25.1% the first year to 12.6% the second year.

In the first year, the proprietary hospitals performed the largest number of abortions but in the second year, the free standing clinics emerged as the major provider, accounting for almost half of all abortions performed.

Abortions Performed by Weeks of Gestation (Table 4)

During the first year of the program, the proportion of early terminations (less than 13 weeks gestation) for residents was 73.9%. This increased to 80.7% in the second year. The late terminations declined substantially from 26% to 19%.

For the nonresidents the proportion of early abortions increased slightly from 78.6% the first year to 78.8% the second year.

Combining residents and nonresidents, the trend for early abortions showed a rise from 76.9% to 79.4% the second year primarily due to the improved record for residents. Thus, the concerted efforts of the New York City Department of Health and other agencies to encourage early abortion appear to have been successful to some extent and need to be reinforced to sustain and encourage the trend further.

Method of Termination of Pregnancy by Facility (Tables 5, 6)

The greatest number of terminations by suction was in free-standing clinics for the two-year period as well as for each of the two years.

Whereas the greatest number of D & Cs was in proprietary hospitals for the two years combined and for each year separately.

The saline method which was third in order of frequency for all methods was performed most often in proprietary hospitals for each of the two years and exhibited a further sharp increase from 38.6% to 63.7% of all saline terminations in the second year.

Hysterotomy as a method of termination declined from the first to the second year except in the case of proprietary hospitals which appeared to be doing more.

Table 3A—Number and Per cent of Induced Abortions in New York City to Residents and Non-residents by Type of Provider

Provider	Numbers		Percents		Total	
	Residents	Non-residents	Residents	Non-residents	Numbers	Per cents
First year	July 1, 1970-June 30, 1971					
Municipal	18,152	942	35.6	1.1	19,094	13.7
Voluntary-Service	8,178	1,414	16.1	1.6	9,592	6.9
Voluntary-Private	13,700	11,561	26.9	13.1	25,261	18.2
Proprietary	7,535	39,177	14.8	44.5	46,712	33.6
Free standing clinics	3,354	35,029	6.6	39.7	38,383	27.6
Total:	50,919	88,123	100.0	100.0	139,042	100.0

Table 3B Second year July 1, 1971-June 30, 1972

Municipal	22,094	736	34.6	0.6	22,830	11.7
Voluntary-Service	6,762	963	10.6	0.7	7,725	3.9
Voluntary-Private	11,038	5,980	17.3	4.5	17,018	8.7
Proprietary	9,143	47,320	14.3	35.8	56,463	28.8
Free standing clinics	14,746	77,041	23.1	58.3	91,787	46.9
Total:	63,783	132,040	99.9	99.9	195,823	100.0

Table 3C Two years combined July 1, 1970-June 30, 1972

Municipal	40,246	1,678	35.1	0.8	41,924	12.5
Voluntary-Service	14,940	2,377	13.0	1.1	17,317	5.2
Voluntary-Private	24,738	17,541	21.6	8.0	42,279	12.6
Proprietary	16,678	86,497	14.5	39.3	103,175	30.8
Free standing clinics	18,100	112,070	15.8	50.9	130,170	38.9
Total:	114,702	220,163	100.0	100.1	334,865	100.0

Table 4—Number and Per cent of Induced Abortions in New York City to Residents and Nonresidents by Weeks of Gestation

Table 4A First year July 1, 1970-June 30, 1971

Weeks of gestation	Numbers			Percent		
	Residents	Nonresidents	Total	Residents	Nonresidents	Total
12 weeks or less	37,094	68,924	106,018	73.9	78.6	76.9
13 weeks or more	13,124	18,762	31,886	26.1	21.4	23.1
Total stated	50,218	87,686	137,904	100.0	100.0	100.0
Not stated	701	437	1,138	1.4	0.5	0.8
Grand total	50,919	88,123	139,042			

Table 4B Second year July 1, 1971-June 30, 1972

12 weeks or less	49,431	100,654	150,085	80.7	78.8	79.4
13 weeks or more	11,808	27,036	38,844	19.3	21.2	20.6
Total stated	61,239	127,690	188,929	100.0	100.0	100.0
Not stated	2,544	4,350	6,894	4.0	3.3	3.5
Grand total	63,783	132,040	195,823			

Table 4C Two years combined July 1, 1970-June 30, 1972

12 weeks or less	86,525	169,578	256,103	77.6	78.7	78.4
13 weeks or more	24,932	45,798	70,730	22.4	21.3	21.6
Total stated	111,457	215,376	326,833	100.0	100.0	100.0
Not stated	3,245	4,787	8,032	2.8	2.2	2.4
Grand total	114,702	220,163	334,865			

Table 5—Number of Induced Abortions in New York City by Method of Termination and Provider

Table 5A July 1, 1970-June 30, 1971

Method of Termination

Provider	Total	D & C	Suction	Saline	Hysterotomy
Municipal	19,094	5,556	7,500	5,678	360
Voluntary	34,853	11,098	16,235	6,892	628
Proprietary	46,712	20,699	17,914	7,904	195
Free standing	38,383	2,527	35,856	0	0
Total:	139,042	39,880	77,505	20,474	1,183

Table 5B July 1, 1971-June 30, 1972

Municipal	22,830	3,069	14,901	4,622	238
Voluntary	24,743	6,565	13,614	4,269	295
Proprietary	56,463	17,504	23,079	15,592	288
Free standing	91,787	5,739	86,048	0	0
Total:	195,823	32,877	137,642	24,483	821

Table 5C July 1, 1970-June 30, 1972

Municipal	41,924	8,625	22,401	10,300	598
Voluntary	59,596	17,663	29,849	11,161	923
Proprietary	103,175	38,203	40,993	23,496	483
Free standing	130,170	8,266	121,904	0	0
Total:	334,865	72,757	215,147	44,957	2,004

Table 6—Number of Induced Abortions in New York City by Method of Termination and Provider

Table 6A July 1, 1970-June 30, 1971

Method of Termination

Provider	Total	D & C	Suction	Saline	Hysterotomy
Municipal	13.7	13.9	9.7	27.7	30.4
Voluntary	25.1	27.8	20.9	33.7	53.1
Proprietary	33.6	51.9	23.1	38.6	16.5
Free standing	27.6	6.4	46.3	—	—
Total:	100.0	100.0	100.0	100.0	100.0

Table 6B July 1, 1971-June 30, 1972

Municipal	11.7	9.3	10.8	18.9	29.0
Voluntary	12.6	20.0	9.9	17.4	35.9
Proprietary	28.8	53.2	16.8	63.7	35.1
Free standing	46.9	17.5	62.5	—	—
Total:	100.0	100.0	100.0	100.0	100.0

Table 6C July 1, 1970-June 30, 1972

Municipal	12.5	11.9	10.4	22.9	29.8
Voluntary	17.8	24.3	13.9	24.8	46.1
Proprietary	30.8	52.5	19.1	52.3	24.1
Free standing	38.9	11.3	56.6	—	—
Total:	100.0	100.0	100.0	100.0	100.0

Table 6A—Per cent of Induced Abortions in New York City by Method of Termination and Provider July 1, 1970-June 30, 1971

Provider	Method of Termination				
	Total	D & C	Suction	Saline	Hysterotomy
Municipal	100.0	29.1	39.2	29.7	1.9
Voluntary	100.0	31.8	46.6	19.8	1.8
Proprietary	100.0	44.3	38.3	16.9	0.4
Free standing	100.0	6.6	93.4	—	—
Total:	100.0	28.7	55.7	14.7	0.9

Table 6B—July 1, 1971-June 30, 1972

Municipal	100.0	13.4	65.3	20.2	1.0
Voluntary	100.0	26.5	55.0	17.3	1.2
Proprietary	100.0	31.0	40.9	27.6	0.5
Free standing	100.0	6.3	93.7	—	—
Total:	100.0	16.8	70.3	12.5	0.4

Table 6C—July 1, 1970-June 30, 1972

Municipal	100.0	20.6	53.4	24.6	1.4
Voluntary	100.0	29.6	50.1	18.7	1.5
Proprietary	100.0	37.0	39.7	22.8	0.5
Free standing	100.0	6.4	93.6	—	—
Total:	100.0	21.7	64.3	13.4	0.6

In analyzing the data by method of termination, by providers, the suction method increased proportionately for each provider from the first year to the second year with the greatest proportion performed in the free-standing clinics.

D & C as a method per cent wise decreased for each category of provider supplanted by the suction method. The proprietary hospital group had the highest proportion of D & C of all providers.

As for the saline instillation method, the municipal hospitals had the highest proportion the first year (29.7%) but in the second year declined to 20.2%. On the other hand the proportion of saline terminations in proprietary hospitals rose from 16.9% to 27.6%.

With the increased number of free-standing clinics in operation absorbing more and more of the early terminations, it is apparent that the proprietary hospitals are becoming more involved with the later terminations (particularly for nonresidents).

In the two years combined, the suction method accounted for 64.3% of all methods with an increase from 55.7% to 70.3% in the second year. Since this method has been associated with the lowest complication rate, this trend should be regarded as salutary.

Age Distribution (Table 7)

The greatest proportion of all women seeking abortions as might be expected was in the 20-29 year age groups.

Nonresidents consisted of a proportionately younger group compared with the residents.

During the first year, teenagers accounted for 29.2% among nonresidents, and 16.5% of the residents.

By the second year the proportion of teenagers rose for both groups with 33.9% for nonresidents and 18.1% for residents.

Young teenagers, 17 years or less, percentwise increased for residents and nonresidents from the first year to the second year—for the nonresidents from 10.4% to 13.1% and for residents from 6.0% to 7.2%.

As for the women in the older age group, 35 and over, for residents and nonresidents a slight per cent decline was noted for both groups from the first year to the second year.

Race and Ethnic Group (Table 8)

Residents

For the first year, among residents receiving abortions, 47.0% were white, 42.8% nonwhite and 10.2% Puerto Rican. In the second year, the distribution changed slightly and the nonwhite proportion increased and accounted for 46.7%, the white 42.0% and the Puerto Rican 11.3%. Thus, women of all races and ethnic groups were availing themselves of the services.

For the two years combined, among the residents receiving abortions 44.9% were nonwhite, 44.2% white and 10.9% Puerto Rican.

For residents in 1971 there were 51.9% births to white women, 31.3% to nonwhite and 16.8% to Puerto Ricans.

Ratio of abortions to live births in New York City in 1971 was 411/1000 with a higher ratio for the nonwhite (562.8/1000) than any other group with the lowest for the Puerto Ricans.

Residents: Ratios of Abortions to Live Births

Race and ethnic group July 1, 1970—June 30, 1971	Abortions—	Live Births 1971	Ratio per 1,000 l.b.
White	23,927	64,171	372.9
Nonwhite	21,770	38,685	562.8
Puerto Rican	5,222	20,855	250.4
Total	50,919	123,711	411.6

Table 7A—Number and Per cent of Induced Abortions in New York City to Residents and Nonresidents by Age of Women July 1, 1970-June 30, 1971

Age of women	Numbers		Per cents of total stated	
	Residents	Nonresidents	Residents	Nonresidents
17 or less	3,049	9,088	6.0	10.4
18-19	5,300	16,527	10.5	18.8
20-34	37,121	54,442	73.3	62.1
35 or over	5,191	7,654	10.2	8.7
Total stated	50,661	87,711	100.0	100.0
Not stated	258	412	0.5	0.5
Grand total	50,919	88,123		

Table 7B—July 1, 1971-June 30, 1972

17 or less	4,471	17,042	7.2	13.1
18-19	6,823	26,964	10.9	20.8
20-34	44,905	75,770	72.0	58.4
35 or over	6,203	10,003	9.9	7.7
Total stated	62,402	129,779	100.0	100.0
Not stated	1,381	2,261	2.2	1.7
Grand total	63,783	132,040		

Table 7C—July 1, 1970-June 30, 1972

17 or less	7,520	26,130	6.7	12.0
18-19	12,123	43,491	10.7	20.0
20-34	82,026	130,212	72.5	59.9
35 or over	11,394	17,657	10.1	8.1
Total stated	113,063	217,490	100.0	100.0
Not stated	1,639	2,673	1.4	1.2
Grand total	114,702	220,163		

Table 8A—Number and Per cent of Induced Abortions in New York City to Residents and Nonresidents by Race and Ethnic Group July 1, 1970-June 30, 1971

Race and ethnic group	Numbers		Per cents	
	Residents	Nonresidents	Residents	Nonresidents
White	23,927	79,309	47.0	90.0
Nonwhite	21,770	8,352	42.8	9.5
Puerto Rican	5,222	462	10.2	0.5
Total:	50,919	88,123	100.0	100.0

Table 8B—July 1, 1971-June 30, 1972

White	26,773	112,623	42.0	85.3
Nonwhite	29,772	18,345	46.7	13.9
Puerto Rican	63,783	132,040	100.0	100.0

Table 8C—July 1, 1970-June 30, 1972

White	50,700	191,932	44.2	87.2
Nonwhite	51,542	26,697	44.9	12.1
Puerto Rican	12,460	1,534	10.9	0.7
Total:	114,702	220,163	100.0	100.0

Nonresidents

Among nonresidents the proportion of nonwhite rose from 9.5% to 13.9% and the Puerto Rican from 0.5% to 0.8% with the white still predominating.

For the two years combined, data indicated 44.2% of residents were white whereas among nonresidents 87.2% were white; while 44.9% of residents were nonwhite and among nonresidents 12.1% were nonwhite. This latter figure is consistent with the proportion of nonwhite in the childbearing group for the USA based on 1970 census—12.5%.

Parity Distribution (Table 9)

56.4% of residents undergoing abortions the first year had previous pregnancies; this proportion rose to 61.2% the second year. The increase was primarily in the group who had from one to three previous pregnancies since those with four or more remained fairly stable.

Among nonresidents, the proportion of women with previous pregnancies also increased from the first year to the second year from 34.6% to 38.9%.

The proportion of residents with a first pregnancy undergoing abortion declined from 43.6% the first year to 38.8% the second year. The proportion of nonresidents with a first pregnancy also declined from 65.4% to 61.1% the second year.

For the two years combined among residents, 59.1% were women with previous pregnancies, whereas among nonresidents only 37.2% were women with previous pregnancies.

Thus, the majority of nonresidents were primipara whereas a greater proportion of residents were multipara.

Complications by gestation (Table 10)

Source of Information: Weekly Reports

Comparing the complication rates for first year and second year, we note that the overall rate declined from 8.5/1000 abortions to 7.2/1000. Specifically the incidence of hemorrhage declined from 1.5 to 0.9; infection from 1.9 to 1.3 and perforated uterus from 1.5 to 1.0. However, the incidence of retained tissue increased for 2.2 to 3.3/1000.

For complications following early abortions (12 weeks or less gestation), the rate dropped from 4.6 to 3.0/1000 the second year. Perforation (0.9) and infection (0.9) per 1000 abortions in the second year were the two major complications reported for early termination.

However, for late terminations (13 weeks and over) the complication rate rose from 26.8 to 28.6 per 1,000 abortions in the second year with the complications of retained tissue accounting for the major portion of the rise.

For the two years combined the overall complication rate for each termination (12 weeks and less) was 3.7 whereas for late terminations (13 weeks or over gestation) the complication rate was 27.8 which is 7x greater than the rate for the early termination. However, for the second year alone the complication rate for late termination was almost 10x greater.

Complications Following Abortion by Method of Termination (Table 11)

The suction method as noted in the first year carried the lowest complication rate of 4.4 declining further to 3.2

Table 9A—Number and per cent of Induced Abortions in New York City to Residents and Nonresidents by Order of Pregnancy July 1, 1970-June 30, 1971

Pregnancy order	Numbers		Percent of total stated	
	Residents	Nonresidents	Residents	Nonresidents
1st	21,848	57,317	43.6	65.4
2nd-4th	21,976	24,217	43.8	27.6
5th or more	6,309	6,105	12.6	7.0
Total stated	50,133	87,639	100.0	100.0
Not stated	786	484	1.5	0.5
Grand total	50,919	88,123		

Table 9B—July 1, 1971-June 30, 1972

1st	24,458	80,167	38.8	61.1
2nd-4th	30,350	41,116	48.2	31.3
5th or more	8,162	10,008	13.0	7.6
Total stated	62,970	131,291	100.0	100.0
Not stated	813	749	1.3	0.6
Grand total	63,783	132,040		

Table 9C—July 1, 1970-June 30, 1972

1st	46,306	137,484	40.9	62.8
2nd-4th	52,326	65,333	46.3	29.8
5th or more	14,471	16,113	12.8	7.4
Total stated	113,103	218,930	100.0	100.0
Not stated	114,702	220,163	1.4	0.6
Grand total	114,702	220,163		

Table 10A—Complications Following Abortion, by Type and Period of Gestation, Numbers and Rates Per 1,000 Abortions—New York City July 1, 1970-June 30, 1971

Type of complication	Total Number	12 weeks and Under		13 weeks and Over		
		Rate	Number	Rate	Number	Rate
Hemorrhage	192	1.5	84	0.8	108	4.7
Infection	248	1.9	102	0.9	146	6.3
Perforated uterus	192	1.5	168	1.5	24	1.0
Anesthesia	12	0.1	7	0.1	5	0.2
Shock	9	0.1	2	*	7	0.3
Retained tissue	289	2.2	56	0.5	233	10.1
Failure	67	0.5	5	*	62	2.7
Lacerated cervix	31	0.2	24	0.2	7	0.3
Other	66	0.5	42	0.4	24	1.0
Unspecified	11	0.1	7	0.1	4	0.2
Total complications:	1,117	8.5	497	4.6	620	26.8
Total abortions:	131,956		108,817		23,139	

Table 10B—July 1, 1971-June 30, 1972

Hemorrhage	187	0.9	56	0.3	131	4.0
Infection	253	1.3	157	0.9	96	2.9
Perforated uterus	191	1.0	156	0.9	35	1.1
Anesthesia	14	0.1	14	0.1	0	—
Shock	1	*	0	—	1	*
Retained tissue	668	3.3	60	0.4	608	18.7
Failure	41	0.2	9	0.1	32	1.0
Lacerated cervix	38	0.2	36	0.2	2	0.1
Other	45	0.2	20	0.1	25	0.8
Unspecified	3	*	2	*	1	*
Total complications:	1,441	7.2	510	3.0	931	28.6
Total abortions:	199,569	167,012			32,557	

Table 10C—July 1, 1971-June 30, 1972

Hemorrhage	379	1.1	140	0.5	239	4.3
Infection	501	1.5	259	0.9	242	4.3
Perforated uterus	383	1.2	324	1.2	59	1.1
Anesthesia	26	0.1	21	0.1	5	0.1
Shock	10	*	2	*	8	0.1
Retained tissue	957	2.9	116	0.4	841	15.1
Failure	108	0.3	14	0.1	94	1.7
Lacerated cervix	69	0.2	60	0.2	9	0.1
Other	111	0.3	62	0.2	49	0.9
Unspecified	14	*	9	*	5	0.1
Total complications:	2,558	7.7	1,007	3.7	1,551	27.8
Total abortions:	331,525		275,829		55,696	

*Less than 0.05.

NOTE:

Source of Information: *Weekly Reports*.

per 1,000 abortions (performed by suction) the second year.

The complication rate for D & C which was 5.9 per 1,000 the first year dropped to 3.0 per 1,000 (D & C abortions) the second year. For specific complications, D & C compared to suction showed higher rates for perforated uterus (1.5 compared to 0.9) and for hemorrhage (0.6 compared to 0.3). On the other hand, incidence of infection appeared higher for suction (1.1 compared to 0.3) than for D & C.

The saline instillation method was associated with the highest complication rate the second year. Unlike the other

methods which exhibited a reported decrease in rates of complications, the saline method was associated with a rise from 31.6 per 1,000 abortions (saline method) to 36.1 in the second year. Retained tissue accounted for almost all of the rise. The saline method the second year carried a complication rate which was more than ten times greater than the suction and D & C methods.

For the two years combined, the saline method yielded the highest complication rate (34.2 per 1,000 saline abortions) followed by hysterotomy (28.5 per 1,000 hysterotomies), then

Table 11A—Complication Rates Per 1,000 Abortions by Type and Method of Termination, New York City July 1, 1970-June 30, 1971

Type of complication	Method of Termination				
	Total	Dilatation & curettage	Suction	Saline	Hysterotomy
Hemorrhage	1.5	1.3	0.8	5.0	4.9
Infection	1.9	1.1	0.8	7.6	13.7
Perforated uterus	1.5	1.8	1.6	0.1	6.9
Anesthesia	0.1	0.1	0.1	0.2	1.0
Shock	0.1	0.1	*	0.3	1.0
Retained tissue	2.2	0.6	0.5	13.4	2.0
Failure	0.5	*	0.1	3.6	—
Lacerated cervix	0.2	0.3	0.2	0.1	1.0
Other	0.5	0.4	0.4	1.0	3.9
Unspecified	0.1	0.2	*	0.2	—
Total:	8.5	5.9	4.4	31.6	34.3

Table 11B—July 1, 1971-June 30, 1972

Hemorrhage	0.9	0.6	0.3	5.2	—
Infection	1.3	0.3	1.1	3.7	9.0
Perforated uterus	1.0	1.5	0.9	0.2	4.5
Anesthesia	0.1	0.1	0.1	—	—
Shock	*	—	—	*	—
Retained tissue	3.3	0.2	0.5	24.7	—
Failure	0.2	*	0.4	1.3	—
Lacerated cervix	0.2	0.2	0.2	0.1	—
Other	0.2	*	0.1	0.8	6.0
Unspecified	*	—	*	*	—
Total:	7.2	3.0	3.2	36.1	19.5

SOURCE: Weekly Abortion Reports

Table 11C—July 1, 1970-June 30, 1972

Hemorrhage	1.1	0.9	0.5	5.1	3.0
Infection	1.5	0.7	1.0	5.3	11.9
Perforated uterus	1.2	1.6	1.1	0.2	5.9
Anesthesia	0.1	0.1	0.1	0.1	0.6
Shock	*	*	*	0.1	0.6
Retained tissue	2.9	0.4	0.5	20.1	1.2
Failure	0.3	*	0.1	2.3	—
Lacerated cervix	0.2	0.3	0.2	0.1	0.6
Other	0.3	0.2	0.2	0.9	6.0
Unspecified	*	0.1	*	0.1	—
Total:	7.7	4.3	3.7	34.2	28.5

*Less than 0.05

NOTE: Source of Information: Weekly Reports

D & C (4.3 per 1,000 D & C abortions) and least for suction method (3.7 per 1,000 abortions by suction).

Mortality Associated with Pregnancy (Abortion and Non-Abortion) (Figure 1)

Abortion fatalities accounted for 29 deaths in New York City in the two-year period. Of these, 16 were legal (4.0 per 100,000 abortions). Eight of the 16 deaths followed legal abortions, were associated with the saline instillation method. The mortality rate for saline terminations rose from 9.0 per 100,000 saline abortions the first year to 22.2 the

second year—a significant increase further substantiating the greater risks involved in the saline method.

During the first year of the experience with the liberalized abortion law, there were eight deaths following legal abortions or a rate of 4.6 per 100,000 legal abortions. Among the deaths following legal abortions, one followed suction, two D & C, two saline and three hysterotomy.

In the second year, eight fatalities, six saline and two hysterotomy, were associated with legal abortions or a rate of 3.5 per 100,000 legal abortions. There were no deaths reported in New York City following suction or D & C the second year.

Figure 1—Puerperal Mortality Total, Non-Abortions, Abortions, 2-Year Periods—July June 1972.

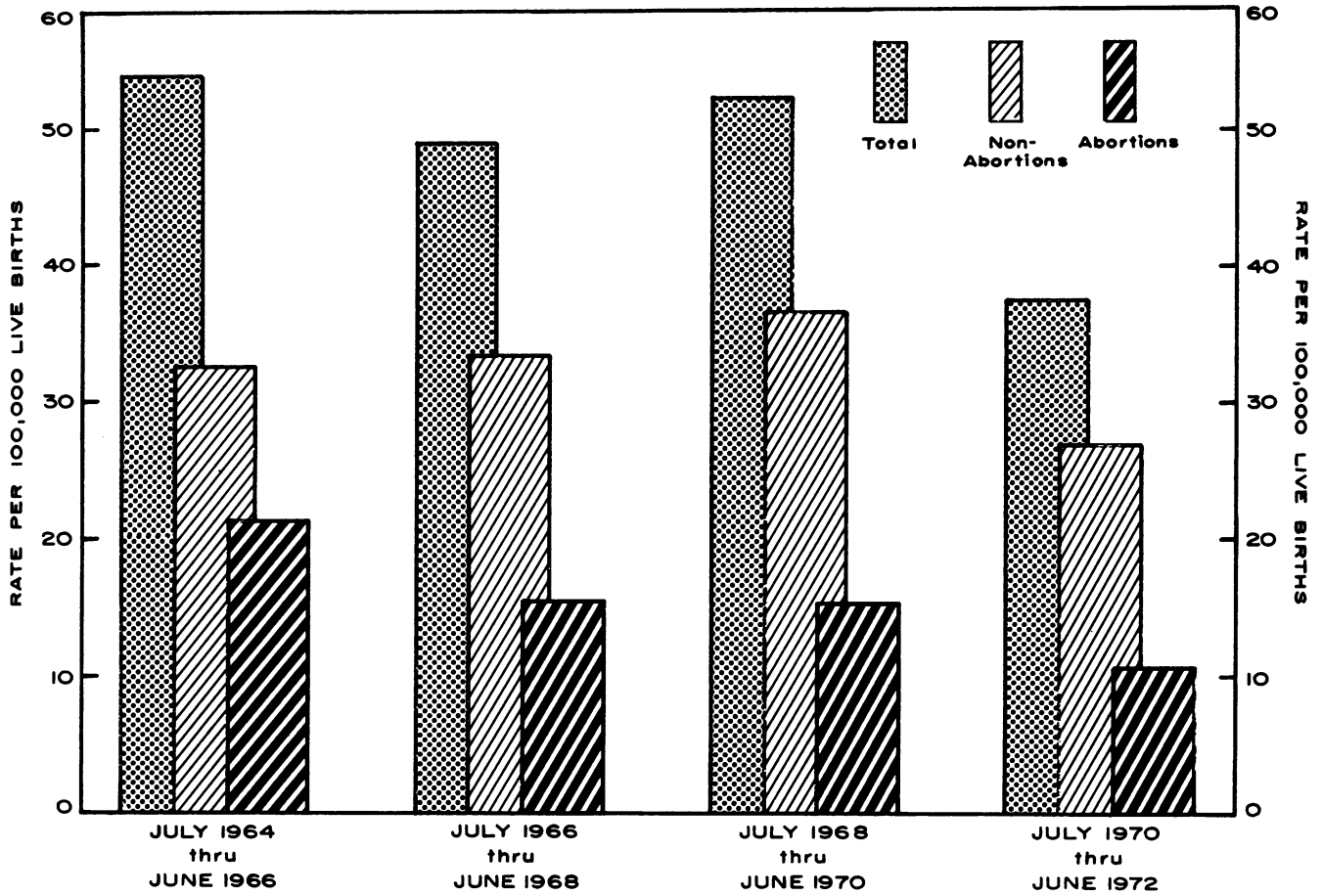
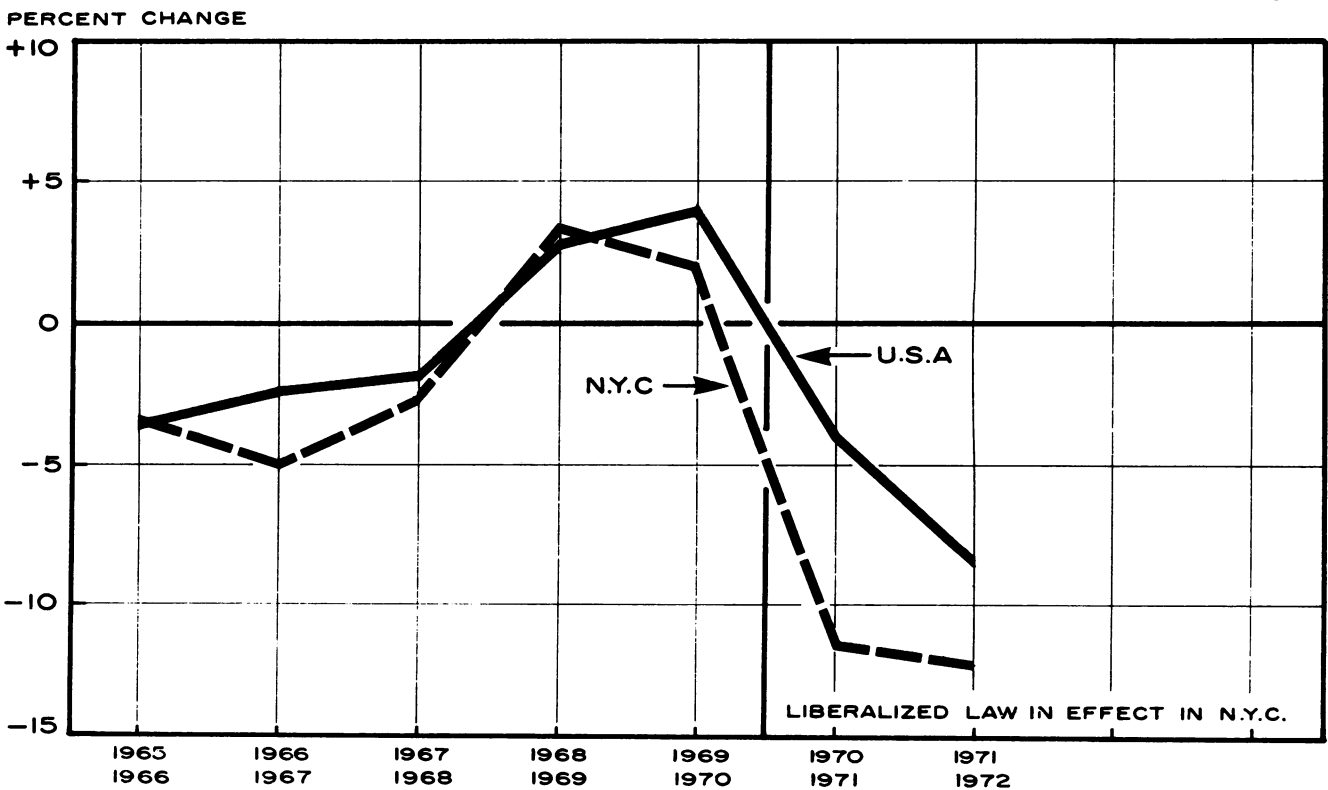


Figure 2—Annual Per cent Change in Number of Live Births: United States and New York City 1965 Through 1972



For the two-year period combined, 16 deaths occurred in New York City following legal abortions or a rate of 4.0 per 100,000 legal abortions.

Illegal abortions accounted for seven deaths the first year and six the second, or a total of 13 for the two-year period.

Traditionally, maternal mortality rates defined as deaths per 10,000 live births have included abortion associated deaths. Prior to the liberalized law (enacted July 1970) all such abortion deaths were in the illegal category. Now the rates have included both the legal and illegal abortion fatalities.

During the two years prior to the enactment of the law the total maternal mortality rate (abortion and non-abortion associated) was 5.2 per 10,000 live births with a rate of 1.5 for abortion associated and 3.7 for non-abortion associated. In the subsequent two-year period, July 1970-June 1972, the total rate declined to 3.8 per 10,000 live births with the abortion associated component 1.1 per 10,000 live births and the non-abortion component 2.7 per 10,000 live births representing a significant decline in both components especially the abortion-associated segment.

"Repeaters"

Records indicated that 6,459 (1.9%) of the abortions reported in New York City were for women who had had a previous termination of pregnancy within the two-year period starting July 1, 1970. Of these, 2,588 (2.8%) were to residents and 3,842 (1.7%) were to nonresidents.

Impact on Births and Birth Rates (Figure 2)

It was postulated that a liberalized abortion law would be associated with a subsequent decline in births and birth rates. This indeed appears to have occurred. In New York City in 1971 births declined from 149,192 in 1970 to 131,920 or a decline of 11.6%. The incidence of low birth weight infants was reported as 9.2% in 1971 (the lowest since 1958).

In 1972, total births declined further to 115,499, a decline of 12.4%.

The national decline in births reported for 1971 was 4.3% declining further in 1972 by 8.8%.

Impact on Out-Of-Wedlock Births

For the first time since data on out-of-wedlock births were collected, a reversal in the steady rise of such births has been noted. This was evidenced by a drop in out-of-wedlock births from 31,929 in 1970 to 28,099 in 1971, a decline of 12%. (Figures for 1972 are not yet available.)

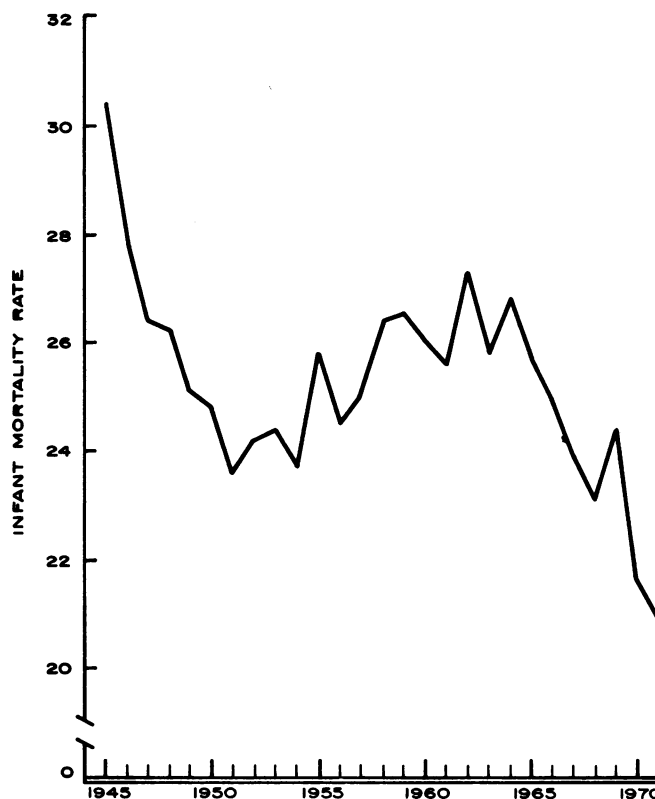
Impact on Infant Mortality (Figure 3)

In 1971, the infant mortality rate declined to a record low of 20.8 per 1,000 live births. This record was surpassed in 1972 with a further decline in mortality to 19.8 per 1,000 live births.

The neonatal mortality (infant deaths under 28 days of age) declined from 16.3 in 1970 to 14.9 per 1000 live births in 1971 and remained at that level in 1972.

The decline in low birth weight infants and out-of-wedlock births which have long been associated with much

Figure 3—Infant Mortality Rates in New York City



higher mortality rates undoubtedly contributed to the decline in mortality.

Summary and Conclusion

The experience during a period of two years with a liberalized abortion program in New York City has been reviewed.

Data collected in New York City indicate that the number of abortions rose by 40% in the second year compared to the first, more so for nonresidents than for residents. Nonresidents accounted for almost two-thirds of all abortions performed during the two-year period.

Free standing clinics of which there were 24 in number by the second year accounted for the greatest number of abortions performed in New York City. For nonresidents, this category became the major provider the second year replacing the proprietary hospitals which were the primary providers the first year.

Residents still utilized the hospitals chiefly both voluntary and municipal but appeared to be resorting to free standing clinics more often than in the first year.

As time went by, the proportion of early abortions (performed before 13 weeks gestation) for residents increased in the second year accounting for 80.7% of all abortions, an even better record than the nonresidents. Well over three-fourths of abortions were performed before the thirteenth week.

The suction method emerged as the major mode for terminations while the D & C concomitantly declined.

The saline method has been the major one utilized for late terminations while the hysterotomy has declined.

As early terminations have been diverted more and more to free standing clinics over the two-year period, the proprietary hospitals have performed an increased proportion of late terminations. In fact, the proportion of saline terminations in proprietary hospitals has even exceeded that of the municipal hospitals which showed the highest proportion the first year.

The greatest proportion of women seeking abortions has been in the 20-29 year age group. However, teenagers constituted a rising proportion. Among non-residents over one-third were teenagers while among residents less than one-fifth were teenagers.

Women of all races and ethnic groups obtained abortions.

Among residents the ratio of abortions to live births was about 400 per 1,000 with the highest ratio (563 per 1,000) for nonwhite and lowest (250 per 1,000) for Puerto Rican. The white was intermediate at 373 per 1,000.

Among nonresidents the predominantly white pattern persisted although the second year showed a slight increase in the proportion of nonwhite (to 13.9%).

By the second year, it became apparent that an ever-increasing per cent of the resident group were multiparae (1-3 previous pregnancies) constituting over 60%.

For nonresidents, on the other hand, over 60% were primiparae or experiencing a first pregnancy.

The incidence of all reported complications declined in the second year from 8.5 to 7.2 per 1,000 abortions.

For early terminations, the complication rate declined. However, for late terminations, the rate rose.

For the two years combined, the complication rate for late terminations was seven time greater than for early terminations.

For the second year, the saline method yielded a complication rate which was over ten times greater than suction or D & C.

Fatalities associated with abortion for the two-year period totaled 29 of which 16 following legal and 13 illegal abortions.

Among the 16 legal, eight followed saline and five followed hysterotomy. The mortality rate for saline method rose from 9.0 to 22.2/100,000 in the second year.

There were no reported deaths following D & C and suction in the second year.

Thirteen deaths were associated with illegal abortions. No rate can be calculated for this category since the denominator is undetermined.

The decline in births noted in 1971 has persisted in 1972 with a further decline of 12.4%, exceeding the decline of the USA of 8.8%.

During this two-year period, record lows were estimated for maternal and infant mortality in New York City.

In conclusion, the abortion program has been associated with a decline in maternal and infant mortality and a decline in births. Recognition must still be given to the need: 1) to stress the importance of family planning to effect a reduction in the number of abortions and prevent "repeaters"; 2) to alert women who desire to terminate a pregnancy to seek the abortion before the 12th week; 3) to uphold and maintain high standards of care for maternity, family planning and abortion services through continued surveillance and the continued cooperation of the medical profession in order to protect women seeking these services; and 4) to have the law liberalized regarding abortion throughout the United States so that women could obtain a desired termination of pregnancy in her own locality avoiding the strain and expense incurred and the increased risk because of insufficient follow-up.

Dr. Pakter is Director, Bureau of Maternity Services and Family Planning, Dr. O'Hare is Assistant Commissioner, Ms. Nelson is Principal Statistician, and Mr. Svigir is Senior Statistician, New York City Department of Health. This paper was presented before the Maternal and Child Health Section of the American Public Health Association at the One Hundredth Annual Meeting in Atlantic City, New Jersey on November 15, 1972.

"VIRUSES IN THE WATER ENVIRONMENT" 1973 Engineering Foundation Conference

A conference on "Viruses in the Water Environment" is scheduled to be held at New England College, Henniker, New Hampshire, July 1-6. Dr. Gerald Berg, Chief of Virology, Advanced Waste Treatment Research Laboratory, Environmental Protection Agency, Cincinnati, Ohio, and Dr. Otis J. Sproul, Professor of Civil Engineering, University of Maine, Orono, will act as co-chairmen.

The Engineering Foundation Conferences were established in 1962 to provide an opportunity for the exploration of problems or issues of concern to engineers from many disciplines and to other professional groups as well.

Attendance, limited to 100 persons, is by invitation or application. The conference fee is \$160 covering registration, double occupancy room and meals (add \$10 for single room accommodations).

Further information and application forms may be obtained from the Engineering Foundation, 345 East 47 Street, New York, N.Y. 10017.