

# Community Cancer Demonstration Project in Dade County, Florida

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ON January 1, 1960, the Florida State Board of Health, in cooperation with the State welfare department, began a project that envisioned screening for uterine cancer those women throughout Florida who receive funds under the aid to dependent children (ADC) program. This particular group of women was selected because, as a number of epidemiologic studies have shown, medically indigent women in a setting of unfavorable socioeconomic and related factors constitute a group with above-average susceptibility to uterine cancer (1-6). Furthermore, because uterine cancer occurs most frequently in women during the middle years of their life, a screening project that would lead to the early diagnosis and treatment of this disease presumably would result in salvaging many women still in their productive work years and still responsible for the care and upbringing of children. Finally, it was demonstrable that few, if any, of these women who depend upon public agencies for their medical well-being had been examined for uterine cancer.

The magnitude of our concern might be measured by the number of deaths from uterine cancer. Given the techniques of asymptomatic diagnosis, almost all such deaths in the future should be preventable. In 1960, 469 women in

Florida died of uterine cancer; 293 of these deaths were attributable to primary cancer of the cervix.

## Initiation of Project

In developing our plans for this project, we selected Dade County in which to begin operations because of the large number of ADC recipients there, the availability of pathological consultation and treatment services, and the interest of responsible agencies.

The Florida Cancer Council and the Dade County Medical Society approved the project, and the director of the Dade County Health Department gave his full cooperation. Others who participated in the planning were representatives of the Southeastern Florida Pathological Association, the three tumor clinics in Dade County, the director of the Central Cytology Laboratory of the University of Miami, district 9 of the State welfare office, and the Dade County unit of the Florida division of the American Cancer Society.

To help finance the cost of this project, we applied for and received a Community Cancer Demonstration Project grant from the Public Health Service. The Cancer Control Branch of the Service, which is administering the grant, also assigned a physician, a public health nurse, and a program adviser to assist in the operations of the project. Later, a health educator and a clerk were added to complete the cancer control team.

Three principal objectives of the project were agreed on by the planning committee:

- To demonstrate the feasibility of screening

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relatively large numbers of medically indigent women for cervical cancer and to obtain treatment for those with the disease.

- To inform practicing physicians and other responsible people in the community of the need, feasibility, and benefits of routine cytological screening.
- To improve communications and operations among local tumor clinics and laboratories providing cytological and pathological services.

### Methods and Materials

Prior to commencing screening, we devised suitable forms for history, followup, and other information and procured supplies and equipment, such as speculums, spatulas, aspirators, and disposable rubber gloves.

Since we were depending primarily upon letters to inform women of the program, we developed a series of letters which we called simply, "first," "second," "negative," and "need for further examination." These letters were written on the stationery of the Dade County Health Department so that the program would be seen as being closely affiliated with the local health department. The letters were pretested on a random sample of the target population.

The screening of patients began on June 6, 1960. All patients were seen in the clinic by appointment. A brief medical and personal history, such as pregnancy status, menstrual history, and age at first pregnancy, was taken on each patient, and the purpose and procedure of the examination were explained to them. The women were then instructed to void their bladders, after which they were placed on the examining table.

The examination consisted of a visualization of the cervix, aspiration of material from the posterior fornix with a glass pipette, and scraping the cervix with a spatula. Two slides, one from the cervical scraping and one from the vaginal pool, were prepared and sent to selected local pathologists for processing and reading. A duplicate set of slides was sent to the director of the Central Cytology Laboratory at the University of Miami for special study. Thus, each woman had the benefit of a dual reading. In the event that the visual examination revealed a suspicious-looking lesion, a Schiller test was

### Millburn Screening Program

Cervical cancer was found in three asymptomatic women in Millburn, N.J., as a result of a community-wide cancer prevention program, according to a report by the Cancer Cytology Foundation of America. The Millburn program, the first of a projected series, is the first organized attempt to screen every woman over age 20 in a given community, although the foundation's Florida division screens about 5,000 women a year in Miami at the request of local physicians.

immediately performed, and tissue was biopsied from the suspected areas. This was followed by a bimanual examination.

When atypical, suspicious, or positive cytological findings were reported by any one of the examiners, the patient was notified in writing that further study was needed, and the letter was delivered personally by one of the public health nurses assigned to the case by the Dade County Health Department. An early appointment was immediately made with one of the three tumor clinics in Miami for followup study of the patient.

In the majority of the followup cases, the tumor clinics repeated the Papanicolaou smear. Thus, we have the results of smears taken by two different physicians and, in some instances, the readings of three different laboratories.

**Table 1. Proportion of women receiving aid to dependent children funds eligible for uterine cancer examinations and those examined, by age and race, Dade County, Fla., 1960**

Age (years)	Number eligible		Examined			
			Number		Percent	
	White	Non-white	White	Non-white	White	Non-white
15-29-----	103	557	39	204	37.9	36.6
30-44-----	285	778	131	440	46.0	56.6
45-59-----	215	329	63	125	29.3	38.0
60 and over----	30	90	7	30	23.3	33.3
Total	633	1,754	240	799	37.9	45.6

Biopsies, either punch or cone, or both, were performed when indicated at the tumor clinics. Treatment followed if the biopsy was positive for cancer.

### Problems

Such unforeseen acts of nature as hurricanes and such premeditated acts of man as an 8-week bus strike seriously disrupted the transportation system and prevented many women from keeping their appointments at the clinic.

Most of the women were domestics, and they were reluctant to attend clinics if attendance required them to be away from their jobs. We tried to make the clinic as convenient as possible, in both time and place.

A deeper problem seemed to restrain the young girls and older women from coming in for an examination. Several fears entered into the picture: the fear of finding cancer, the fear of sterilization, the boy friends' fears that the sex life of their girl friends would be interfered with, the fear of the girls that an examination of this type would reveal their past activities, and others of a similar nature.

A small study of the women who did not keep their appointments revealed that 25 percent of the group had medically logical reasons for not coming in, such as advanced pregnancy or a recent hysterectomy.

### Findings

As table 1 shows, 1,039 women, or 43 percent of the target population, were screened for cervical cancer in Dade County during the period June 6–December 15, 1960. Of these, the majority came to the clinic as a result of one or more letters. For the purposes of this study, Spanish-speaking women were placed in the "white" group. The nonwhite group represented 73.5 percent of the total eligible population, and 77 percent of the total number examined.

Participation was proportionately greater for women between the ages of 30 and 45, both white and nonwhite, than for any other age group (table 1). Thus, for some reason, the age group which is most prone epidemiologically to cervical cancer responded more readily

than did other age groups. Perhaps one explanation may lie in the fact that women 30–44 years old seemed to know more about cervical cancer than women in the younger or older groups.

*Cytological findings.* Of the 1,039 women examined, 85, or 8 percent, showed abnormal cytological findings. Table 2 presents the results of the cytological examinations. The differences between the white and nonwhite populations were not significant, and could be due to chance variation.

Table 3 shows the age-specific rates for women whose smears revealed atypical, suspicious, or positive cells. The nonwhite women

**Table 2. Cytological findings among 1,039 aid to dependent children recipients examined for uterine cancer, Dade County, Fla., 1960**

Cytological findings	Women examined					
	Total		White		Nonwhite	
	Number	Percent	Number	Percent	Number	Percent
Negative-----	951	91.5	222	92.5	729	91.2
Atypical-----	43	4.1	9	3.8	34	4.3
Suspicious-----	29	2.8	5	2.1	24	3.0
Positive-----	13	1.3	2	.8	11	1.4
Unsatisfactory---	3	.3	2	.8	1	.1
Total-----	1,039	100.0	240	100.0	799	100.0

**Table 3. Number of atypical, suspicious, and positive cytological smears and age-specific rates per 1,000 aid to dependent children recipients examined, Dade County, Fla., 1960**

Age	Atypical, suspicious, and positive smears					
	Total		White		Nonwhite	
	Number	Rate per 1,000	Number	Rate per 1,000	Number	Rate per 1,000
15-29-----	27	111.1	2	51.1	25	122.1
30-44-----	43	75.2	8	61.9	35	79.2
45-59-----	10	53.3	5	79.2	5	40.0
60 and over----	5	135.5	1	142.6	4	133.1
Total-----	85	81.8	16	66.2	69	86.3

in the age group 15-29 years had a higher rate of abnormal cells than did the white women of the same age, and both white and non-white women 60 years of age and older also had high abnormal findings. The high rate in the youngest age group would seem to bear out the conclusion of Jones and his co-workers (7), in which they emphasize "the importance of the socioeconomic complex of relative poverty (at least in early life) with rapid maturation sexually and a haste to begin early . . . the reproduction phase of biologic destiny." The high rate of abnormal cells for both the youngest and the oldest age groups would also seem to indicate a lower specificity of the examination for women in those age groups. Hence, if economics is a concern, one would do well to concentrate his efforts on the middle-aged group, women between 30 and 59.

*Histologic findings.* As stated earlier, the 85 patients with abnormal cytological findings were followed in the Dade County tumor clinics. Table 4 shows the number and type of uterine cancers diagnosed histologically and gives the rate per 1,000 detected as the result of the first cytological examination and proved by biopsy. Intraepithelial carcinoma is defined, for this study, as a cellular abnormality that has all the pathological characteristics of a true carcinoma, without evidence of invasion.

**Table 4. Number and rate of histologically proved uterine cancers, per 1,000 aid to dependent children recipients examined, Dade County, Fla., 1960**

Type of lesion	Women histologically positive					
	Total		White		Nonwhite	
	Number	Rate per 1,000	Number	Rate per 1,000	Number	Rate per 1,000
Intraepithelial carcinoma of cervix-----	31	29.8	5	20.8	26	32.5
Invasive carcinoma of cervix	3	2.9	2	8.3	1	1.3
Cancer of corpus	0	0	0	0	0	0
Other uterine cancers-----	0	0	0	0	0	0
Total-----	34	32.7	7	29.2	27	33.8

**Table 5. Number of aid to dependent children recipients referred to the Central Cytology Laboratory, University of Miami, for diagnosis, by reason for referral, and number histologically positive, Dade County, Fla., 1960**

Reason for referral	Number referred	Histologically positive	
		Number	Percent
Cytological findings-----	85	33	38.8
Atypical smear-----	43	8	18.6
Suspicious smear-----	29	17	58.6
Positive smear-----	13	8	61.5
Physical findings-----	6	1	16.6
Total-----	91	34	37.3

The anticipated high rate of prevalence of uterine cancer in this group has certainly been borne out by the finding of 32.7 cases of cervical cancer per 1,000 women examined. This rate is considerably higher than that found in Memphis, where the rate was about 8 per 1,000 (8). In our study, too, nonwhites had only a slightly higher rate than whites, the difference being statistically nonsignificant, whereas the nonwhites in the Memphis study had a significantly higher rate than the whites.

Table 5 compares abnormal cytological findings with positive histological findings. The proportion of cases referred for diagnosis, and later diagnosed as positive, is significantly higher in the suspicious and positive group than in the atypical group. Six patients were referred to the clinics because of physical findings. All of these had negative cytological results, but the physical examination suggested further study. The women were followed in the same manner as those with suspicious or positive smears. Only one of these six yielded a cervical cancer, a rate of 17 percent.

A particularly significant finding was uncovered by isolating the suspicious, or Papanicolaou class III, smears. Of 29 patients with class III smears referred for diagnosis, 17, or 59 percent, were proved by biopsy to have cervical cancer. This compares with the report by Ferguson and Demick of the University of Miami, who found that 32 patients out of 65, or 49 percent, having class III smears were

**Table 6. Number of aid to dependent children recipients referred to the Central Cytology Laboratory, University of Miami, for diagnosis and number and percent histologically positive, by age and race, Dade County, Fla., 1960**

Age (years)	Total			White			Nonwhite		
	Number referred	Positive		Number referred	Positive		Number referred	Positive	
		Number	Percent		Number	Percent		Number	Percent
15-29.....	30	5	16.7	2	0	0	28	5	17.9
30-44.....	45	24	53.3	8	5	62.5	37	19	51.3
45-59.....	10	2	20.0	5	1	20.0	5	1	20.0
60 and over.....	6	3	50.0	1	1	100.0	5	2	40.0
Total.....	91	34	37.3	16	7	43.8	75	27	36.0

found by diagnostic conization to have cervical cancer (9). Thus, we must emphasize the importance of complete study and followup of patients with smears in this class.

#### Discussion

The Papanicolaou smear has again proved its usefulness in the early diagnosis of unsuspected cancers in women in their productive work years.

In this series of proved cases of cervical cancer, it is important to note that 33 cases, or 97 percent, were clinically unsuspected at the time of screening. Only one patient referred to the tumor clinic because of physical findings was found, by histological diagnosis, to have a carcinoma in situ.

Table 6 shows that whereas 34 patients, or 37 percent of those referred for diagnosis, were diagnosed as having cancer, there was a large variation in this rate when cancer incidence was analyzed by age. Thirty women in the youngest age group, 15-29 years, were referred for diagnosis, but only 5, or 17 percent, proved to have cancer. On the other hand, in the age group 30-44 years, 24 out of 45 cases referred, or 53 percent, were diagnosed as cancer. This variation also holds true when the patients are analyzed by race.

#### Summary

Of 2,387 women in Dade County, Fla., who were receiving funds under the aid to dependent children program and who were eligible

for a uterine cancer screening examination, 1,039 volunteered for the examination.

Of the 1,039 women examined, 85 or 8.2 percent, were found to have abnormal cytological findings. These patients were followed in the three Dade County tumor clinics. Thirty-four women, or 32.7 per 1,000, were diagnosed histologically as having cervical cancer. Ninety-one percent of the cases were intraepithelial carcinomas of the cervix.

The 29 women whose smears were termed suspicious (Papanicolaou class III) yielded 17 cases of cervical cancer.

The belief that the target population was at high risk of having uterine cancer, and that screening them for this disease would be worth while, has been amply demonstrated.

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## Legal Note . . . Fluoridation

City ordinance for fluoridation of water supplied by municipal waterworks upheld as health measure. *Wilson, et al. v. City of Council Bluffs, Iowa*, 110 N.W. 2d 569 (Iowa 1961).

The plaintiffs, residents, and taxpayers of the City of Council Bluffs, attacked the city ordinance directing the fluoridation of water supplied by the city as (a) beyond the authority of the city, and (b) as directing the sale of poison prohibited by statute. The city appealed to the Iowa Supreme Court from the judgment of the trial court that the city had no statutory authority to enact the ordinance.

The supreme court noted that it was conceded by the plaintiffs that the addition of fluoride would not affect the purity or potability of the water and that no contention was made that the amount of fluoride to be added exceeded that recommended for the reduction of dental caries.

Addressing itself to the question of the city's authority, the court quoted the State statutes authorizing municipal corporations to adopt ordinances to "preserve the health" of their inhabitants (sec. 366.1, Code 1958, I.C.A.) and to act for "the protection of their . . . inhabitants" (sec. 368.2, Code 1958). The ordinance, it said, was clearly deemed necessary by the city to "preserve . . . health."

The supreme court rejected the holding of the trial court that since "dental caries is neither a contagious nor an infectious disease" fluoridation intended to prevent dental caries in children is not

related to the public health. The mere fact that a health measure is designed to aid only a segment of the community, and not the whole community, declared the court, does not affect the power of the city to adopt it. Accordingly, it held, the authority of the city to adopt the ordinance is "necessarily implied" under sections 366.1 and 368.2 of the Code cited above.

The argument that fluoridation of water sold by the city was a violation of the statute prohibiting the sale of poisons, including sodium fluoride, except by licensed druggists, was summarily dismissed by the court. Even if sodium silicofluoride, which would be used for fluoridation, fell within the statutory prohibition, the court noted that there was no claim that the amount to be added would poison the water or make it less pure or potable, and called attention to the fact that much of the water in Iowa has, in its natural state, a fluoride concentration equal to or in excess of that proposed to be added in this case.

The decree of the trial court was reversed and the plaintiff's petition dismissed.—SIDNEY EDELMAN, *assistant chief, Public Health Division, Office of General Counsel, Department of Health, Education, and Welfare.*