



Evaluation of the Cervical Cancer Control Program in Cuba¹

Since 1970, cancer of the uterine cervix has accounted for 10% of all new cases of malignant neoplasms occurring among women in Cuba. Although the age-adjusted incidence rates in women 30–74 years of age have decreased from 41.3 per 100 000 women in 1970 to 37.8 per 100 000 in 1990, mortality from this cancer has not changed significantly over the past 10 years (1). This situation exists in spite of the fact that in 1968 a nationwide program was instituted to ensure the prompt detection of cervical cancer by making cervical cytology testing available every two years to sexually active women aged 20 and over.

MATERIALS AND METHODS

In order to evaluate the Cuban cervical cancer control program on the basis of indicators of actions and outcomes, an analysis was conducted of the information available on the program for the period 1980–1994. This program has implemented a statistical information system from which the following indicators were obtained: (1) rates of coverage, the numerator of which is equal to the number of annual cytology tests performed multiplied by two and the

denominator of which is the population of women aged 20 and over; (2) the percentage of smears judged by the laboratory to be not useful for diagnostic purposes in relation to the total number of smears taken; and (3) the percentage of true positive smears, with the numerator being the number of positive cytology tests confirmed by histologic examination and the denominator being all cytology tests showing positive results.

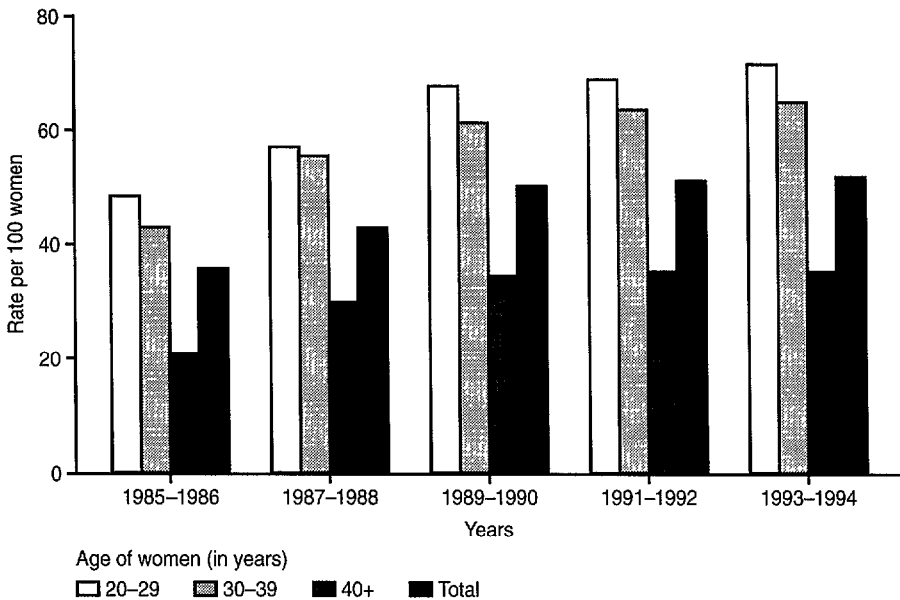
Data on incidence, clinical stage at time of diagnosis, and mortality were taken from the National Tumor Registry. Rates of incidence and truncated rates (for women between the ages of 30 and 74) were adjusted to the world population of both sexes (2).

RESULTS

The estimated coverage achieved by cervical cytology testing during the 1993–1994 biennium was 54.2%. Overall coverage has been increasing, as can be observed in Figure 1. In all periods studied, however, coverage was greatest among women between the ages of 20 and 39, slightly lower among women between the ages of 30 and 39, and much lower among those aged 40 and older. In the 1985–1986 biennium, the rate of coverage for women aged 20–39 was estimated at less than 50%, but in the period 1993–1994 it reached 70%. In contrast, coverage of women aged 40 and above increased from 23% to 30% during the same period.

¹Based on a study conducted by Leticia Fernández Garrote, Juan J. Lence Anta, Evelio Cabezas Cruz, Teresa Romero, and Rolando Camacho, National Institute of Oncology and Radiology, Havana, Cuba.

Figure 1. Rates of coverage of the cervical cancer control program, Cuba, 1985 to 1994.



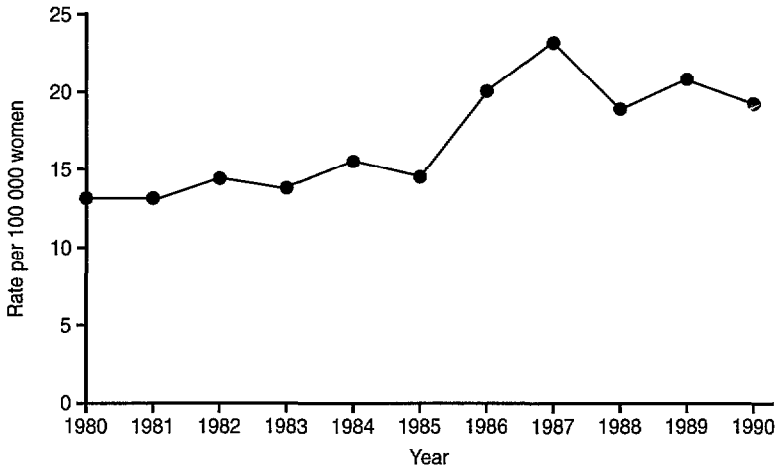
Source: National Statistical Directorate, Havana, Cuba.

A total of 11% of the smears processed during 1993 were deemed to be not useful for diagnostic purposes—an increase of 2% over 1985. Although testing should be repeated in one year when the original sample cannot be used, this is not done in 60% of the cases, and thus no cytological diagnosis is performed. Every year, 1% (equivalent to approximately 10 000 smears) of all cytology tests give positive readings, but only 27% of the initially positive results are confirmed as positive, the remainder being considered false positives.

According to data reported to the National Tumor Registry, the crude incidence rate of invasive cervical cancer remained stable from 1980 to 1984, increased in 1985 and 1986, and stabilized again thereafter (Figure 2). In 1990 the reported incidence was 19.25 per 100 000 women, or nearly 1 000 new cases per year, of which some 60% occurred in women between the ages of 40 and 65. However, the number of cases observed in women under age 40 has in-

creased. Analysis of cases by clinical stage revealed that, in 1982, 20.8% of all cases were diagnosed in stage I. This figure remained unchanged through 1985 and increased in 1986, from which time it has remained steady at around 40.2%, the figure reported in 1990. As expected, there was a simultaneous decrease in cases diagnosed at more advanced stages (Figure 3). In the period 1980-1994, standardized and truncated crude mortality rates (in women aged 30-74) remained stable (Figure 4). A slight increase in the latter half of the 1980s coincided with an increase in the ratio of cervical cancer incidence to the incidence of cancers of other parts of the uterus, which rose from 0.52 in 1985 to 0.84 in 1986 and to 0.90 in 1987, ultimately peaking at 1.05 in 1988. Subsequently, this ratio has again decreased, leveling off at 0.68 in 1991 and 1992 and falling slightly to 0.63 for 1994. These figures are an indication of the degree of variability in diagnostic precision, which is also useful to bear in mind in interpreting

Figure 2. Crude incidence rates of cervical cancer, Cuba, 1980 to 1990.



Source: National Statistical Directorate, Havana, Cuba.

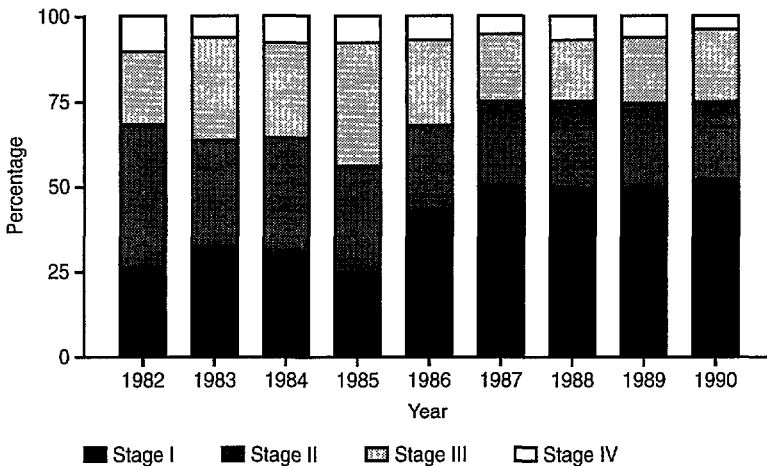
variations in incidence and distribution by clinical stage at time of diagnosis.

DISCUSSION

The increase in the rate of coverage implies that the activities being conducted by

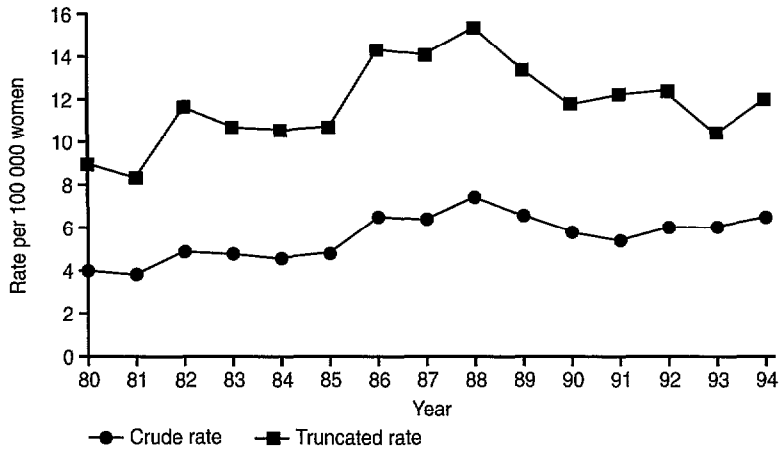
the cervical cancer early detection program have increased throughout the study period. However, priority seems to have been given to testing women between the ages of 20 and 39, as opposed to older women. This phenomenon could be attributable to the organization of the program, which not

Figure 3. Clinical stage of cervicouterine cancer at time of diagnosis, Cuba, 1982 to 1990.



Source: National Statistical Directorate, Havana, Cuba.

Figure 4. Crude rates and standardized* and truncated rates (women aged 30–74) of mortality from cervical cancer, Cuba, 1980 to 1993.



Source: National Statistical Directorate, Havana, Cuba.

*Standardized with respect to world population of both sexes.

only systematically recruits participants but also takes advantage of gynecological and obstetric visits and family planning consultations to enroll women. One of the indicators of quality control measures in cervical cytology is the percentage of smears that cannot be used for diagnosis. There are few studies or international standards or recommendations in the medical literature that identify optimum levels for this indicator (3). A test that is not useful reflects poor quality of both the sample taking and the processing of the smears by diagnostic laboratories. It is important to determine the percentage of cases not cytologically diagnosed owing to an unusable test, as this will reveal the presence of deficiencies in program organization. It is also possible, however, that a certain proportion of these asymptomatic women will refuse to resubmit to cytologic testing within a year.

In the short term, one of the most labile indicators of program effectiveness is the percentage decrease in cases of invasive cancer (stage II or above), which should be less than 30% (4). During the period 1982–1990, Cuba reported a decrease of 26%, a

figure close to that expected. The program appears to have had no impact on either incidence or mortality. It is probable that the increases in both that were observed in the latter half of the 1980s were related to the implementation during that period of a strategy to improve the quality of certification of deaths from cancer. This hypothesis is supported by the changes observed in the ratio of mortality from cervical cancer to mortality from other uterine cancers.

Any strategy devised to make maximum use of resources must aim at achieving greater flexibility in norms and procedures, basing them on regional conditions such as, for example, frequency of the disease, cultural patterns, and available resources. The recommended interval for Pap testing could be increased, particularly for women with more than three consecutive negative smears or, alternatively, resources could be directed toward those women with the least number of Pap test readings. Increased knowledge of high-risk population groups, to which primary care services can contribute significantly, has the potential to greatly increase effectiveness.

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Screening for Cervical Cancer in Brazil¹

The current health scenario in Brazil is characterized by a mixture of chronic and degenerative diseases that are typical of developed societies, as well as nutritional and communicable diseases associated with underdevelopment. The former include cancers of all types, which invariably rank among the first four causes of death in that country (1). Cancer of the uterine cervix in particular is the most common type among women in poor countries, where 80% of all cases diagnosed worldwide occur (2), and constitutes a very significant health problem in Brazil (1).

Cervical cancer is preventable through the administration of cytologic screening tests and currently available treatments. Because this disease is closely linked to sexual practices (3, 4), educational programs dealing with sexually transmitted diseases may also aid in reducing deaths from this cause. The extent of the problem in developing countries points to a need to institute control measures. Three possibili-

ties have been proposed: Pap test screening of the entire at-risk population, colposcopic examinations of all women with abnormal cytology test readings, and referral of these women for biopsies of their lesions.

CURRENT SITUATION IN BRAZIL

Table 1 shows the distribution of carcinoma *in situ* and invasive cervical cancer in Brazil from 1976 to 1980, by age group. In 1993, 146 308 Pap tests were conducted and the results for women of all ages showed the following distribution: grade I intraepithelial neoplasia, 29%; grade II intraepithelial neoplasia, 17%; grade III intraepithelial neoplasia, 17%; squamous cell carcinoma, 7%; and adenocarcinoma, 2%. Of all cancers occurring in either men or women, cervical cancer has ranked either first or second among the 10 most common primary cancers in Brazil since 1976, as shown in Figure 1.

In Porto Alegre, a city located in the state of Rio Grande do Sul, the incidence of cervical cancer was 23.7 per 100 000 women in 1979 and 1982 and 23.8 per 100 000 in 1990. Table 2 shows the mortality associated with this disease in the city and in the state for selected years between 1970 and 1992.

¹ Extract from a study conducted by P. Naud in collaboration with M. Busetti, E. Becker, A. Camozzato, R. Siegler, J. Cavagnoli, E. Machado, G. Bender Lima, and A.R. Timm of the Federal University of Rio Grande do Sul and the Clinical Hospital of Porto Alegre, Brazil.