

ARTIGOS ORIGINAIS

COMMUNITY PROGRAMS TO CONTROL CANCER OF THE CERVIX

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CHAPTER I

A — INTRODUCTION

According to the definition given by the Expert Committee of the WHO (1962), Cancer Control consists of a series of measures based on present medical knowledge in the fields of prevention, detection, diagnosis, treatment, after-care and rehabilitation, aimed at reducing significantly the number of new cases, increasing the number of cures and reducing the invalidism due to cancer.

At the present time cancer is considered a problem of public health and, consequently, its control must be conducted by measures attaining every citizen of a nation. These measures may be carried out either by governmental health services or by private agencies, or still by both kinds of organization, working under close cooperation.

An effective cancer control, according to our present scientific knowledge, can only be obtained through adequate means for prevention, early detection, diagnosis, well conducted treatment, follow-up and rehabilitation.

Therefore, the community (districts, counties, cities) programs must be established according to the facilities and patterns of each community, and must be integrated in a State or even National General Program.

In the small and developed countries it is relatively easy to organize and to carry out such community programs.

The same can not be said from large countries in development, where good medical services and well trained personnel only exist in large cities. In these last countries, the cancer control program in most of the communities has to be very modest in regard to their own services, depending on facilities offered by the main cities of the country.

Cancer of the cervix is, undoubtedly, the site of the disease, in which the control measures are more effective.

There are some favourable conditions for the control of cancer of the cervix, which must be emphasized, as follows :

- 1) Cancer's danger signals are easily observed by patients;
- 2) the accessibility of the organ facilitates its examination;

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- 3) the existence of predisposing conditions permits the adoption of preventive measures;
- 4) exfoliative cytology is very simple to be carried out, giving valuable information;
- 5) inspection can be highly improved by colposcopy;
- 6) biopsy is easy, precise and can be repeated without great inconvenience;
- 7) examination can be carried out at a low price;
- 8) the methods of treatment are very effective;
- 9) the follow-up of the patients does not involve complicated measures or great expenses;
- 10) rehabilitations is mostly complete.

B — PREVENTION, DETECTION AND MASS SCREENING

In spite of the important role played by hospitals or autonomous detection centers and even by physician's offices, in the improvement of early diagnosis in a community, the only way to reach the aims of a public health program is the mass screening.

The detection centers are generally established in cities with very dense population, well prepared by the cancer educational campaign, and receive people for consultation referred from

well orientated general practitioners. The distribution of patients by clinical stages, in these units, does not give a complete picture of the whole country. Medical facilities, rates of urban and rural population transportation, social and economic standards and existence or not of public education in cancer, are the conditions which influence the delay in cancer diagnosis. Cervix cancer prevention and detection must be carried out according to the patterns of each community.

Some detection clinics limit their activities to the examination of asymptomatic people, in order to detect cancer in its earliest stage. In such eventuality, it is not easy to select the cases to be examined, mainly in relation to the female genital organs.

It is more logical to extend the examination to all women, by considering that the general objective of detection is the discovery of cancer cases, within a given population, a good time before it would be done by the initiative of the patients themselves, pressed by alarming symptoms.

Mass examination is able to change the general picture of cancer stages at the time of diagnosis. In the first screening covering all the population of a community, the rate of detected cancer of the cervix cases is very high, because many women with a long standing history of cancer only present themselves for medical examination by such an opportunity.

In many countries, the prevention and detection clinics have their aim limited to the female genital organs. It is more advisable to extend the examination to other accessible organs as breast, skin and visible mucous membranes. Mass examination programs are very difficult to be accomplished, if they are ambitious. Hammond, from the Statistical Research Section, American Cancer Society, said that maximum benefits might be achieved by giving through medical examination together with appropriate tests, to the entire adult population every three months. Assuming that such examination takes about one hour of a doctor's time, it would require the full time of 258.000 doctors to examine everyone, in the United States, over the age 25, four times a year. This exceeds the total number of physicians in the United States. The problem of cost could be added to these considerations.

However by the analysis of the problem in terms of a partial achievement it is possible to carry out a reasonable plan, adopting the following measures:

- 1) limitation by sex and age; in a first step, only women over 30 should be included;
- 2) limitation to accessible organs and organs which are examined through simple instruments;
- 3) using exclusively tests, which are precise, sure, cheap, giving high productiveness;

- 4) conducting the examinations in pre-existent consulting room, in hospitals, health centers, ambulatories, doctor's offices or even in adapted rooms, through the cooperation of all kinds of institutions which lend the room, the equipment and, eventually, the instruments;
- 5) using in large scale wandering medical groups, whose productiveness is very high;
- 6) examining people only once a year, but advising them to apply, in case of appearance of suspicious signs;
- 7) obtaining the cooperation of voluntary organizations, mainly for the patients registration, public education and other facilities.

Such a program covers only a part of the problem. Nevertheless, it represents an important sector of it, in which the results are more sure.

According to several papers presented to the VII International Congress, held in Moscou, in 1962, mass examination is carried out in various countries of the East. These examinations are named preventive and are restricted to a few organs. Limitation is also adopted in relation to sex and age. Obstetric nurses are used for gynecologic examination, mainly in the rural areas. Serobrov and Kaufman did inform that, in 1960, mass preventive examinations covered 36 million people in the Soviet Union

and that in the last ten years the relative number of patients with cancer of the cervix decreased 2.5 times.

Gross, Golova, Aimova and Wolfova, working in a Center in Prag, destined exclusively to the supervision of patients sent by polyclinics, found 145 cases of cervix cancer in 8.000 examined patients, most of them in initial stages.

In Budapest, according to the data given by Vikol, there is in Hungary one Institute of Oncology connected to a network of 34 districtal cancer services. Women over 30 years of age are selected for periodic cancer detection examinations. They are screened for precancerous conditions and tumors of genitalia, breast, skin and visible mucosas. This kind of examination was performed, from 1952-1960, on 4.114.762 women. In 1960, 389.933 women had been screened. 2.973 tumors were detected and 61.205 women presented precancerous conditions.

The kind of organization which carries out the detection of cervix cancer does not matter very much. The work can be executed in cancer or general hospitals, in special clinics, in health centers or even in physician's offices.

The same cannot be said from the medical and allied personnel. Even if the examination is performed in a mass screening program, it should not be performed by unprepared practitioners or by obstetric nurses.

The simple taking of vaginal smears by unprepared personnel or even by the patient herself cannot be recommended. It is difficult to establish the border line between detection and diagnosis. Therefore, the methods used for detection must be able to facilitate or even to establish diagnosis. Because it is not reasonable to limit the investigation to cancer of the cervix, the screening must be completed by the Schiller's test, by taking specimens from the endo-cervix and endometrium, by pelvic examination, by colposcopy and by biopsy. These procedures can only be performed by a qualified physician. Another argument against the taking of vaginal smears by whomsoever, is the high rate of unsatisfactory cytologic specimens, because they are inadequately taken, improperly fixed or not well prepared for mailing.

According to reports in the medical literature, the vaginal smear gives reliable results ranging from 70 to 98 per cent. These figures show that cytological examination of vaginal smear, when solely used as screening method presents the danger of a high rate of false negatives.

Prevention and detection of cancer of the cervix are easily carried out in well staffed and equipped hospitals, where the diagnosis can be completed and the treatment performed. Autonomous detection centers, outpatient departments, health units, small hospitals and physician's offices have not the

same facilities. These last unities are obliged to send the specimens obtained, or even the patient himself to other institutions in order to establish the diagnosis. It is advisable to reduce to the least the number of patients to be sent to other institutions, mainly when they have to go to other places.

As it will be emphasized in the chapter about the Brazilian experience, the best solution for this problem is the organization of wandering medical groups, headed by a highly prepared physician, spending the time needed in each community to cover the assigned population group. After having finished its task in one community, the same group goes to another one, starting all over again.

These physicians are able to perform a careful medical examination, using colposcopy, performing biopsies and establishing diagnosis, with the help of the reports about the tests made with the specimens they have previously sent to the laboratory.

In such a way the greatest majority of patients, who have to be sent to other parts of the country, are intended just for treatment and not for diagnosis.

A well organized mass screening proved to be the best method used in the control of cancer of the cervix. The knowledge of the size and composition of the population gives an epidemiological significance to the screening, esta-

blishing the incidence and prevalence of the disease and allowing the evaluation of etiological factors.

The examination is recommended for the population groups of women over 30 years of age.

To organize and to carry out a mass screening program, out of the knowledge of the number of women to be examined, a complete plan must be established, taking into consideration the medical and other personnel needed, the place of examination, the period of time necessary, the public education possibilities, the connection with other centers where the specimens and patients are to be sent after detection, the registration and the evaluation of expenses.

To co-ordinate the work of the detection units and of the wandering medical groups a central or basic unit is necessary. This center unit may be a cancer or general hospital in the area, to which the following tasks must be ascribed:

- a) Planning body;
- b) Public education;
- c) Professional teaching and training;
- d) Choice of methods of examination to be used;
- e) Examination of specimens sent by mail;
- g) Examination of patients sent, in order to have a complete diagnosis;

- h) Treatment;
- i) Registry;
- j) Statistics and collect of data for epidemiologic studies;
- l) Follow-up;
- m) After-care and rehabilitation.

In order to increase the rate of people examined, the mass screening must be entirely free. Therefore, the financial support must be very well established.

C — DIAGNOSIS, TREATMENT, REFERENCE CENTERS, CANCER HOSPITALS, CLINICS AND DEPARTMENTS

The diagnosis of cancer and pre-cancerous conditions of the cervix can be established presently very accurately. The colposcopic, cytologic and histologic investigations may be performed very carefully and may offer very precise information.

Physical examination, pelvic examination, X-ray and other tests give the stage of the disease.

Even in the cases referred for treatment with diagnosis already established, complete medical examination is recommended.

Treatment of cancer of the cervix is still performed by surgery and radiotherapy. Chemotherapy may offer some benefits in advanced cases or be used together with surgery or radiotherapy, with the aim to improve the results.

Pre-cancerous conditions are treated by their removal or, in special cases, by cold cauterization. Cancer *in situ*, can be treated by conization or cervix amputation in young women and by simple hysterectomy in the old ones.

Diagnosis reference centers, put into operation by public health or private agencies, may be very helpful for the small communities, mainly by the offer for cytology and pathology.

Complete diagnosis and treatment should be only carried out in very well equipped and staffed institutions. These conditions are generally found in cancer hospitals, cancer clinics and in gynecological departments of University and high standard general hospitals.

D — FOLLOW-UP, AFTER CARE AND REHABILITATION

A well organized recording system is necessary to an effective follow-up. It is preferable that the re-examination of the treated patient be performed at the same institution, where she was previously treated, and even by the same doctor, who did conduct the treatment. This condition creates in some cases social and economic difficulties because of travel, bed and board expenses. In such cases financial support and other facilities must be provided.

In cancer of the cervix, follow-up is mandatory, not only to check the results, in order to obtain valuable information for statistics, but also because

of the possibility to detect a recurrence in time, when treatment can still be effective.

After care must be very well planned, according to the needs and possibilities of each case. Post-operative radiotherapy and other prolonged after-treatments should be carefully planned, offering to the patient out of the hospital the necessary facilities, until her complete rehabilitation.

After-care must be continued, even when the patient has no more chances of complete recovery and deteriorates progressively.

Home care is mandatory in such cases and is really effective if organized as a service of the Hospitals. The cooperation of some voluntary agencies is very useful, helping in the housekeeping and providing the necessary means to improve the social, economic and psychologic conditions of the patient. Some advanced cases cannot stay at home. Special hospitals for such cases are not recommended. It is more advisable to give them the necessary care in hospitals accepting, also, cases presenting other kinds of chronic disease or in small nursing homes.

E — *PROFESSIONEL EDUCATION AND TRAINING*

The effective control of cancer requires group of doctors and other personnel technically competent and mainly cancer minded.

In the special field of cancer of the female genital organs, emphasis must be given to the teaching of physicians in methods of detection and diagnosis.

Pelvis and specular examination would be part of the routine of every physical examination. The general practitioner would also be familiar with methods of taking smears from the cervix for cytological examination and would be able to use the Shiller's test and to perform a punch biopsy. The needed training can be provided in the pre-graduate and post-graduate levels in the Departments of Gynecology of the Universities and in cancer hospitals. The distribution of special pamphlets of instruction to all general practitioners is very helpful. It is necessary to include the general practitioner in the cancer control program, because he is the first to see the patient and from his orientation and decision depends many times the future of the patient.

To cover the needs of a mass screening program, a great deal of cytologists and pathologists must be provided. The same can be said about cytotechnicians.

The cytological centers should have the permanent aim to offer adequate training. Facilities should be provided to teaching activities in such centers. Young physicians must be stimulated to dedicate themselves to cytology, after having had a good training in pathology and gynecology.

In a mass screening program what kind of physician may be charged with the examinations?

The use of gynecologists would be a good solution, but it is impossible, mainly in the small communities. Health center doctors are not technically prepared to perform the task without a previous training. Five or six lectures are not sufficient to give them possibilities of judgement.

It is easier and more effective to teach a small number of doctors, giving them a very intensive training during three or four months in order to form wandering medical groups. Through special fellowships, these doctors dedicate themselves in full-time to learn all the methods used in detection and diagnosis and are also taught about other aspects of gynecology. They are integrated in the control program and prepared to cooperate in the educational campaign. These wandering groups have the great advantage of covering large areas, comprehending in one year several communities.

F — PUBLIC EDUCATION

Before starting the examination of the female population in a mass screening program, some instructions and explanations must be delivered through a well planned propaganda.

Posters, pamphlets, radio, television, movie-films, newspapers and magazines are the means to divulge the messages

to women. Lectures for small groups are also recommended.

In order to convince people to be examined, avoiding cancerophobia, the following points must be taken in consideration:

- 1) The necessity of a periodical examination, in order to detect every kind of disease, should be emphasized;
- 2) It is not advisable to point out that the examination is destined exclusively to the detection of cancer;
- 3) Preventive measures can be taken by the detection of certain conditions which may transform into dangerous diseases;
- 4) Early detection allows a treatment in time, giving the best results;
- 5) Periodic examination offers the greatest guarantee;
- 6) People, apparently free of disease, may have something dangerous if not detected and treated in time.

CHAPTER II

BRAZILIAN EXPERIENCE

A — CANCER CONTROL

Cancer control in Brazil is carried out through a very large network of institutions and units under the supervision of the National Service of Cancer of the Ministry of Health.

However, due to the fact that the great majority of these institutions and units are private and autonomous, appearing spontaneously in wheresoever part of a very large territory, it is very difficult to gird them to the rules established by the National Service of Cancer.

In order to give an outline of the entities, which cooperate in the control of cancer, the following list is presented:

- 36 Cancer Societies or Leagues operating in all States, raising money conducting public education, giving financial support for service, research and professional education;
- 1 Fondation named "Offensive against cancer" giving financial support for control and research;
- 2 Cancer Institutes, located in Rio de Janeiro e São Paulo, with a capacity of 300 beds each, where prevention, detection, diagnosis, treatment, rehabilitation, professional education and research are carried out;
- 9 Cancer Hospitals, offering altogether 890 beds and having their activities limited to the clinical aspects of control;
- 21 tumour clinics, operating in General Hospitals;
- 43 autonomous Detection Clinics, most of them dedicated exclusively to gynecologic cancer; Special Cancer Units in University and General Hospitals, mainly in their Gynecological Departments;
- 6 Reference Centers for Pathology, Cytology and other laboratory tests;
- 1 Hospital with 80 beds for advanced cases;
- 3 Services dedicated to Home Care, attached to Cancer Hospitals;
- 1 Women's Organization against Cancer (Rede Feminina de Combate ao Câncer) with 22 divisions in different States, 150 sub-divisions and over 50.000 members.
- 1 Children's Club (Clube do Siri) with about 10.000 members.

According to their respective aims, every component of cancer control is covered by one or more groups of these different entities.

B — DETECTION

As it was already said, prevention and detection constitute the more effective means in the control of cancer of the cervix. Therefore the measures under way, in Brazil, in order to increase the use of the methods of prevention and detection will be emphasized in this presentation.

Thanks to the pioneer activities of Professor Arnaldo de Moraes, former head of the Gynecological Institute of the University of Brazil, the systematic practice of measures for prevention and detection of cervical cancer started in 1948, when a "Prevention Clinic for Gynecological Cancer" was inaugurated. Cytology and Colposcopy were used from the beginning, as routine procedures. Professional and public education followed the technical measures.

The co-operation of Hinselmann in colposcopy, and of Franz and Limburg in special pathology, who taught their techniques to the Institute staff, contributed very much to the progress of the activities. Therefore, the Gynecological Institute became a true Center of training for physicians who want to learn the new procedures.

From 1948 to 1961, 13,500 patients were examined and 952 cases of cancer of the genital organs were detected.

Cancer in situ was diagnosed in 79 cases. The rate of stages I and II increased three times. The 5 year survival rate of the entire group of operated patient increased from 50 to 62,5 per cent.

The success of this first attempt stimulated the creation of other Detection Clinics in Brazil. They spreaded out all over the country as autonomous Outpatients Services or as special Departments — connected to Hospitals — In the city of Rio de Janeiro alone there

are presently 20 in operation. However, they are concentrated in the main cities, where there are medical facilities and a dense population.

The detection clinics limited their scope to gynecologic cancer. Some of them extended the examination to the breast. Only in the last three years the inclusion of skin and accessible mucous membranes was introduced in a few detection clinics.

Detection of cancer is conducted also in special Clinics for check-up and in Institutes of Preventive Medicine.

In spite of being useful to the patient examined, the work realized by these solely clinics has no value in the public health standpoint. The lack of an effective co-ordination and of other requirements leads to a waste of the information collected.

In a general way, the methodology of examination to prevent and detect cervical cancer, in Brazil, is the following:

- a) History;
- b) Colpocytology;
- c) Colposcopy;
- d) Schiller's test;
- e) Pelvic examination;
- f) Biopsy.

Biopsy is performed according to the information obtained through the other items. The rates of biopsy ranged from 8 to 17 per cent according to the reports given by some Detection Clinics.

The rates of cervix cancer cases and the distribution by stages, in autonomous Detection Clinics, are entirely different from the rates and distribution in Gynecological Departments of General Hospitals. While most of the women attending the Detection Clinics do not present suspicious signs or symptoms, most of the patients sent to the Hospitals, referred by general practitioners, frequently come from small and remote communities, or come by themselves, pressed by alarming symptoms and in an advanced stage of the disease. Delay in this group is quite systematic. In order to give more emphasis to this aspect of the problem, it is sufficient to compare the staging figures obtained five years ago in one Detection Clinic and in the cases in a General Hospital.

Detection Clinic :

Carcinoma "in situ" — 14 per cent;
Stages I and II 77 per cent;
Stages III and IV — 9 per cent.

General Hospital :

Carcinoma "in situ" — 0 per cent;
Stages I and II — 35 per cent;
Stages III and IV — 65 per cent.

The only way to change this situation is the creation of Detection Clinics in every Hospital and the extension of the measures of detection to all communities, by means of a growing mass examination program.

C — MASS SCREENING IN BRAZIL
PILOT PROJECT ON MASS
EXAMINATION IN THE STATE OF
RIO DE JANEIRO

According to the data obtained through the surveys conducted by the National Service of Cancer, the cervical cancer relative frequency rates (proportion of cancer of the cervix to all kinds of cancer in the female group), are quite different in the various areas of the country. While this rate is about 29 per cent in Rio de Janeiro and São Paulo, it reaches 60 per cent in the Northeast (Bahia and Pernambuco).

These figures give only a general idea of the problem, but do not establish the incidence and prevalence of cervical cancer.

Mass and periodic examinations covering the population of the different areas of the country is the best way to collect epidemiological information, because the screening is based in the previous knowledge of the size and composition of the population to be studied.

In order to establish the possibility of a mass screening program in a national level, a Pilot project is presently conducted in the State of Rio de Janeiro.

The State of Rio de Janeiro, was chosen because of its relatively small area (42.000 sq.Klm), divided into 62 counties with a population of 3.500.000 inhabitants. It represents an average of the economic level, standard of life

and general facilities of the country. At the same time, the patterns of the counties are quite different. While some are industrial cities without rural areas and with a very dense population, others present a very low rate of urban population.

Since 1955, Mario Parda, head of the Gynecological Department of the Hospital Antonio Pedro, which is the largest Hospital in Niteroi, the largest city of the State of Rio de Janeiro, impressed by the high rate of advanced cases of cervical cancer referred to the Hospital (65 per cent stages III and IV), started a campaign in order to change the situation. It was called "Periodical Gynecological Examination" and intended to reach women over 30, aiming at an earlier diagnosis of gynecological and breast malignancies. Benign tumours and other lesions were also included and considered as by-products of the campaign.

In order to get earlier cases, public education was started emphasizing the importance of periodic examination, but avoiding to speak about cancer. All means of propaganda, as posters, pamphlets, short movie films, press and radio, were used. Lectures were given in more than 100 different places.

In the beginning, all examination were made at the out patient section of the Hospital Antonio Pedro. Later, these examinations were made also in small units named peripheral, located in different districts of Niteroi and in

other communities, as well. They reached at that time the number of 15. A production "en masse" was not obtained with these units, since the personnel was not paid for it.

This first effort was very valuable, improving the results. The rate of advanced cervical cancer cases (stages III and IV) decreased from 65 to 35 per cent. A good methodology was established and the medical staff acquired greater knowledge through lectures and training.

By the analysis of the records collected, it was demonstrated that the majority of advanced cases came from remote areas of the State; that the rate of 35 per cent could be still reduced by the extension of Cancer Detection to the whole State, through a new program called "Cancer Prevention and Detection. Mass examination pilot project in the State of Rio de Janeiro".

In 1961, based in this first experience. The Foundation Offensive Against Cancer, in connection with the Gynecological Department of the Hospital Antonio Pedro, established a program for mass examination in the State of Rio de Janeiro. The financial support of the enterprise was given by the Government of the State of Rio de Janeiro, the National Service of Cancer and the Foundation Offensive Against Cancer.

POPULATION BASED MASS SCREENING. The pilot project limits examination to the groups of women

over 30 years of age, which is formed by 517.639 women. Under 30 years of age, examination is performed only in cases presenting suspicious symptoms. From this group of 517.639 women, 54 percent are residents in urban areas and 46 per cent in rural ones.

The composition of the population is known too, in each country. The rates of urban and rural population are quite different in the various counties. This fact is always computed in the evaluation of results.

UNITS — Three kinds of units are presently used by the pilot project in order to fulfill all the existent tasks.

a) BASIC OR CENTRAL UNIT, in the Hospital Antonio Pedro, of Niteroi, with the following functions and facilities:

1) Prevention, detection and diagnosis in cases sent primarily, or referred by the other units, to the Hospital which disposes for this of one well equipped out-patient ward with the capacity to examine 6 patients at the same time, that can be used also for the teaching and training of Physicians;

2) A Cytological Laboratory with the capacity to process and interpret 250 specimens daily;

- 3) A Laboratory of Pathology able to make 40 histological examinations for the project;
- 4) A Laboratory for other tests;
- 5) Radiology;
- 6) Cancer Registry;
- 7) All means for treatment and the capacity to treat the cases referred through the Pilot Project;
- 8) Medical and allied personnel to cover the work in all sectors, including the co-ordinator of the Pilot Project;
- 9) Training of personnel is conducted by the staff under the supervision of the co-ordinator. Preference was given to women doctor for the clinical work in the Peripheral Units. They had daily lectures and three hours of training in the Out-Patient Department, lasting 4 months. They are taught about history, gynecological examination and diagnosis, physical examination, cytology, colposcopy, pathology and techniques to perform biopsy. Instructions about public education are also given. Nurses and clerks are also trained before going to a Periferic Unit. The Department of Pathology and

Cytology gives the facilities for the training of doctors and technicians;

- 10) A planning body for the Pilot Project is directed by the coordinator and is composed of the heads of departments, including social work and an epidemiologist;
 - 11) A section of epidemiology, which collects the data from the records, makes statistics and proceeds to studies and research.
- b) PERIPHERICAL PERMANENT UNITS, in number of 17, presently, are located in different areas of Niteroi and in other cities. They are provided with the necessary facilities to detect and even to make the diagnosis of cancer of the cervix. This kind of Unit has a relative low productiveness, because the staff is permanent and the number of patients decreases after the first examination. They are in charge of the public education and of the connexions with the Central Unit;
- c) PERIPHERICAL TRANSIENT UNITS are operated by moving or wandering medical groups during the time needed to cover the assigned population group. After having finished its task in one Community, the same

group goes to another one, starting all over again. The group is formed by a woman doctor, a nurse, a social worker and volunteers from the Women's Organization Against Cancer (Rede Feminina de Combate ao Câncer).

The Transient Units are located during the required time in Hospitals, Health Centers. Out Patient Departments, Factories Ambulatories Doctor's offices and even in adapted small houses or rooms. This facility is given entirely free by the local entities, as mere cooperation to the program. This aspect is very helpful, avoiding expenses needed by the Permanent Units to maintain their own buildings and equipment.

The medical group has some special material, including a small colposcope, which was adapted, covering the needs of visibility.

Until now, 6 groups only were organized, because it was recommended to them to start slowly in order to check the first results mainly the productiveness and the cost of it.

Disposing of all necessary information about the Community where they have to operate, and with the problem of board already settled the members of the wandering Group start their work through an educational campaign with the cooperation of the Women/s Organization Against Cancer. Posters, pam-

phlets, radio, press, movie-films and talks to different groups of women are used intensively during a few days. When examination starts, the number of applications is generally very high.

D — DEVELOPMENT AND FIRST RESULTS

According to the data obtained in the mass screening programs carried out in some American and Canadian cities the percentage of examined women is about one half of the female population over 20 years. Generally, the screening was restricted to the cytological examination of smears obtained from the vaginal pouch by nurses.

As it was already said, the mass screening in the Brazilian Pilot Project includes physical and pelvic examination, Schiller's test, colposcopy and, eventually, biopsy. The examination is also extended to breast, skin and accessible mucosae. Pre-cancerous conditions, benign tumors and other lesions are also detected by these examinations.

In the Expectation that 50 per cent of the women's population over 30 years of age will participate of the first screening, about 250.000 examinations have to be made.

The greatest productiveness belongs to the Wandering Groups because they dedicate themselves exclusively to this activity. They are working 8 hours, performing 32 examinations daily, but they are allowed to prolong their time

work. The Pilot Project has showed that 50 examinations can be performed daily. In such case, the personnel is over-paid according to the number of extra-examinations.

The 6 Moving Groups alone, presently in operation, are expected to perform about 60.000 examination in one year. Adding 20.000, which should be performed in the Central and Peripheral Units, mass screening may cover about 80.000 women in one year. According to the results of the first year, the number of Moving Groups can be increased in order to reach the 250.000 expected examinations and to start the second screening in the Communities already visited. If this same number of Moving Groups is maintained, it will take three years to complete the first screening.

In order to make the task of the Moving Groups easier, the State of Rio de Janeiro was divided into 6 areas, comprehending each of them a group of Counties.

The activities of the Moving Groups started very recently and consequently it is not yet possible to evaluate precisely the results of the Pilot Project. However, some data and special aspects of the obtained experience can be presented.

The data recorded in the Central and Permanent Units from the beginning of their detection activities were used for this presentation. Some comments about the moving groups will also be made.

Until now, 20.000 records of women examined in the Out-patient Department of the Central Unit and in some Peripheral Units were computed. Over 22.000 cytological examinations were made. The cytologic specimens from the cervix were always taken with an Ayre blade from the squamo-columnar junction and from any area of the cervix which was abnormal. When the presence of blood or pus could not be explained by lesions of the cervix, specimens were collected from the endocervix and endometrium. The same behaviour was followed in old women.

According to the Papanicolaou's classification, 39 per cent of the group III and 96 per cent of the groups IV and V had cancer.

Systematic colposcopy started later and therefore only 7.000 colposcopic examinations could be computed. The number of atypical changes reached 17.5 per cent. The colposcopic findings were very helpful, allowing a selective biopsy. In about 3 per cent of the cases with negative cytology, colposcopic findings did lead to the diagnosis of cancer.

Biopsy of the cervix was performed in about 12 percent of the examined cases. In the first group of cases, when colposcopy was not systematic, punch biopsy was used. Afterwards biopsy was always selective. When histology showed atypical cells or carcinoma *in situ*, a biopsy by conization was recommended, followed by careful histologi-

cal study of the specimen, in order to determine the existence or not of an invasive carcinoma.

Out of the 20.000 computed cases, 540 had cancer, representing 2.25 per cent. His very high rate can be explained because most of the patients were referred to the Hospital (Central Unit) after a long period of time from the beginning of the disease. In some Peripheral Units this rate was lower, decreasing to one per cent.

In a second screening this rate was 0,6 per cent.

In the city of Niteroi, about 50 per cent of the 42.000 women over 30 years of age were already examined, but the collect of data concerning this group is not yet complete. Clinical and epidemiological aspects suggested by the analysis of the data collected in the Registry of the Pilot Project will provide a complete report about the results obtained.

In order to give an idea of the work performed by the moving groups in communities considered "difficult", some comments about Araruama are made.

Araruama is a country with an area of 643 sq.kl and a population of 30.904 inhabitants, giving a density of 48 inhabitants per sq.kl. The urban women's population over 30 years is 1.011 and the rural 3.550, making a total of 4.561. The economic level and the standard of life of the population are very low.

Neither hospital nor health center were to be found. The first impression was that an adequate place could not be obtained to install the Unit. At last, a retired physician lent his office, located in an old and small house. The equipment was obsolete, but good enough to permit examination.

The moving group, headed by a woman doctor, obtained housing and board in private homes because there are no hotels in the city.

The educational campaign lasted three days and was very successful.

In the first 2 weeks the number of consultations was over 30 daily. After this period of time some difficulties appeared. The clerk in charge of the records and registry resigned and it was impossible to obtain a substitute. The number of applications of patients decreased. It was decided to interrupt the activities. 600 examinations were made and 9 cases of cancer were detected.

This experience was very helpful, showing that even in communities without facilities it is possible to carry out a mass screening. The problem of allied personnel is fundamental. With

the help of the Women's Organizations Against Cancer it is supposed that this inconvenient can be avoided.

It is not yet possible to calculate exactly the cost of each examination. However, in order to reduce the expenses to a minimum, the following principles and measures were adopted:

- a) Limitation by sex (only women) and by age;
- b) Limitation by cancer site under the criterium of accessibility to common physical examination;
- c) Limitation of tests;
- d) Use in large scale of transient Units, lent by other entities as cooperation to the project;
- e) Use of Moving Medical Groups;
- f) Volunteer's cooperation in the patient's registration, public education, and to obtain other facilities.

The examination is entirely free. The detected cases of either cancer or other diseases are sent to their private doctors or to medical organizations, including the Central Unit of the Pilot Project.

SUMMARY

Cancer of the Cervix is the site of the disease in which the control measures are more effective. Mass screening is the best way to reach the aims of a public health program. Cervical cancer prevention and detection must be carried out according to the patterns of each community.

It is not recommended to limit the examination to pre-symptomatic women, because the general objective of detection is the discovery of cancer cases a good time before it would be done by the initiative of the patients themselves.

Mass examination is able to change the general picture of cancer stages at the time of diagnosis.

The kind of organization which carries out the detection of cervix cancer does not matter very much. The work can be executed in cancer or general hospitals, in special clinics, in health centers or even in physician's offices. The simple taking of vaginal smears by unprepared personnel or even by the patient herself cannot be recommended.

To co-ordinate the work of the detection units a Central or Basic Unit is necessary.

Complete diagnosis and treatment should be only carried out in very well equipped and staffed institutions. These conditions are generally found in cancer hospitals, cancer clinics and in gynecological departments of Universities and high standar general hospitals.

A well organized recording system is necessary to an affective follow-up. After-care must be planned, according to the needs and possibilities of each case. Home care is mandatory in advanced cases and is really effective if organized as a Service of the Hospitals.

In the special field of cancer of the female genital organs, emphasis must be given to the teaching of physicians in methods of detection and dignosis. To cover the needs of a mass screening program, a great deal of cytologists and pathologists must be provided. The same can be said about cyto-tecnicians. It is not possible to have the examination performed by gynecologists in every community. General practitioners can be teached and trained in three or for months.

Public education must be conducted very carefully, showing the importance of early diagnosis and the advantages of periodical examination.

In Brazil, cancer control is carried out through a large net-work of institutions and units under the supervision of the National Service of Cancer of the Ministry of Health. The great majority of these institutions and units are private. 1490 beds in cancer hospital are available.

Prevention and detection of cervical cancer are conducted in 43 autonomous Clinics and in the out-patient departments of Cancer University and General Hospitals.

Cytology, Schiller's test and colposcopy are used routinely in most of the Detection Clinics. Biopsy is performed according to the information obtained through the other items.

A Mass Screening Program was planned in Brazil. A Pilot Project on Mass examination in the State of Rio de Janeiro is under way. A group of 517.000 women over 30 years of age are assigned for examination. It is expected to cover about 50 per cent of this group, what was already reached in Niteroi, which is the State largest city.

20.000 records were already analyzed. A reduction of the rate of stages III and IV, from 65 to 30 per cent was already obtained. The cancer rate was 2.25 per cent.

The experience in a small and underdeveloped community, where a wandering medical group performed the examinations is given to show the difficulties and how they can be overcome.