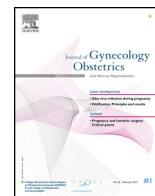




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## Original Article

# Organization and first results of cervical cancer screening program in Mayotte, from 2010 to 2014



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## ABSTRACT

**Objectives.** – Our main goal was to report the organization of individual screening for uterus cancer in Mayotte, the last French department since 2011, and its first results.

**Material and methods.** – Epidemiological and observational study describing the prior situation, the beginning of the screening with pap smears in 2010, the colposcopy consultations and the treatment of the patients by the Mayotte network for screening of cancers since 2010.

**Results.** – The screening allowed an improvement of the global cover rate from 5% to 24% in 5 years. The best results concern the woman from 25 to 39 years old, with a rate that rose from 14 to 46%.

**Conclusion.** – This study confirms the possibility and the efficiency of a screening program on this island, which is French by law, by much closer to developing countries on many other sides.

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## Introduction

Nowadays, data concerning cervical cancer come from estimations, as numerous cases are not identified especially in developing countries. They are however the most concerned with this pathology. Thus, there officially were 528,000 new cases of cervical cancer in 2012 throughout the world, responsible for 266,000 deaths, hence a mortality rate of up to 27.6 for 100,000 in East Africa. In comparison during the same year, there were 34,000 new cases in Europe and 13,000 deaths, hence a mortality rate of 2/10,000 [1]. This difference, probably underestimated, is mainly due to the Papanikolaou smear (or pap smear), which allows a pre-invasive diagnosis [2]. A 2006 French study showed indeed that two thirds of cervical cancers occur in patients who never had a pap smear (24%) or had one more than three years prior to the diagnosis (43%) [3].

In France and in the French overseas departments the screening for cervical cancer is “opportunistic”, based on reference national

sources [4,5] and on patients' awareness: the screening normally takes place during an annual check-up either if the practitioner offers it or if the patient herself asks for it. This screening is relatively well followed in metropolitan France and in the main overseas departments, but was set up late in Mayotte as its departmentalization only took place in 2011.

Screening for cervical intraepithelial neoplasia is nowadays feasible in different ways: either by pap smear, or by Human papilloma virus (HPV) test, or by visual inspection after acetic acid (VIA) is applied on the cervix. The association of these two last techniques immediately followed by cryotherapy if needed (depending on their results) is now recommended in developing countries [6,7]. With the will to adhere to the last French Cancer Plan [8], an organized screening program by pap smear has been set up in Mayotte since 2010 by the cancer screening program (REDECA, Réseau de Dépistage des Cancers in Mayotte), mainly funded by the Regional Health Agency of the Indian Ocean, in collaboration with the Mayotte Hospital Center. REDECA Mayotte is a non-profit association created in 2009 under French law, which has several objectives such as insuring the promotion, organization and management of cancer screening programs, as planned by the General Health Direction [9]. This association's activity began with the creation of an organized public cervical cancer screening program.

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The main objective of this epidemiological descriptive retrospective study was to evaluate the impact of an organized screening program on the Mayotte population coverage. Our secondary objectives were to evaluate the coverage according to the age, the colposcopic follow-up and the management of cervical neoplasia when diagnosed.

## Material and methods

### Cervical cancer screening before 2010

Before 2010, there was not any organized screening in Mayotte. Midwives did the vast majority of pap smears during a pregnancy follow-up. There were very few gynecologists' consultations because of a severe lack of human resources. Further more there was only one gynecologist who had been trained to perform colposcopic exams at the Mayotte Hospital Center, and occasionally substitute doctors coming for only a few weeks to a few months. No precise data on cervical cancer screening is available from this period, but we were able to estimate it from the 2007 population census from the INSEE (French National Institute of Statistics and Economical Studies).

### Creation of a pap smear screening program by REDECA

This association's missions are to inform and train midwives and doctors, inform and raise awareness among the local population of the importance of screening and since 2010 manage the statistical data concerning the screening. The first cervical cancer screening program in Mayotte took place from February 2010 to December 2012. A second program began in January 2013 and will be finished in December 2015. The program was based on the one already organized in metropolitan France, which is to say 2 initial pap smears with a 1-year interval starting at 25 years of age, then 1 every 3 years if the first test is normal. In case of a pathological pap smear, a specific decisional flow chart was implemented to reflect the existing local care system (Appendix 1).

### Organization of colposcopic consultations

Specialized consultations for the follow-up of pathological pap smears were organized in 2012 (during the first REDECA screening program). Unfortunately they progressively became more and more irregular until the end of 2013. In May 2014, in partnership with REDECA, a bi-monthly and dedicated consultation was carried out at the Mayotte hospital center, carried on by two residents in obstetrics and gynecology with a colposcopic university diploma, and supervised by a referent colposcopic in Paris. Patients' characteristics, the pathological pap smears that justified the

consultation and their management were collected through a questionnaire filled out during the consultations.

In case of a cyto-colpo-histological discordance, the pap smear and colposcopy were systematically performed again during a second consultation.

When a biopsy showed intra-epithelial neoplasia of grade 2 or 3 (2+), a loop diathermy conization was performed in ambulatory surgery, under general or loco-regional anesthesia, under colposcopic control. When histological margins were positive, three alternatives were discussed with the patient, according to her age and her desire to have children: a close surveillance associating pap smear and colposcopy twice a year, a repeat surgery or a hysterectomy.

### Statistical analysis

The collected data allowed us to calculate screening coverage. The coverage rate is defined by the number of screened women over the total number of target population (here all women between 25 and 65 years old). This number was estimated for the first screening program, based on the 2007 population census, by doing a projection on ulterior years with the 2007 population growth rate (3.1%). The coverage rate evolution according to age was analyzed with Cochran-Armitage tests.

Concerning colposcopy consultations results, the analyses were done with Student tests for mean comparisons, and Chi<sup>2</sup> tests for group sizes.

All analyses were done on STATA system Version 13.

## Results

### Screening before 2010

The lack of specialist consultations and sporadic access to colposcopy consultations explained a screening rate much lower than national figures: around 2000 pap smears were done before 2010 on the island, for a target population of 38,000 women, with a coverage rate of 5.3%, compared to the estimated national rate of 58% in metropolitan France between 2007 and 2009 [4]. The screening rate estimated by REDECA in December 2010 (which is to say 10 months after the first program had began) was around 15% for women less than 40 years of age (Fig. 1). This figure implied an inferior rate before the program was created, which was coherent with our estimation.

### REDECA screening from 2010

From February 2010 to December 2014, 28,678 pap smears were done in the REDECA network. These pap smears were divided

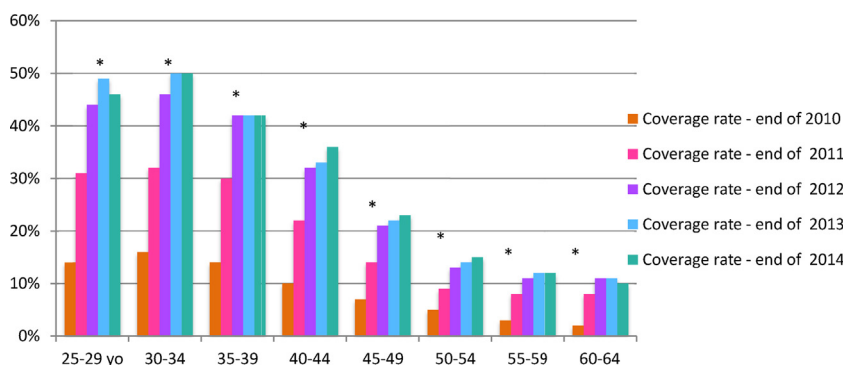


Fig. 1. Pap smears screening rate according to the age group and the year. \*Significant improvement for the age group with  $P < 0.01$ .

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