Policies and Programs for Cervical Cancer Prevention and Control in Public Health Services: An Integrative Review

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Abstract

Aim: analyzing and assessing the scientific evidences about Health Services Administration through the practice of cervical cancer prevention programs and policies. Methodology: integrative literature review carried out in September/October 2017. Electronic search for publications in databases such as PubMed, Portal Periódicos CAPES, BVS, EBSCO and SciELO. Results and Discussion: eighteen articles approaching the topic were selected and their analyses resulted in the following thematic axes: Organization of cervical cancer prevention and control policies/programs, Follow-up and monitoring of actions taken and Quality Management of Cytopathological exams for diagnostic and treatment. There were differences between programs in the country, either in their recommendations or in their effectiveness. Final considerations: investments must be done in order to qualify technical procedures and involved health professionals, as well as to support health education in the target population.

Keywords: Health Services Administration; Uterine Cervical Neoplasms; National Health Programs

1. Introduction

Uterine Cervical Neoplasm is the fourth most common type of cancer in women (approximately 530 thousand cases and 265 thousand deaths/year worldwide) and the third in number of cases in Brazil (5,797 deaths recorded in 2015; 16,370 new cases estimated to be recorded in 2018) [1].

Uterine Cervical Neoplasm presents slow evolution; therefore, it can be prevented. Professionals working at different healthcare levels (primary, secondary and tertiary) are responsible for the early prevention and detection of the disease. They work with relatively simple equipment and exams such as Pap smear or cytopathology ones, which are used in disease screening, as well as with prophylactic measures such as the recommendation for the HPV vaccine [2,3,4,5].

Nowadays, many of the established assistance policies, programs and protocols focused on Uterine Cervical Neoplasm (UCN) prevention aim at providing integrated and qualified attention to women's

health by embracing their demands and needs, as well as by assuring their access to healthcare services for screening protocols, early diagnosis and proper treatment [2,6].

In Brazil, documents such as the Brazilian Guidelines for Cervical Cancer Screening and the Basic Attention Guide – Cervical and breast cancer control [2,6] -, are the most common references used by health professionals. These documents are edited by experts and published by the Ministry of Health. Countries in Europe and North America have many guidelines to control and prevent cervical cancer; however, they are not linked to a responsible governmental bureau; each country or state makes the choice for a reference of interest [7,5].

Despite these policies, the fragilities, gaps and barriers to reach proper prevention coverage for this cancer type in women remain real. Indices and estimates from recent years still report high mortality rates among women. In addition, 266,000 death cases were recorded worldwide in 2012, estimates expect 547,000 deaths in 2016. The mortality rate in developing countries reached 230,158 cases and more developed regions recorded 35,514 cases; however, such number remains relevant [8].

Accordingly, in order to have effective UCN prevention and control actions and strategies, it is essential to organize public healthcare services focused on them. The management of such services must be part of this organization in order to reinforce the performance of these programs and to reach the maximum efficiency, efficacy and effectiveness possible (solve the identified issues) [9].

Thus, we understand that healthcare management is responsible for organizing the services, supervising the proposed actions and for assuring the participation of important established programs, among others, in order to provide integral and qualified health attention assistance to the target population.

Therefore, the aim of the present study was to qualify women healthcare assistance and to point out management considerations, as well as strategies capable of reinforcing the prevention actions taken against the disease and of assuring their effectiveness.

2. Aims

The aim of the present study was to assess and analyze national and international scientific evidences about Health Services Administration in the practice of Uterine Cervical Neoplasm prevention and control policies and programs.

3. Methodology

The study is an integrative literature review. It was carried out in September and October 2017 by two researchers. The choice made for the integrative review method is justified by the need of getting considerable clarifications and references about the effectiveness of UCN prevention policies and programs in public healthcare services through management procedures based on the assessment of studies available in databases. Thus, the following guiding question was formulated: How are cervical cancer prevention and control policies and programs made effective by the management practices in public healthcare services? The integrative literature review was a method developed for Evidence-Based Practice (EBP). It is a judicious method based on systematically summarizing recorded results about a topic or matter, in an

ordered and broaden way. The records are judiciously assessed by a professional (of proven clinical skill) and, subsequently, incorporated to assistance practices [10].

The methodological stages featuring the integrative-review operation were herein followed. These stages encompassed: 1st) identifying the topic and selecting the research question; 2nd) setting the inclusion and exclusion criteria; 3rd) Identifying the pre-selected and selected studies; 4th) Categorizing the selected studies; 5th) Analyzing and interpreting data; and 6th) presenting the review on the knowledge [11,12].

3.1 Inclusion and exclusion criteria

Complete articles, in English and Portuguese, about the proposed topic, published between 2004 and 2007, available in electronic medium, were included in the review.

The choice made for the referred period (2004-2007) is justified by the elaboration of the National Policy of Integral Attention to Women's Health (PNAISM) in Brazil, in 2004. It is one of the precursor and more complete programs to prevent and control cervical and breast cancer. It was launched after the National Program for Integral Assistance to Women's Health (1984) and the National Program for Cervical Cancer Combat (1998) and became an important subsidy for practical assistance actions.

Theses, dissertations, abstracts, editorials and narrative reviews, as well as articles that did not meet the proposed topic, were excluded from the review.

3.2 Bibliographic search strategy

The search strategy was firstly performed through the definition of synonyms in English to the following indexed meshes (Decs/Mesh): "Health Services Administration", "Uterine Cervical Neoplasms" and "National Health Programs".

The electronic search for publications presenting the referred descriptors was performed in the following databases: US National Library of Medicine (PubMed), Portal Periódicos CAPES, Biblioteca Virtual em Saúde (BVS), EBSCO Information Services, and Scientific Eletronic Library Online (SciELO). Boolean expressions between descriptors, such as "AND" and "AND and OR" were used to conduct the search in the chosen databases. The expression "AND and OR" was only used in SciELO database due to the difficulty to find research results in it.

The search in the databases resulted in 607 articles: 86 in PubMed, 115 in Periódicos CAPES, 53 in BVS, 12 in EBSCO and 341 in SciELO. Selected-studies categorization was performed by reading the titles and abstracts. After the analysis, 47 articles were finally selected. After reading the articles, we observed that 16 of them were not related to the matter in question, 11 were narrative reviews, 1 was an editorial and 1 was an article about another one that was included in the selection; therefore, they were not included in the review (Figure 1).
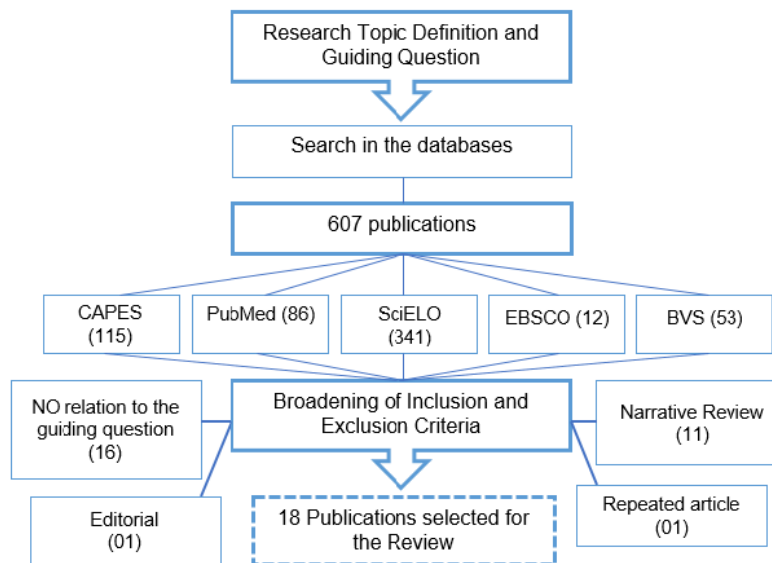
Figure 1 – Flowchart depicting the Selection of Articles in the Databases

The main results in the included studies were systematized based on similarities between the assessed data in each research. The following categories used to describe and discuss the results were developed from the initial systematization: (1) Organizing the cervical cancer prevention and control policies/programs, (2) Following-up and monitoring the actions taken and (3) Managing the Quality of Cytopathological exams for diagnostic and treatment.

Data synthesis and interpretation were substantiated by the results from a critical evaluation of the included studies. Results about the existing theoretical and scientific knowledge were compared based on the identification of implications and conclusions on the assessed studies.

4. Results

4.1 Characterizing the studies

Eighteen articles were selected and included in the research after the search in the defined databases was performed. Twelve articles out of this total were published in English and six in Portuguese. There were no publications in Spanish; therefore, only articles in English and Portuguese were included in the review.

Articles gathered during the search described research conducted in many countries around the world. Six studies were carried out in Brazil [13,14,15,16,17,18] and four in the United States [19,20,21,22]. There was only one article from each of the following countries: Argentina [23], Australia [24], Canada [25], England [26], Italy [27], Malawi [28], Zambia [29] and United Kingdom [30]. Thus, the final sample comprised 18 articles. Publication years varied from 2004 to 2017, 22.2% (04 articles) in 2015 and 16.6% (03 articles) in 2014, in all databases. Forty percent (40.0%) (08 articles) of the articles were published in journals about Public Health and Epidemiology.

With regard to the method and design, 50% (09 articles) of the articles were quantitative, 16.6% (03) were quali-quantitative, 16.6% (03) were documental research, 11.1% (02) were qualitative and 5.5% (01) were retrospective studies.

Based on the aims of our study, 33.3% (06) of the selected articles addressed the qualitative assessment and management of health services and actions taken to prevent and control UCN, and 27% (05) of them aimed at assessing UCN prevention and control programs (Chart 1).

Chart 1 – Main features of the selected scientific productions

Number	Author/Year	Study Site	Journal	Study method and design	Database	Aim(s)
01	ARROSSI; PAOLINO; SANKARANAR AYANAN, 2010	Argentina (AR)	Revista Panamericana Salud Publica	Quantitative/cross sectional	BVS	Situational analysis of cervical cancer prevention activities in Argentina: (a) the organization chart of UCN prevention activities; (b) Pap smear coverage; (c) organization in cytology laboratories; and (d) follow-up / treatment of women with abnormal lesions.
02	BOTTARI; VASCONCELOS; MENDONÇA, 2008	Brazil (BR)	Caderno de Saúde Pública	Quali-quatitative	BVS	Reasoning about the possibilities of UCN markers as a mechanism to assess Basic attention as a strategy in *SUS* (Unified Health System)
03	MASEKO; CHIRWA; MUULA, 2015	Malawi (MW)	Pan African Medical Journal	Qualitative	BVS	Setting health and national sexual and reproduction rights (SDSR) to mitigate challenges to UCN prevention and control in Malawi.
04	MAAR et al, 2013	Canada (CA)	Womens Health Issues	Qualitative – Action research	CAPES	Examining the structural barriers stopping indigenous women participation in UCN screening.
05	OLESEN et al, 2012	Australia (AU)	BMC Health Services Research	Quantitative/ cross sectional	EBSCO	Approaching limitations and broadening the existing research focused on examining rates and correlated of cervical screening in a big epidemiologic research based on bonded management data.
06	CASTANHEIRA et al, 2014	Brazil (BR)	Saúde Debate	Quantitative	SciELO	Presenting results of the evaluating research that developed and assessed

					the QualiAB questionnaire in its first application in 2007. It was applied to APS public services in 115 counties in São Paulo State.
07	OHIRA; JUNIOR; NUNES, 2014	Brazil (BR)	Ciência & Saúde Coletiva	Quantitative	SciELO	Describing the management practices in primary health attention (APS) in 49 small counties (up to 20,000 inhabitants) in Northern Parana State.
08	BARCELOS et al, 2017	Brazil (BR)	Revista de Saúde Pública	Quantitative - Inquirer	PubMed	Assessing whether demographic, socioeconomic and organizational variables are associated with the quality of UCN screening.
09	BRITO-SILVA et al, 2014	Brazil (BR)	Revista de Saúde Pública	Quali-Quantitative	PubMed	Assessing integrality in the access to UCN prevention, diagnostic and treatment.
10	DeGROFF et al 2014	United States (EUA)	Wiley Online Library	Quali-Quantitative	PubMed	Assessing the effectiveness of the management performance of the National Program for Early Detection of Breast and Cervical Cancer (NBCCEDP) and exploring the reasons why it works out well.
11	PARHAM et al., 2015	Zambia (ZM)	PLOS ONE	Documental research	PubMed	Answering the implementation research question by assessing the Zambia Cervical Cancer Prevention Program (CCPPZ), which was launched in 2006 by the public sector.
12	HERBERT; HOLDSWORTH; KUBBA, 2008	England (EG)	J Fam Plann Reprod Health Care	Documental research	PubMed	Assessing the recommendation from the screening program to the availability of cervical screening in women in the age group 20-24 years.
13	MILES-RICHARDSON; BLUMENTHAL; ALEMA-MENSAH, 2012	United States (EUA)	Journal Health Care Poor Underserved	Documental research	PubMed	Exploring the effect of the recent legislation on the cervical and breast cancer rates in Georgia, North Carolina and South Carolina

14	RONCO et al., 2007	Italy (IT)	Epidemiol Prev	Quantitative	PubMed	Registering cervical cancer screening processes
15	SABATINO et al., 2015	United States (EUA)	Morbidity and Mortality Weekly Report	Quantitative	PubMed	Presenting data and indicator of UCN screening
16	UCHIMURA et al., 2009	Brazil (BR)	Revista Associação Medica Brasileira	Retrospective	PubMed	Estimating the prevalence and assessing the quality and performance of colpocytology performed by Program for the Prevention of Cervical Cancer in Maringa-PR
17	WHITE et al., 2017	United States (EUA)	Morbidity and Mortality Weekly Report	Quantitative/cross sectional	PubMed	Presenting data about UCN screening
18	CANFELL et al., 2004	United Kingdom (UK)	British Journal of Cancer	Quantitative cohort	PudMed	Assessing recommendations from the National Cervical Screening Program of Health Service (NHSCSP) and possible additional changes in UCN screening practices.

4.2 Organization of UCN prevention and control policies/programs

The organization of UCN prevention and control policies/programs is different from country to country. The articles based on studies performed in the United States concern different guidelines base on topics such as the National Breast and Cervical Cancer Early Detection Program (NBCCEDP) - a program in the Centers for Disease Control and Prevention's (CDC) [31] -, and Healthy People [32]. However, there is no consensus about the use of a single guideline as the main reference and subsidy in public health. Each health service chooses the guideline it will follow, and the chosen ones can differ from state to state.

Ronco et al (2007) and Canfell et al (2004) [27,30] conducted a study in United Kingdom countries based on using the European Guidelines Cervical Cancer Screening [3] in health systems, although each country in this group has its own UCN prevention and control program.

All research performed in Brazil described in the selected articles follow the protocol proposed by the cervical and breast cancer prevention and control program of the Ministry of Health. All public health services in Brazilian states are subsidized by this program.

4.3 Following-up and monitoring the actions taken

With regard to analysis of factors related to actions taken in order to prevent and control UCN: 88.8% (16 articles) of the selected articles presented data about (1) the coverage of Pap smear exam screening in the target population, (2) health education and promotion, (3) follow-up about the guidelines proposed by the programs, (4) risk factors, barriers and accessibility of the target population to health services and exams.

Arrossi et al (2010), Brito-Silva et al (2014) and Uchimura et al (2009) conducted studies in Latin American Countries (Argentina and Brazil) and found low screening coverage through Pap smear exams [23,17,18]: Brito-Silva et al (2014) and Uchimura et al (2009) recorded 20% and 16% coverage, respectively. Sabatino et al (2015) and White et al (2017) also reported low coverage results in North America (U.S.A) [21,22]. However, Miles-Richardson, Blumenthal and Alema-Mensah (2012) (U.S.A) and Bottari, Vasconcelos and Mendonça (2008) (BR) recorded good screening coverage [20,13]: Miles-Richardson, Blumenthal and Alema-Mensah recorded 87% target-population coverage, on average.

Maseko et al (2015) (MW) mention that the existing policy from 2009 in the country does not approach all components focused on preventing cervical cancer such as health education, screening, treatment and palliative care when they analyzed data related to programs, guidelines and the legislation about the topic in their country [28]. On the other hand, Maar et al (2013) (CA) identified lack of indigenous women description as special population in the country's policy [25].

There were differences in the screening references between studies. According to the study conducted by Olesen et al. (2012), the guidelines in the country are oriented to screen the disease through Pap smear exam (every two years), one or two years after the beginning of the sexual activity until de age of 70. The guideline also recommends the HPV vaccine [24].

The UCN prevention program in the United Kingdom cited by Canfell et al (2004) suggests screening from the age of 25 until the age of 49, with three years interval between exams, and in women in the age group 50-64 years, with five years interval between exams. In England, which also belongs to the United Kingdom group, the research conducted by Herbert, Holdsworth and Kubba (2008) evidences the need of starting the screening in women in the age group 20-24 years, since the program in the country recommends starting the screening after such age [30,26].

The lack of access to health services and of active search, as well as socio-demographic, economic and race differences between target populations, physical and structural barriers, and lack of health education and promotion were factors evidenced in three (3) Brazilian studies [13,17,16], in three (3) American ones [20,21,22], in one Canadian research [25] and in one Australian article [24]. One of the main crossroads in one of the Brazilian studies concerns services' structural accessibilities such as lack of gynecology outpatient clinics in all health services [13].

4.4 Quality management of Cytopathological Exams for diagnosis and treatment

There were fragilities in the quality screening and laboratory control of exams in three of the selected studies. The study conducted in Argentina showed no quality control in laboratories responsible for the analysis of material collected for cytopathological exams, as well as lack of data about the segment and treatment of women diagnosed with UCN precursor lesions [23].

Barcelos and colleagues (2017) (BR) mention increased number of screening quality issues related to HDI decrease in some regions in the country, besides association with population growth, with Family Health Strategies coverage and with the public health strategies adopted in Brazil [16].

Ronco et al (2007) (IT) identified a small amount of unsatisfactory smears (3.1%) in comparison to the recommended rate in the country. In Italy, the percentage of unsatisfactory smears is lower than 7%, which

is acceptable, but the desired rate is 5%. Approximately 9% of health services reached acceptable rates and 81% reached the desired rate [27].

With regard to the treatment and diagnostic of precursor lesions identified in the target population, data from three Brazilian [16,18,17], one Zambian [29] and one British studies [26] were identified.

Bottari, Vasconcelos and Mendonça (2008) report the difficulty in treating changes identified in the performed cytopathological exams, without mentioning the amount of the most prevailing changes and/or alteration rates. These data are found in the study by Uchimura et al (2009), who recorded low colpocytologic change and ASCUS (Atypical Squamous Cells of Undetermined Significance) index in the following year. However, they state that this result can be linked to low quality diagnostics, and it increases the rate of false-negative exams [16,18].

Brito-Silva et al (2014) showed the prevalence of malignant changes between women at the age of 50. Adenocarcinoma / Carcinoma diagnostics were mainly detected among women in the age group 50-59. On the other hand, the diagnostic of benign and/or pre-malignant changes was mainly recorded in women in the age group 23-39 years [17].

Pharam et al (2015) conducted a screening in Zambia through cytopathological exam to get the diagnostic and treatment necessary for high and low degree lesions. They found extremely satisfactory results due to the agility of the processes. They also identified a larger number of histological exams in HIV-positive women than in HIV-negative ones, who were part of the population in their research [29].

Herbert, Holdsworth and Kubba (2008) found that NIC 3 (advanced pre-malignant lesion) was the alteration recording the highest index, mainly in women between 20 and 39 years old. Growing NIC 3 rates were recorded for women in the age group 20.24 years in the last decade (3000-4000 cases/year), despite the drop in screening coverage [26].

5. Discussion

The results of the searches highlighted many research on the topic of interest in many countries around the world. Each country has a different way to organize their UCN prevention and control policies/programs, as well as their public health organization.

In the United States, where we found four articles about the herein addressed topic, the public health system is featured as a sub-system based on health insurances and plans. Thus, there are public and private health plans. The most common public health plans are Medicaid and Medicare; they give free access to services, assistance and procedures and are only available for individuals with proven low income [33]. The adhesion of guidelines related to the topic change from state to state in the whole country, i.e., each state chooses one of the guidelines available in the country; there is national consensus.

The United Kingdom and Canada have a public health system based on a common guideline, such as the European Guidelines (United Kingdom) and the Canadian Task Force on Preventive Health Care (CTFPHC) [3,34]. Public health in Brazil is organized by SUS (Unified Health System), which is ruled by the Federal Government. Both the guidelines and the UCN prevention and control, as well as procedures adopted for other diseases, are performed by the Ministry of Health in the country. The most recent guidelines about the topic are: Cervical and Breast Cancer Basic Attention Guide (2013) and the Brazilian Guidelines for

Cervical Cancer Screening (2016) [2,6].

Most studies carried out in Latin America (Brazil and Argentina) recorded low screening rates in the target population: between 20% and 16%. These rates are quite below the recommended by WHO, which suggests 80% minimal relative coverage for the target population [35]. Some studies in North America (USA) show satisfactory indices.

Countries in Latin America and in the Caribbean, which are considered developing countries, present mortality rate due to cervical cancer three times higher than developed countries in North America; 85% of death recorded due to this cancer type are also recorded in poorer countries [36,37].

Studies conducted in Malawi and Canada reported fragilities and gaps in the accomplishment of contents proposed by the programs. When some factors are analyzed, a new evaluation of such factors is also performed. Many studies focused on these evaluations can identify and report gaps and deficiencies in the system, or even show that the target population of the program is not well defined [38]. This reality is often found in the selected research, and it evidences fragmentation in the health programs and services. It is an important obstacle for the assistance model [39].

Aspects related to the barriers and fragilities in the accessibility (health education, active search, socio-economic and race inequalities) to health services are recorded both in developed and developing countries. However, a recent research pointed out that countries in Latin America and the Caribbean (developed and developing ones) record the highest economic inequality rates among women [40], fact that goes against the high mortality rates due to UCN in these countries.

With regard to guidelines addressed in the studies, it is possible noticing that there is no consensus about the age to start screening the disease and for performing exams for its prevention and diagnostic in women. In the United States, after redefinitions applied by experts to many guidelines in 2012, new screening recommendations were concluded. Women should start having their Pap smear exams at the age of 21, and it must be repeated every three years up to the age of 29. Pap smear associated with DNA-HPV screening should be performed every five years after this age (in case they both present negative results) or Pap smear must be performed every three years in women older than 30 years. Screening can stop in women in the age group 65-years or older, when there is no history of high-grade intraepithelial lesions (LSIL) in the last twenty years [41].

In Brazil, Ministry of Health recommendation in the latest elaborated and recommended guidelines lie on screening through Pap smear in women in the age group 25-64 every three years after two consecutive negative cytological results. Screening must stop after the age of 64 after the last negative results [2].

European countries follow the European Guidelines, which recommend start screening in the age group 20-30 years through Pap smear every three years, and through Pap smear associated with DNA-HPV test after the age of 30 until 60-65 years old, every five years [3].

There is no international consensus about the topic; however, according to Jin and colleagues (2013), DNA-HPV tests have better precursor lesion diagnostic than some cytological exams. Besides, emphasis could be given to screening in women presenting higher risk to develop precursor lesions, such as the ones presenting high HPV risk. It is recommended to carry out the test in women older than 30 years, when there is chance of HPV persistence and, consequently, higher risk to develop lesions and cancer [41].

Some of the main measures to overcome health barriers and to fill the gaps between the target population in the planet would be to provide this test due to cost reduction and associate it with HPV vaccination programs subsidized by the government to the whole population [41].

Regarding the analysis of factors related to UCN screening quality, human development inequality between different regions in the country and the lack of laboratory control over the analysis of cytopathological exams were identified in Brazilian and Argentinian studies, respectively [16,18,23].

HDI variations in Brazil and in other countries in Latin America remain a reality [42]. The unbalanced investments made by authorities in health, as well as the deficiencies in UCN prevention and control policies, became the main factors triggering the unsatisfactory results [43].

The studies highlighted the difficulty to provide treatment to women with alterations in the screening exams and low-quality diagnostics. On the other hand, recent studies assessed the development of UCN care procedures and recorded deficit in the production of screening exams and biopsy, as well as a large number of colposcopy exams in most Brazilian regions, mainly in Northern and Northeastern Brazil [44]. These findings evidence the need of reinforcing the continuous education of cytotechnologists, as well as of health professionals responsible for screening the target population. Good laboratory infrastructure and quality control standardization are also necessary [43].

Different from Latin American countries, Europe records better screening results [27]: acceptable and desired coverage rates by 81% and 90% in health services. Assumingly, such outcomes result from the better organization of their programs, although they also have gaps to be filled and improvements to be put in place [45].

5. Conclusion

It is worth to have health services managers and government authorities following-up the policies and program adopted by the public health system by systematically assessing the actions, the production, accessibility and barriers to be identified. Moreover, investments must be optimized in order to qualify the technical procedures and health professionals, as well as to boost health education in the target population. Accordingly, the possibility to reach better results in UCN prevention and control will be much higher.

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