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## Provision of screening services for cervical and breast cancer – A scientific study commissioned by the European Board & College of Obstetrics and Gynaecology (EBCOG)

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### ABSTRACT

**Objective:** Cancer screening can play an important role in early detection, improving treatment outcomes and reducing morbidity and mortality. Breast and cervical cancers belong to the most common gynaecological cancers group. Countries provide different screening programmes on its eligible population basis centred on different health care policies. This scientific study aims to assess and understand the health inequalities in the member countries of the European Board & College of Obstetrics and Gynaecology (EBCOG) as regards screening programmes of gynaecological cancer, with a special focus on breast and cervical cancers' screening strategies. **Study design:** A descriptive questionnaire-based study was conducted, addressed to EBCOG member countries. **Results:** Ninety-one percent of the countries have an organized national or regional screening programme for cervical cancer. Of these, 45% of countries use both cytology and testing for Human Papilloma Virus (HPV) as screening test, 31% use cytology exclusively and 17% only perform HPV testing. Considerable differences were found regarding the interval of screening test: there are countries performing HPV detection triennially, while others perform only conventional cytology every 5 years. Sixty-nine percent of countries included in this study begin screening for cervical cancer in women aged 25 to 29 years, four of them using HPV detection as the screening test. Six countries begin cervical cancer screening before the age of 25. As regards vaccination against HPV, almost all countries have implemented national HPV vaccination programme, except in Poland and Turkey. The 9-valent HPV vaccine is the most frequently offered (77% of countries) and the majority vaccination programmes include both girls and boys. As regards breast cancer screening, all thirty-two countries have an implemented screening programme. All countries perform mammography as the screening test, 62.5% of them begin in women aged 50 to 54, with a 2-yearly interval in the majority. In five countries, screening programmes are performed biennially, starting between 45 and 49 years old. Seven countries start in women aged 41 to 44. **Conclusions:** There are discrepancies around gynaecological cancer screenings provision among EBCOG member countries. It is important to establish European recommendations about screening for gynaecological cancers, in order to standardize the access to equitable better health care in gynaecological cancers within Europe.

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**Introduction**

Preventive health care is an important element in monitoring the population’s health status by reducing the risk of diseases, disabilities and death, ultimately leading to better health outcomes [1]. Immunization and screening programmes are different ways of prevention. Screening programmes consist of the detection of a specific disease or condition in asymptomatic individuals among a population with higher risk for that disease or condition, and guide to provide effective early treatment or intervention [2]. The organized screening programmes are usually implemented on a public health approach basis [3]. To be implemented and to improve public health, a screening programme must ensure that the targeted disease or condition constitutes an important health problem and that there is an effective treatment available for it. Additionally, a suitable methodology or test needs to be available and validated, which depends on several criteria, namely, safety, simplicity, cost effectiveness and good balance between sensitivity and specificity [2].

In cancer, prevention through early detection and screening can play an important role in improving treatment outcomes and reducing morbidity and mortality [4]. Breast and cervical cancers are among the most common cancers in women. In Europe, 531 086 and 58 169 new cases were reported in 2020, for breast and cervical cancer, respectively [5]. Screening programmes for breast and cervical cancers are constantly being improved, in various countries based on the evolving knowledge about each cancer’s pathophysiology, treatment and the available resources [6,7]. The breast cancer screening programme aims to reduce the mortality from breast cancer by early detection and early treatment of asymptomatic patients [8]. It is therefore not surprising that the majority of the screening programmes are based on imaging modalities [9,10]. The cervical cancer screening programme aims to reduce the incidence and mortality of cervical cancer through the identification and treatment of precancerous stages of cervical cancer [11]. A causative relationship between Human Papillomavirus (HPV) infection and cervical cancer has changed the approach used by some countries in cervical cancer screening [12,13].

Health care is devolved amongst European countries and therefore health care policies differ across countries; this leads to provision of different screening programmes across Europe. This paper aims to assess and understand the variation in provision of screening services for breast and cervical cancer in the European Board & College of Obstetrics and Gynaecology (EBCOG) member countries.

**Methods**

Authors carried out a descriptive study based on an online questionnaire addressed to representatives of EBCOG member countries (Appendix A). Results and discussion were based on the replies provided by thirty-two EBCOG member countries: Austria, Belgium, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Georgia, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Malta, the Netherlands, North Macedonia, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom. No replies were received from Bulgaria and Serbia.

**Results**

*Cervical cancer*

As regards cervical cancer screening, 91% of European countries have a national or regional screening programme in place. Only three countries (Austria, Switzerland and Cyprus) do not have a population-based screening programme. Fifty-nine percent of responders claimed to have a coverage rate above 86% (Table 1). In spite of this high coverage rate by the organizers, women’s true adherence to cervical cancer screening is not as high, with only Ireland, Hungary and Portugal

**Table 1**

Coverage rate of cervical cancer screening in European countries with an implemented cervical cancer screening.

Percentage of geographically targeted population of screening cervical cancer programme (%)	Countries
0–30	Croatia
31–45	North Macedonia, Turkey
46–60	Finland, Greece, Lithuania, Malta, Slovakia
61–85	Czech, Norway
86–95	France, Romania
96–100	Belgium, Denmark, Estonia, Germany, Hungary, Iceland, Ireland, Italy, Latvia, Netherlands, Poland, Portugal, Slovenia, Sweden, UK
Do not know/ no records are kept	Georgia, Spain

registering 86% or more women attending the screening programme (Table 2). The reasons for suboptimal coverage rate were attributed mainly to organizational, cultural or personal issues. North Macedonia, for example, has mobile gynaecological clinics which provide free gynaecological examinations and/or cytology screening test for women and girls older than 15 and living in hard-to-reach areas, where there are no registered gynaecologists. These mobile gynaecological clinics are part of the “Program for early detection of malignant diseases of the Republic of North Macedonia for 2022 and prevention of cervical cancer”.

Most countries had their cervical cancer screening program implemented more than ten years ago. Access to the programme in the majority of countries is provided by the government, health system or family doctor. Eighty-six percent have a “flagging up” system when a suspicious case is detected (Table 3).

There were variations in screening tests amongst countries. Forty-five percent use cytology and HPV testing, 31% use only cytology (conventional or liquid-based) and 17% only perform HPV testing (Table 4). The interval of screening also differs: 24% of countries perform conventional or liquid-based cytology every 3 years in women aged between 25 and 30 years and then HPV testing every 5 years; 38% of responders use conventional or liquid-based cytology every 3 years; and 14% carry out HPV testing every 5 years. The remaining used different methodologies (Table 5).

As regards the age of starting screening, six countries begin between 21 and 24 years of age, twenty countries between 25 and 29 years of age and three countries between 30 and 39 years of age (Fig. 1). Three countries stop screening women under 60 years, nineteen countries between 60 and 65 years, and seven countries women older than 66 years of age (Fig. 2).

Concerning HPV vaccination, thirty responders have confirmed that a national HPV vaccination programme existed in their countries. Even though Poland has no national programme, it provides the vaccine in

**Table 2**

Women’s adherence to cervical cancer screening in European countries with an implemented cervical cancer screening.

Percentage of adherent women to screening cervical cancer programme (%)	Countries
0–30	Croatia, Georgia, Romania, Poland
31–45	Latvia, Slovakia
46–60	Czech, Estonia, France, Germany, Greece, Italy, Lithuania, Malta, Netherlands, North Macedonia
61–85	Belgium, Denmark, Finland, Iceland, Norway, Slovenia, Sweden, Turkey, UK
86–95	Ireland, Portugal
96–100	Hungary
Do not know/ no records are kept	Spain

**Table 3**

Countries with and without a system of “flagging up” and referring suspicious cases on cervical cancer screening.

Countries with a system of “flagging up” and referring suspicious cases on cervical cancer screening	Belgium, Croatia, Czech, Denmark, Finland, France, Georgia, Germany, Greece, Hungary, Iceland, Ireland, Italy, Malta, Netherlands, North Macedonia, Norway, Poland, Portugal, Slovakia, Slovenia, Spain, Sweden, Turkey, UK
Countries without a system of “flagging up” and referring suspicious cases on cervical cancer screening	Estonia, Latvia, Lithuania, Romania

**Table 4**

Screening tests for cervical cancer screening performed in European countries with an implemented cervical cancer screening.

Screening test	Countries
Conventional cytology	Croatia, Hungary, Georgia, North Macedonia, Poland, Romania, Slovakia
Liquid-based cytology	Belgium, Malta
HPV testing	Estonia, France Ireland, Italy, UK
Conventional cytology or liquid-based cytology + HPV testing	Czech, Germany, Greece, Iceland, Latvia, Lithuania, Netherlands, Norway, Portugal, Slovenia, Spain, Sweden, Turkey
Other	<i>Denmark:</i> women aged 23–29 are screened with liquid-based cytology every 3 years. Women aged 30–59 born on uneven dates are screened with HPV every 5 years. Women aged 30–49 born on even dates are screened with cytology every 3 years. Women aged 50–59 born on even dates are screened with cytology every 5 years. Women aged 60–64 are screened with HPV one time <i>Finland:</i> Depending on the area: cytology (for women under 30 years old) + HPV-testing (for women older than 30 years old) or cytology-only.

some regions. The only country without a national vaccination programme is Turkey (Table 6). About eighty-seven percent of countries implemented an HPV vaccination programme more than 5 years ago (Fig. 3). The 9-valent vaccine is the most frequently provided vaccine, chosen by twenty-three responders (Fig. 4). Twenty-one countries include both girls and boys in their vaccination programmes (Table 7). Twenty-six countries start vaccination of girls between 10 and 13 years old (Fig. 5).

### Breast cancer

All thirty-two countries have a breast cancer screening programme. Belgium, Romania and Switzerland have a regional programme. Seventeen countries have a coverage rate above 86% of the population, in contrast with five countries which present a coverage rate of less than 45% (Table 8). The actual participation rate in fifteen countries is between 61 and 85%, with only Malta reporting a better participation rate, of between 86 and 95% (Table 9).

Twenty-seven countries officially started the breast screening cancer over thirteen years ago; only Romania and Slovakia started after 2016 (Fig. 6). In 77% of countries, the invitation to screening is through letter or e-mail by the government or health system (Table 10). Twenty-seven countries have a system of “flagging up” and referring suspicious cases (Table 11).

All countries perform mammography as the screening test, twenty-nine of them repeating at a 2-year interval. The United Kingdom and Ireland perform a mammography with a 3-year and 5-year interval, respectively (Table 12). Twenty countries begin screening for breast cancer in women aged between 50 and 54 years (Fig. 7). In five countries (Austria, Cyprus, Czech, Hungary and Italy), women start the breast

**Table 5**

Periodicity of cervical cancer screening in European countries with an implemented cervical cancer screening programme.

Screening test and periodicity	Countries
Conventional cytology or liquid-based cytology every 3 years	Belgium, Croatia, Georgia, Greece, Hungary, Malta, North Macedonia, Poland, Slovakia, Slovenia, Spain
Conventional cytology or liquid-based cytology every 3 years between 25 and 30 years and then HPV testing every 5 years	France, Germany, Iceland, Latvia, Norway, Portugal, Turkey
HPV testing every 5 years	Estonia, Ireland, Italy, Netherlands
Other	<i>Czech:</i> Conventional cytology every year + HPV testing at 30 years and 45 years <i>Denmark:</i> women aged 23–29 years are screened with liquid-based cytology every 3 years. Women aged 30–59 years born on uneven dates are screened with HPV every 5 years. Women aged 30–49 years born on even dates are screened with cytology every 3 years. Women aged 50–59 years born on even dates are screened with cytology every 5 years. Women aged 60–64 years are screened with HPV one time <i>UK:</i> women younger than 50 years: HPV testing every 3 years and then every 5 years <i>Finland:</i> Depending on the area: cytology (for women under 30 years) + HPV testing (for women older than 30 years) or cytology-only. Every 5 years independent of the testing method. <i>Lithuania:</i> conventional cytology every 3 years (for women aged between 25 and 34 years) + HPV testing every 5 years (for women aged between 35 and 59 years) <i>Romania:</i> conventional cytology every 5 years <i>Sweden:</i> HPV testing every 5 years for women with 50 years or younger and then HPV testing every 7 years until 70 years

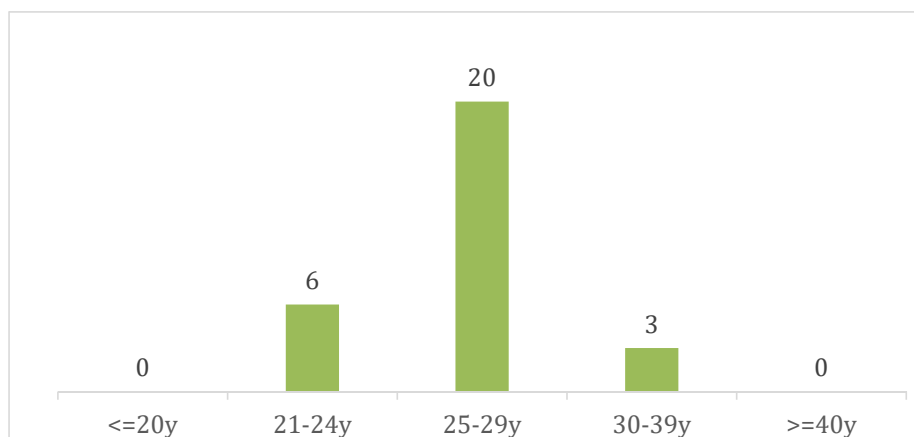
screening cancer between 45 and 49 years, by performing mammography biennially. Seven countries initiate breast screening in women aged 41 to 44 years (Fig. 7). Concerning the age to stop screening, 81% terminate between 66 and 75 years. Three countries (Hungary, Iceland and Lithuania) stop screening below 65 years of age. Three countries prolong the breast cancer screening beyond 76 years of age (Fig. 8).

### Other gynaecological cancers

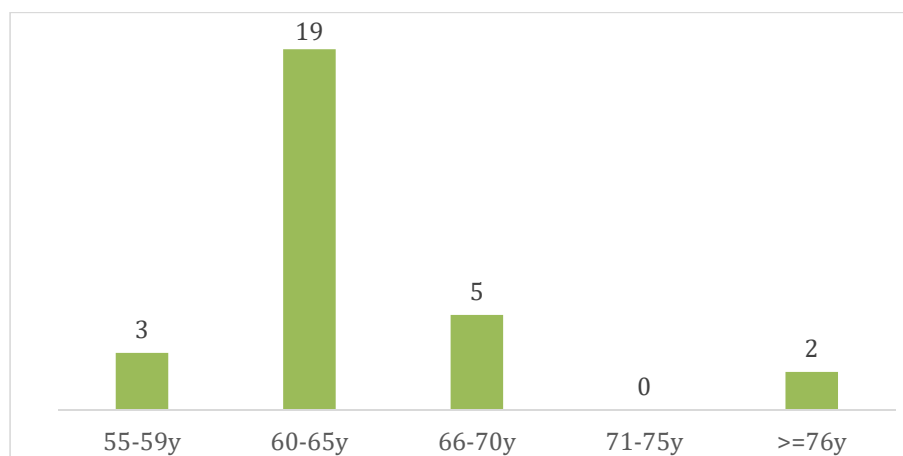
As regards other gynaecological cancer screening programmes, 87,5% of member states do not have any national programme or established protocol. The only exceptions are Spain, with endometrial cancer screening; and Austria, Norway and Romania which offer screening for hereditary cancers (Fig. 9).

### Discussion and conclusions

Organized screening programmes have an impact on the incidence and mortality associated with some cancers, including cervical and breast cancers. The aims of these programmes are early identification and treatment of screened lesions. Implementation of breast and cervical cancer screening programmes has a positive result in the reduction of the incidence and mortality of breast and cervical cancer. In fact, a prospective study from 2016 conducted in the United Kingdom has shown that cervical cancer screening prevented 70% of cervical cancer deaths [14]. Similarly, a study on breast cancer screening has reported that mammography screening prevented around 21 680 breast cancer



**Fig. 1.** Age of starting cervical cancer screening in European countries. 21–24 years: Denmark, Greece, Hungary, Slovakia, Slovenia, Sweden; 25–29 years: Belgium, Croatia, Czech, France, Georgia, Germany, Iceland, Ireland, Italy, Latvia, Lithuania, Malta, Netherlands, North Macedonia, Norway, Poland, Portugal, Romania, Spain, UK; 30–39 years: Estonia, Finland, Turkey.



**Fig. 2.** Age of stopping cervical cancer screening in European countries. 55–59 years: Georgia, Lithuania, Malta; 60–65 years old: Belgium, Croatia, Denmark, Estonia, Finland, Greece, Iceland, Ireland, Italy, Hungary, Netherlands, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Turkey, UK; 66–70 years: France, Latvia, North Macedonia, Norway, Sweden; Above 76 years: Czech, Germany.

**Table 6**  
Human Papillomavirus (HPV) vaccination programme in European countries.

Countries with a national HPV vaccination programme	Austria, Belgium, Croatia, Cyprus, Czech, Denmark, Estonia, Finland, France, Georgia, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Malta, Netherlands, North Macedonia, Norway, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, UK
Country without a national HPV vaccination programme	Turkey
Country without a national programme for HPV vaccination, but some regions provide it to the women	Poland

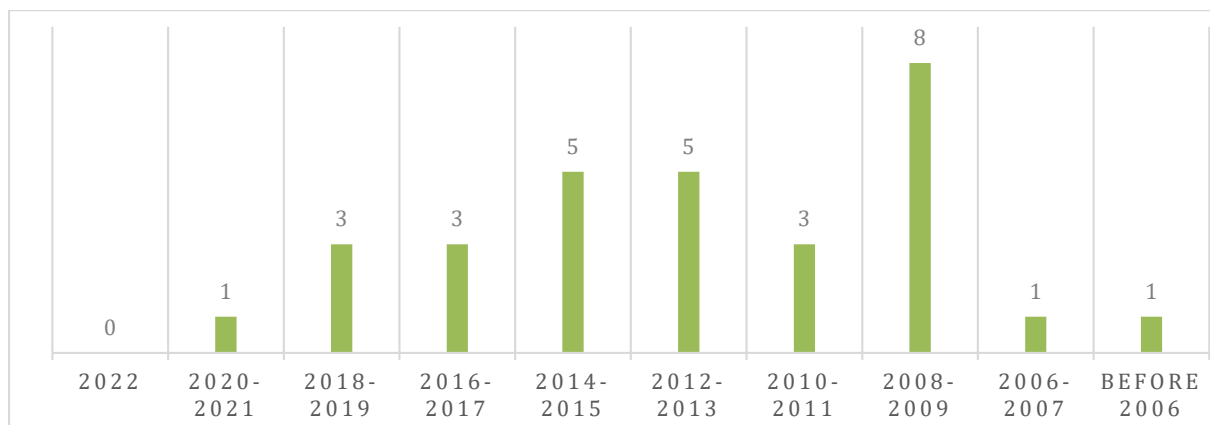
HPV: Human Papillomavirus.

deaths, which means that 34% of breast cancer specific deaths were prevented [15]. By contrast, the main shortcoming of the screening programmes is the over-diagnosis and overtreatment of some cancers, as well as the false positive and false negative results, hence the importance of an optimised screening programme for gynaecological cancers.

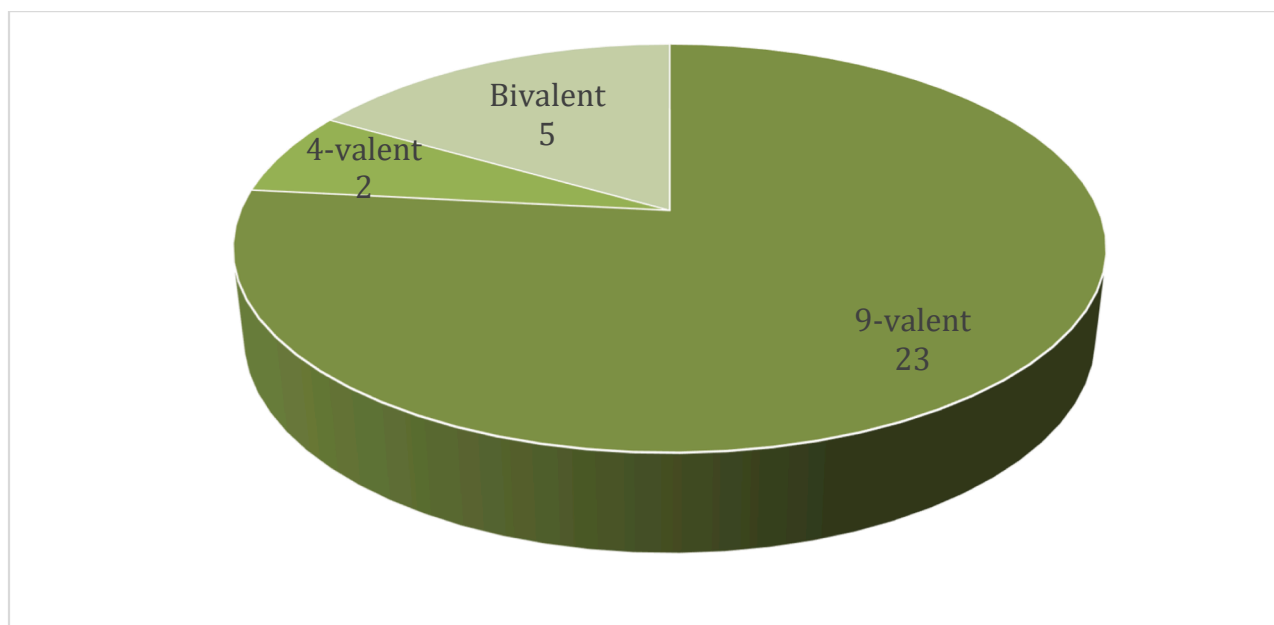
This study shows that there are still countries in Europe where an organized national cervical cancer screening does not exist. Even in

some countries with organized national cervical cancer screening programmes, such as Greece, Ireland and Romania, there are some discrepancies between the regions. The discrepancies in the use of screening test of choice between countries reflects the difficulty in balancing the use of current gold standard methods and their associated costs [6]. In line with the guidance from European Society of Gynaecologic Oncology (ESGO) and the European Federation of Colposcopy (EFC) recommendations, many countries are switching to HPV testing after more than fifty years of experience with cytology as a screening test [11].

In this study, nine countries reported the use of cytology (conventional or liquid-based) as a screening test, while five countries only perform HPV testing. In Romania, for example, cervical cancer screening is done by conventional cytology every five years. On the other hand, in the United Kingdom for women aged up to 49 years old, an HPV testing is performed every three years and every five years for women over 49 years. Thirteen countries use the combination of the two screening tests. The Danish screening programme for example has a unique approach: liquid-based cytology is performed in women aged 23 to 29 years, and after this, the screening test changes according to birth dates; women born on uneven dates perform HPV testing every 5 years until 59 years old, and women born on even dates perform cytology between 30 and 49 years every three years and every five years between 50 and 59 years. All women between 60 and 64 years have a single HPV test.



**Fig. 3.** Year of starting implemented Human Papillomavirus (HPV) vaccination in European countries. 2020–2021: Slovakia; 2018–2019: Estonia, Germany, Georgia; 2016–2017: Croatia, Lithuania, North Macedonia; 2014–2015: Austria, Finland, Hungary, Iceland, Romania; 2012–2013: Cyprus, Czech, Greece, Malta, Sweden; 2010–2011: Belgium, Ireland, Latvia; 2008–2009: Denmark, France, Netherlands, Norway, Portugal, Slovenia, Spain, UK; 2006–2007: Switzerland; Before 2006: Italy.



**Fig. 4.** Human Papillomavirus (HPV) vaccines provided in European countries. Bivalent: Finland, Iceland, Lithuania, Netherlands, Norway; 4-valent: Georgia, North Macedonia; 9-valent: Austria, Belgium, Croatia, Cyprus, Czech, Denmark, Estonia, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Malta, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, UK.

**Table 7**  
Target population of Human Papillomavirus (HPV) vaccination programme in European countries.

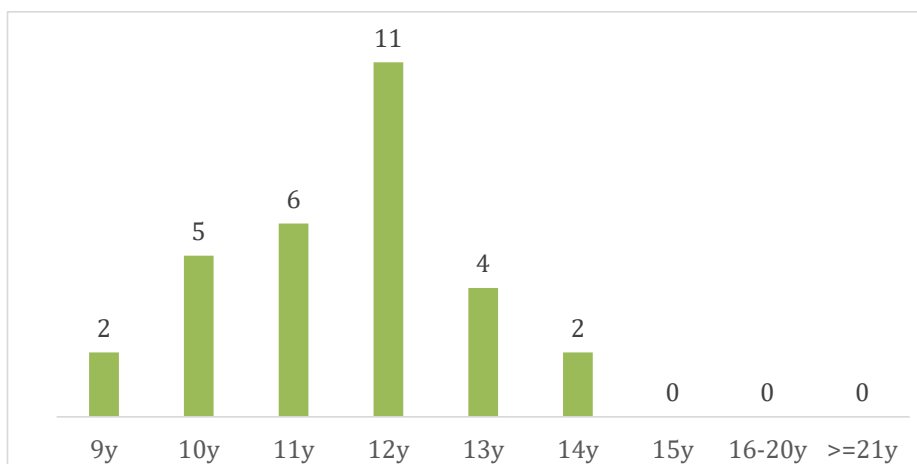
Target population	Countries
Only girls	Estonia, Georgia, Iceland, Lithuania, Malta, North Macedonia, Romania, Slovakia, Spain
Girls and boys	Austria, Belgium, Croatia, Cyprus, Czech, Denmark, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Netherlands, Norway, Portugal, Slovenia, Sweden, Switzerland, UK

In Finland, depending on the region, cervical cancer screening is done by cytology and HPV testing or cytology only.

In fact, HPV testing is more cost-effective than cytology as a screening test, exhibiting higher sensitivity in detection of high-grade

disease, lower inter and intra-variability and allowing longer screening intervals [11]. However, its implementation requires validated tests, resulting in high cost for some countries. Moreover, HPV testing has a lower specificity since it also detects transient HPV infections without a true carcinogenic potential and, therefore, it is not recommended in women under 30 years of age [11,16]. Countries like Ireland, Italy and the Netherlands, that perform HPV testing as screening tool should take this into account when defining the starting age. The European Guidelines for Quality assurance in Cervical Cancer Screening also mention that cytology-based screening should start at the age of 25 years, as there is no additional benefit starting earlier than 25 [17]. However, the age at which cytology-based screening is introduced should be tempered with the woman’s age of first sexual encounter and the immune status of the individual. Regarding this matter, we have identified six countries that invite women to initiate cervical cancer screening before they turn 25 years old, which could potentially increase false positives cases. Most European countries (about 66%) stop





**Fig. 5.** Starting age for Human Papillomavirus (HPV) vaccination in girls in HPV vaccination programme. 9 years: Austria, Germany; 10 years: Georgia, Netherlands, Portugal, Romania, Sweden; 11 years: Finland, France, Italy, Lithuania, Slovenia, Switzerland; 12 years: Belgium, Denmark, Estonia, Iceland, Ireland, Latvia, Malta, North Macedonia, Norway, Slovakia, UK; 13 years: Cyprus, Czech, Greece, Hungary; 14 years: Croatia, Spain.

**Table 8**  
Coverage rate of breast cancer screening in European countries.

Percentage of geographically targeted population of screening breast cancer programme (%)	Countries
0–15	–
16–30	Georgia, Turkey
31–45	Finland, Malta, North Macedonia
46–60	Czech, Greece, Lithuania, Romania, Slovakia
61–85	Austria, France, Norway, Portugal
96–100	Belgium, Croatia, Cyprus, Denmark, Estonia, Germany, Hungary, Iceland, Ireland, Italy, Latvia, Netherlands, Poland, Slovenia, Spain, Sweden, UK

No answer was obtained from Switzerland.

**Table 9**  
Women’s adherence to breast cancer screening in European countries.

Percentage of adherent women to screening breast cancer programme (%)	Countries
0–30	Romania
31–45	Austria, Cyprus, France, Latvia, Poland
46–60	Croatia, Germany, Greece, Lithuania, Slovakia, Slovenia
61–85	Belgium, Czech, Denmark, Finland, Hungary, Iceland, Italy, Netherlands, North Macedonia, Norway, Portugal, Slovenia, Sweden, Turkey, UK
86–95	Malta
96–100	–
Do not know/ no records are kept	Ireland, Georgia, Spain

No answer was obtained from Switzerland.

screening for cervical cancer in the recommended age, between 60 and 65 years old [17]. In this study, there were no replies from members from Bulgaria and Serbia. Sadly, these two countries have high rates of cervical cancer due to a lack of proper national vaccination and screening programme [18].

HPV vaccination is of the most importance in the primary prevention of cervical cancer. All countries, except Turkey and Poland, have included vaccination against HPV in their national programmes. It is important to highlight that Poland already provides the vaccine in some regions, expecting to extend it to whole country by 2023. Seventy

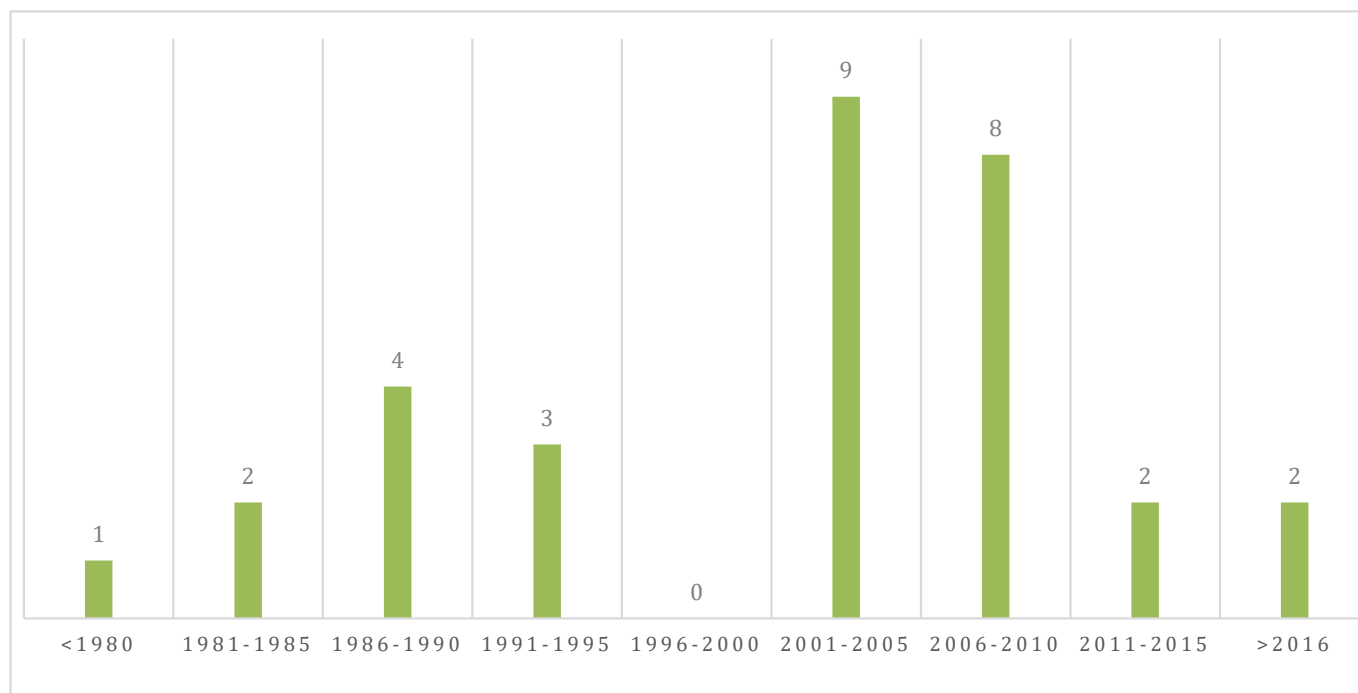
percent of the countries include boys and girls in the population covered by the vaccine, which is in line with recent data pointing to the cost-effectiveness of the extension of HPV vaccination to boys, since it allows an indirect protection for girls with suboptimal uptake and reduces HPV virus circulation [19]. EBCOG position statement has clearly alluded to the additional benefits of HPV immunisation for both boys and girls in the prevention of non-gynaecological cancers as well [20].

Most countries have the 9-valent vaccine, covering more HPV subtypes and offering more protection. As vaccines do not mean to represent a form of treatment, the current strategy of vaccination is to cover both genders prior to first sexual intercourse in order to reduce the burden of cervical cancer [6]. In the future, massive widespread vaccination of this population could lead to a retailoring of screening programmes for the women currently being vaccinated.

Breast cancer is the most frequently diagnosed neoplasm in European women and therefore its screening programmes are well established in most countries [15]. In fact, all thirty-two member countries have an existing national breast cancer screening programme except for Belgium, Romania and Switzerland, which have regional programmes. Moreover, breast cancer screening programmes have been established for a significant number of years in most cases; only Romania and Slovakia started it less than seven years ago. In line with the recommendations of European Commission Initiative on Breast Cancer (ECIBC) about the screening test [21], all countries perform mammography as a screening test. Concerning frequency of screening, there are discrepancies between countries, with the majority performing a mammography every two years. Countries that differ from this are: Greece, which carries an annual mammography; the United Kingdom, performing a triennial mammography; and Ireland, where women are invited to do a mammography every five years.

In women aged 50–69 years ECIBC recommends a biennial screening [22]. This recommendation is based on the fact that annual screening compared to biennial has small additional benefits, increasing false positive rates; while triennial have smaller benefits compared to biennial [23]. The starting and ending age of breast cancer screening is different in some countries. Most responders (twenty) start the programme in women aged 50 years or older. Five countries initiate the screening in women aged 45 to 49 years and seven countries between 41 and 44 years of age. Recently, the ECIBC published the recommendation of a triennial or biennial mammography screening programme in women aged 45 to 49 years. Moreover, in women aged 40 to 44 years, ECIBC do not recommend implementing mammography screening (conditional recommendation, moderate certainty of the evidence) [22].

This paper highlights the inequalities around gynaecological cancer



**Fig. 6.** Year of starting implemented breast cancer screening in European countries. Before 1980: Iceland; 1981–1985: Italy, Sweden; 1986–1990: Czech, England, Finland, Neverland; 1991–1995: France, Norway, Spain; 2001–2005: Belgium, Cyprus, Estonia, Germany, Greece, Hungary, Ireland, Lithuania, Slovenia; 2006–2010: Croatia, Denmark, Georgia, Latvia, Malta, North Macedonia, Poland, Portugal; 2011–2015: Austria, Turkey; above 2016: Romania, Slovakia. No answer was obtained from Switzerland.

**Table 10**  
Ways of access to breast cancer screening programme in European countries.

Access to breast cancer screening programme	Countries
Invitation by letter or e-mail by the government / health system	Belgium, Croatia, Cyprus, Denmark, Estonia, Finland, France, Germany, Hungary, Iceland, Ireland, Italy, Latvia, Netherlands, North Macedonia, Norway, Poland, Portugal, Slovakia, Slovenia, Spain, Sweden, Turkey, UK
Women go to screening centers by their own initiative	Georgia, Greece, Romania
Invitation by family doctor	Lithuania, Malta
Referral system by a non-governmental organization	Austria
Other	Czech: by general practitioner or registering gynaecologist

No answer was obtained from Switzerland.

**Table 11**  
Countries with and without a system of “flagging up” and referring suspicious cases on breast cancer screening.

Countries with a system of “flagging up” and referring suspicious cases on breast cancer screening	Austria, Belgium, Croatia, Cyprus, Czech, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Malta, Netherlands, North Macedonia, Norway, Poland, Portugal, Slovakia, Slovenia, Spain, Sweden, Turkey, UK
Countries without a system of “flagging up” and referring suspicious cases on breast cancer screening	Georgia, Latvia, Lithuania, Romania

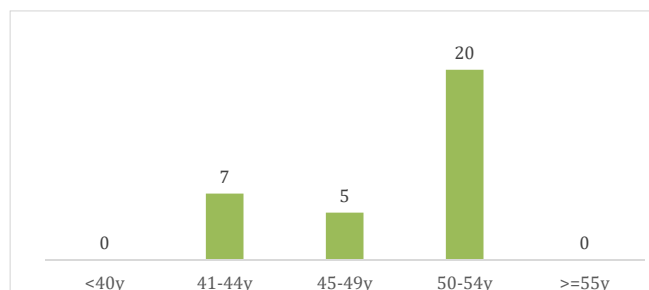
No answer was obtained from Switzerland.

screenings among EBCOG member countries. In fact, both in cervical and breast cancer screening programmes, some disparities are observed

**Table 12**  
Periodicity of mammography in breast cancer screening in European countries.

Periodicity of mammography	Countries
Annual	Greece
Every 2 year	Austria, Belgium, Croatia, Cyprus*, Czech, Denmark, Estonia, Finland, France, Georgia, Germany, Hungary, Iceland, Italy, Latvia, Lithuania, Malta, Netherlands, North Macedonia, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey
Every 3 year	UK
Every 5 year	Ireland

\*Complemented with ultrasonography.



**Fig. 7.** Age of starting breast cancer screening in European countries. 41–44 years: Georgia, Greece, Iceland, North Macedonia, Romania, Sweden, Turkey; 45–49 years: Austria, Cyprus, Czech, Hungary, Italy; 50–54 years: Belgium, Croatia, Denmark, Estonia, Finland, France, Germany, Ireland, Latvia, Lithuania, Malta, Netherlands, Norway, Poland, Portugal, Slovakia, Slovenia, Spain, Switzerland, UK.

between countries in terms of the organization, invitation coverage, methods and interval of the screening tests. Additionally, the HPV vaccination also shows some discrepancies between countries, despite

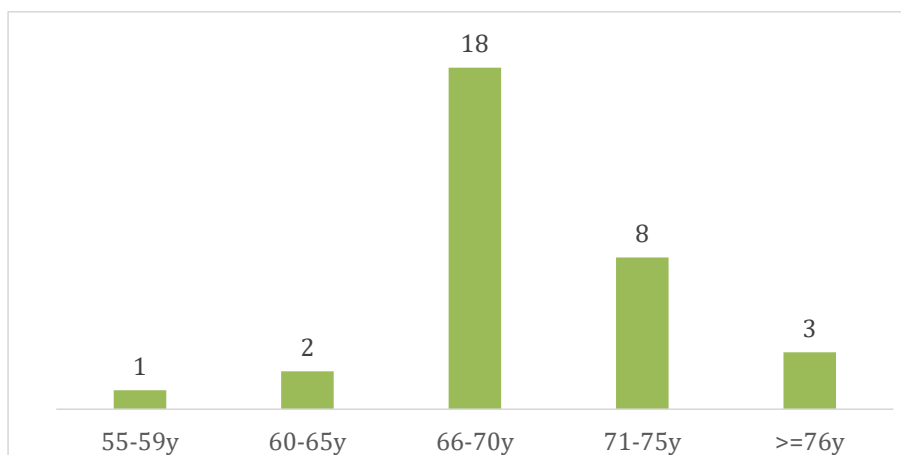


Fig. 8. Age of stopping breast cancer screening in European countries. 55–59 years old: Lithuania; 60–65 years: Hungary, Iceland; 66–70 years: Belgium, Denmark, Estonia, Finland, Georgia, Germany, Greece, Italy, Latvia, Malta, North Macedonia, Norway, Poland, Portugal, Romania, Slovenia, Spain, Turkey; 71–75 years: Austria, Croatia, Cyprus, Ireland, Slovakia, Sweden, Switzerland, UK; Above 76 years: Czech, France, Netherlands.

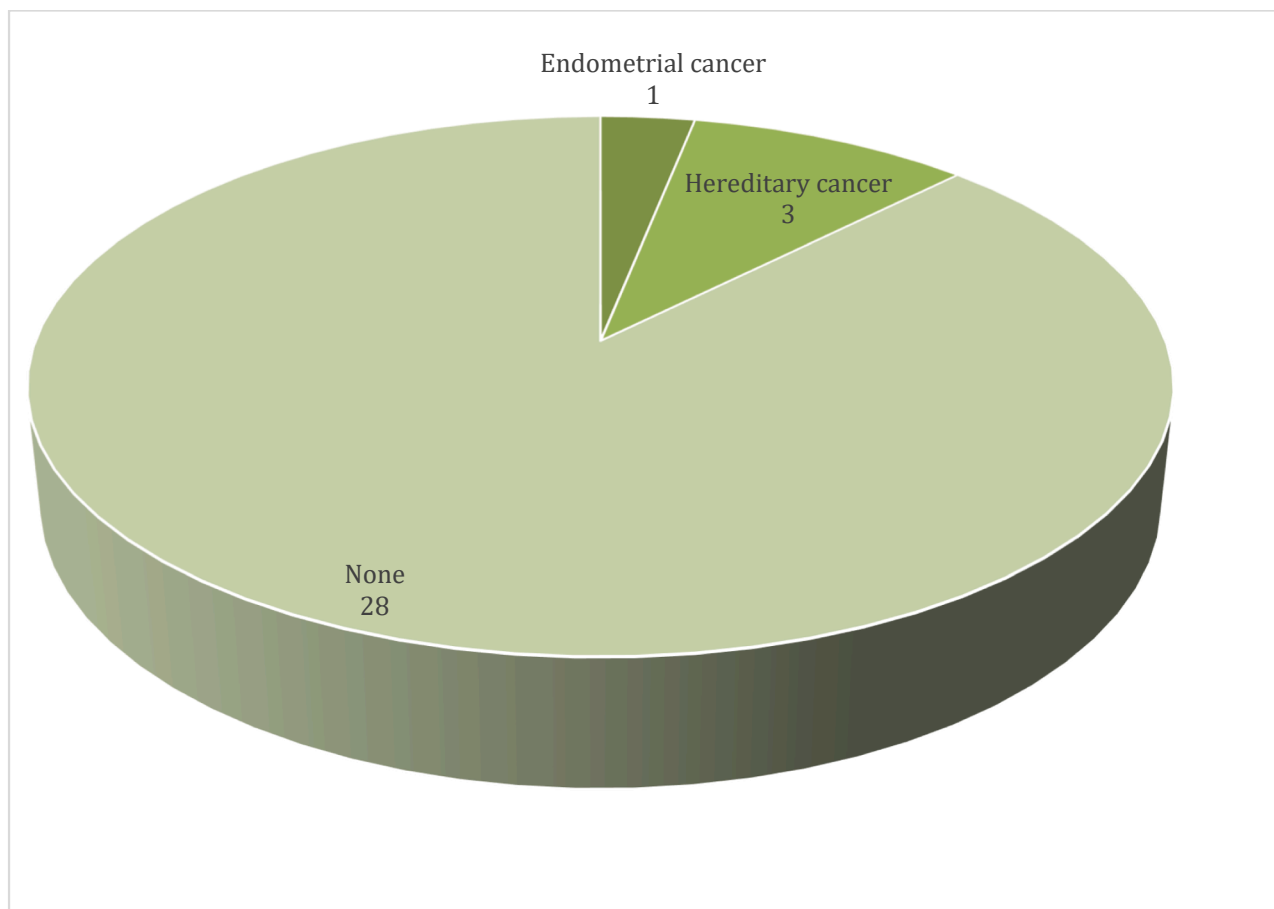


Fig. 9. Other gynaecological cancer screenings implemented in European countries; Endometrial cancer: Spain; Hereditary cancer: Austria, Norway, Romania; None: Belgium, Croatia, Cyprus, Czech, Denmark, Estonia, Finland, France, Georgia, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Malta, Netherlands, North Macedonia, Poland, Portugal, Slovakia, Slovenia, Sweden, Switzerland, Turkey, UK.

the efforts from last few years. Concerning cervical cancer, the new knowledge about its pathophysiology have impacted on the use of preventive methods. The costs involved in national cancer screening implementation programmes are associated with organizational, cultural, and personal barriers. These factors possibly explain the inequalities of various screening programmes across member countries.

EBCOG recommends that there should be a consensus among all the

European countries about a uniform approach for gynaecological cancers screening that fit the target population and take into account their cost-effectiveness, in order to standardize the European access to better health care related to gynaecological cancers (BOX 1).

EBCOG: European Board & College of Obstetrics and Gynaecology; HPV: Human Papillomavirus

This project was initiated by the Health Inequalities working group



### Box 1 – Key-points on cervical and breast cancer screening programmes in EBCOG member countries

- A cervical cancer screening programme exists in the majority of EBCOG member countries; only Austria, Cyprus and Switzerland do not have a population-based screening programme. However, inequalities on the coverage population by cervical cancer screening still exist between European countries.
- Some countries are still using conventional or liquid-based cytology as screening test for cervical cancer. The actual knowledge about cervical cancer and its pathogenesis reveals that HPV testing is the most cost-effective test as screening test for cervical cancer, allowing a more extended periodicity of screening, at least 5 years.
- The introduction of HPV vaccination on national programmes was a priority by some EBCOG member countries. In fact, currently, only Turkey do not have a national vaccination programme for HPV. Poland is planning its introduction in 2023. Although the coverage of vaccination is not optimal, the current recommendations agree in vaccinating both girls and boys, preferably before the onset of sexual activity.
- Thirty-two EBCOG member countries have a breast cancer screening programme. All countries have a national programme, except Belgium, Romania and Switzerland which have a regional programme. Nevertheless, there are some inequalities on the coverage population by breast cancer screening, as five countries registered a coverage rate below 45%.
- The mammography is the screening test used for breast cancer screening in EBCOG member countries. Its periodicity varies between annual, biennial, and triennial.
- Regarding gynaecological cancer screenings, there is an urgent need of EU-wide guidance to have a uniform policy in order to standardize the European access to better health care related to gynaecological cancers.

of the standing committee on standards of care and position statements of EBCOG. The questionnaire was approved by the committee before being circulated electronically. Final version of the paper has been peer reviewed by members of the EBCOG Standing committee on standards of care and position statements.

### Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

### Appendix A. Supplementary data

Supplementary data to this article can be found online at <https://doi.org/10.1016/j.ejogrb.2023.08.385>.

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