



The Impact of COVID-19 Pandemic on Screening Programs for Cervical Cancer Prevention Across Europe

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THE IMPACT OF COVID-19 PANDEMIC ON SCREENING PROGRAMMES FOR CERVICAL CANCER PREVENTION ACROSS EUROPE

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Abstract:	<p>Objective</p> <p>To estimate the impact of COVID-19 pandemic on the practice of cervical cancer screening in European countries.</p> <p>Methods</p> <p>A 3 rounds e-survey was conducted among the 31 European Federation for Colposcopy (EFC) member countries during 2020. Each representative was asked to answer to each questionnaire for their own country. Questionnaires were not anonymous. The first questionnaire was sent in April 2020 and second and third in June and December 2020, respectively.</p> <p>Results</p> <p>25 of the 31 European countries solicited responded. A total of 19 (70.4%) countries reported that screening for cervical cancer was suspended at least once during the 3 rounds of questionnaires. Additionally, 11 countries reported stopping colposcopy and treatments for cervical precancerous lesions at least once during the 3 rounds of questionnaires. These situations evolved with time, with the highest rate of countries recommending suspension of screening, colposcopy and treatments during the second round of the survey. At round 3, no country recommended screening, colposcopy and treatment, and 12 (57.5%) countries reported normal screening was fully implemented.</p>

Conclusion

Our results suggest massive disruption in cervical cancer screening programmes across Europe resulting from COVID-19 pandemic. Increase in the incidence of cervical cancer is to be expected.

THE IMPACT OF COVID-19 PANDEMIC ON SCREENING PROGRAMMES FOR CERVICAL CANCER PREVENTION ACROSS EUROPE

Running title: Cervical cancer screening and COVID-19

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- 1 **Précis:** The COVID-19 pandemic has resulted in the disruption cervical cancer prevention
- 2 activities in most European countries.

Abstract

Objective: To estimate the impact of COVID-19 pandemic on the practice of cervical cancer screening in European countries.

Methods: A 3 rounds e-survey was conducted among the 31 European Federation for Colposcopy (EFC) member countries during 2020. Each representative was asked to answer to each questionnaire for their own country. Questionnaires were not anonymous. The first questionnaire was sent in April 2020 and second and third in June and December 2020, respectively.

Results: 25 of the 31 European countries solicited responded. A total of 19 (70.4%) countries reported that screening for cervical cancer was suspended at least once during the 3 rounds of questionnaires. Additionally, 11 countries reported stopping colposcopy and treatments for cervical precancerous lesions at least once during the 3 rounds of questionnaires. These situations evolved with time, with the highest rate of countries recommending suspension of screening, colposcopy and treatments during the second round of the survey. At round 3, no country recommended screening, colposcopy and treatment, and 12 (57.5 %) countries reported normal screening was fully implemented.

Conclusion: Our results suggest massive disruption in cervical cancer screening programmes across Europe resulting from COVID-19 pandemic. Increase in the incidence of cervical cancer is to be expected.

Keywords: screening, COVID-19, cervical cancer, consequences

1 **Introduction**

2

3 Cervical cancer remains one of the most common cancers and causes of cancer-related deaths
4 in women worldwide. In Europe, it accounted for 33000 cases and 15000 deaths in 2018.¹ With
5 the possibility for screening and human papillomavirus (HPV) vaccination, cervical cancer is
6 one of the few preventable cancers. In August 2020, the WHO adopted the global strategy for
7 cervical cancer elimination with the recommendation to achieve 90% HPV vaccination
8 coverage, 70% screening coverage and 90% access to treatment of screen-detected lesions.²
9 Screening is key to the prevention and early detection of the disease. In Europe, implemented
10 screening programmes have shown to be extremely efficient, resulting in massive reduction in
11 cervical cancer mortality.³ Reduction in the incidence rate is estimated to be 50-60%.⁴
12 In the first half of 2020, the COVID-19 pandemic has massively impacted population
13 worldwide. Hospitals in most impacted areas across Europe have been overcrowded, with the
14 need to devote a large part of the medical resources to the management of COVID patients,
15 reinforcement of intensive care units' resources and opening of dedicated wards. The
16 suspension or postponement of non-urgent procedures were among the first adopted strategies.
17 With health care services overrun, measures to avoid non-urgent medical procedures were
18 endorsed, resulting in disruption of many medical activities. Several medical societies have
19 recommended cancelling, postponing, or adapting non-urgent procedures of cancer patients.⁵⁻⁸
20 Additionally, the implementation of social distancing and extensive lockdown periods,
21 restriction of mobility and patients' fear of getting infected with coronavirus have severely
22 jeopardized elective medical care and existing preventions programmes.
23 Recent data has already shown a significant reduction in breast, colorectal and cervical cancer
24 screening with several countries reporting a massive drop in screening, diagnosis and treatment
25 because of COVID-19.⁹⁻¹¹ Thus, a 28 to 100 % decrease in colorectal cancer screening

1 depending on countries and different times after the onset of the COVID-19 has been recently
2 reported.¹² This unprecedented worldwide situation will possibly result in delay in diagnosis with
3 more advance stage at diagnosis possibly resulting in an increased mortality from preventable
4 cancers. Using a national population-based modelling study based upon the English National
5 Health Service (NHS) cancer registration and hospital dataset, a recent publication estimated a
6 15.3-16.6% increase in the 5-years mortality due to colorectal cancer and 7.9-9.6% increase in
7 the 5-years mortality due to breast cancer.¹³

8 To date, very few data about the impact of COVID-19 pandemic on cervical cancer screening
9 have been published. Few authors have already reported major concerns about future
10 consequences of the repeated blows of COVID-19 on cervical cancer screening
11 programmes.^{14,15} Investigating the long-term consequences of COVID-19 outbreak on current
12 cervical cancer screening programmes and the impact of different decisions taken across Europe
13 is therefore a major public health matter.

14 The aim of this survey was to estimate the impact of COVID-19 pandemic on the practice of
15 cervical cancer screening in European countries.

18 **Materials and methods**

20 This survey was endorsed by the European Federation of Colposcopy (EFC). A 3 round survey
21 was conducted using online questionnaires that were sent to the 31 EFC member countries
22 during 2020. All questionnaires were sent using the google forms web platform:
23 <https://www.google.fr/intl/fr/forms/about/>. At each round of the survey, a link to each online
24 questionnaire was sent by email to the representative of each national society of colposcopy.
25 Each representative was asked to answer to each questionnaire for his own country.

1 Questionnaires were not anonymous. IRB approval was not necessary as this study does not
2 rely on research on human subjects.

3 The first questionnaire was sent the 12th of April 2020, shortly after the first wave of the
4 pandemic in Europe. It included 16 questions with 13 structured multiple-choice questions
5 (MCQs) and three open questions. Questions focussed on the COVID situation in each country
6 at the time of questionnaire, with specific evaluation of the specific impact on screening,
7 practice of colposcopy and of treatment of precancerous lesions of the cervix. Finally,
8 respondents were asked if specific national recommendations had been issued in their country
9 regarding how screening, the practice of colposcopy and treatment should be adapted to the
10 current situation. The second and third questionnaires were sent on the first of June 2021 and
11 on the 14th of December 2020, respectively. They consisted of 17 (14 MCQs and three open
12 questions) and 14 (12 MCQs and two open) questions respectively. Questions were mostly a
13 repetition the ones from first questionnaire, but additional questions about the negative impact
14 on screening and cervical cancer prevention were added. For each questionnaire, a one-month
15 period was offered for all representatives to respond. During each round, two reminder emails
16 were sent to representatives.

17 Answers were collected and analysed using excel v16 spreadsheets (Microsoft).

18 19 **Results**

20
21 25 of the 31 European countries solicited returned a questionnaire. Nineteen answered all three
22 rounds of questionnaires, four answered two and two countries provided answers to only one
23 of the three questionnaires. There were 23 respondents in each of the first two rounds of the
24 survey and 21 in the last one.

1 Among the participating countries, 12 (52.2%) reported using HPV testing as the primary test
2 for cervical cancer screening. A lockdown with the national population confined at home except
3 for vital needs was reported by all responding countries during round one, with progressive
4 reduction in this rate over the subsequent two other rounds of the survey (Table 1). A total of
5 19 (70.4%) countries reported they had been advised to stop screening for cervical cancer at
6 least during one of the 3 rounds of questionnaires (Figure 1). Additionally, 11 countries reported
7 that they had to stop performing colposcopy and treatments for cervical precancerous lesions
8 in at least at one of the three rounds of questionnaires. These situations evolved with time, with
9 the highest cessation rates of screening, colposcopy and treatments being reported during the
10 second round of the survey (Table 1). In round three, no country reported that there were
11 recommendations to stop screening, colposcopy or treatment anymore, and 12 (57.5 %) countries
12 reported they had gone back fully to normal screening.

13 In round one and two, 10 (43.5%) and 8 (34.8%) respondents expressed concerns about actual
14 risk to women's health, respectively. Finally, in round three, 19 (90.5 %) reported that the
15 COVID pandemic had had a negative impact on cervical cancer screening and prevention.

17 **Discussion**

18 Our survey provides a crude overview of the short-term consequences of the COVID-19
19 pandemic on cervical cancer screening in Europe. With 70.4% of participating countries
20 reporting having stopped cervical cancer screening during at least one of the three rounds of the
21 survey, our results show massive disruption in cervical cancer screening programmes across
22 Europe. Additionally, it is noticeable that diagnosis and treatment activities have also massively
23 suffered from the COVID-19 pandemic, with colposcopy and treatments being temporarily
24 interrupted in almost half of European participating countries. The question remains whether
25 such decisions will result in an increased cervical cancer incidence and related mortality in

1 Europe. With all respondents reporting in round three a withdrawal of recommendations to limit
2 screening, colposcopy and treatment, our findings suggest that the disruption lasted only for a
3 limited period, possibly up to six months. This resumption was probably related to the fall in
4 the incidence of the COVID cases at the time of round two, as previously modelized.¹⁰ Initially,
5 when information on the virus and mode of transmission was limited, there were concerns if
6 colposcopy treatments could be aerosol-generating procedures. Although most treatments can
7 be done as out-patient procedures under local anaesthetic, there were more restrictions on
8 general anaesthetic due to covid risks. It is however notable that the suspension of the
9 recommendation to stop screening, colposcopy and treatment did not necessarily meant a fully
10 return to normal services, as only 57.5% of respondents reported so at round three. Therefore,
11 a long-term effect of the COVID-19 pandemic on global cervical cancer prevention activities
12 across Europe cannot be ruled out.

13 Although most respondents expected that the COVID-19 pandemic had a negative impact on
14 cervical cancer prevention, the genuine impact of cervical cancer screening and prevention
15 remains unknown. Only modelled data regarding breast, colorectal, lung and oesophageal
16 cancers related mortality are currently available with the anticipation of substantial increases in
17 the incidence and mortality of these avoidable cancers.¹³ Although data on the COVID-19
18 impact on cervical cancer incidence and related mortality are not available yet, our results
19 suggest that the same is to be expected for cervical cancer. Monitoring of cervical cancer
20 incidence within next years in Europe will therefore be paramount.

21 There is definitely an urge to carefully manage the resumption of suspended cervical cancer
22 prevention activities.¹⁶ Patients who should have been screened at the time of the suspension
23 period should be offered an appropriate catch-up screening test. It is also crucial to ensure that
24 all patients with positive screening test who have missed proper colposcopic diagnosis
25 evaluation should be recalled. However, there is no guarantee that such catch-up procedure

1 will always be applicable. Cervical cancer screening in Europe is not homogeneous, as some
2 countries have central funded organized screening programmes whilst others are opportunistic
3 with much practice done by independent practitioners. There is no ascertainment of the capacity
4 to catch-up with back logs of cytology or colposcopy and triaging referrals to colposcopy. One
5 can therefore expect this strategy to dramatically vary across different health systems. With the
6 ongoing persistence of the COVID-19 pandemic, there is also a need to adapt cervical cancer
7 screening guidelines. Several societies, including the EFC have provided guidelines for the
8 triage of patients needing a prompt colposcopic evaluation and for those whose care could be
9 safely postponed, management of screen-positive women, preinvasive lesions of the lower
10 genital tract and post-treatment follow up test of cure.^{16–19} This unprecedented situation also
11 forces us to consider alternative prevention methods and to promote more cost-efficient
12 evidence-based protocols. With only half of respondents reporting having an HPV testing-based
13 screening, there is a need for the implementation of more efficient prevention protocols across
14 Europe. HPV screening was demonstrated to offer greater protection against cervical cancer
15 than cytological screening and to offer the possibility for longer intervals between tests.^{20,21}
16 Additionally, the COVID-19 pandemic generates opportunities for considering self-sampling
17 HPV testing-based screening programmes. This method offers the possibility of at-home
18 sample collection by the women themselves and was shown to be efficient with reliable
19 results.²² It also avoids patients having to travel if test kits are posted to them and the exposure
20 within clinics, therefore reducing both the risks of contamination for medical staff and patients.
21 Although our study provides a overview of COVID-19 impact on cervical cancer screening and
22 prevention across Europe, it suffers from limitations that should be carefully considered when
23 interpreting our results. As we only collected answers from representatives of national societies
24 and did not access to crude screening data, we cannot assess the genuine impact of the pandemic
25 on the screening participation rate. Therefore, we are unable to assess how and for how long

1 the individuals recommendations to stop screening, colposcopic examinations and treatment
2 have been applied in routine practice amongst European countries. With only half of
3 respondents acknowledging a return to normal screening at round three, despite restrictions to
4 screening having been lifted in all countries, it is possible that consequences might be even
5 worse than what our data suggest. For all these reasons, we believe that increase in the incidence
6 of cervical cancer is to be expected.

7 **Conclusion**

9
10 The COVID-19 pandemic has resulted in the disruption cervical cancer prevention activities in
11 most European countries. The consequences were not limited to cervical cancer screening
12 activities but also impacted both diagnostic and treatment activities. There is an absolute need
13 to carefully manage the resumption of suspended cervical cancer prevention activities. All
14 European countries that interrupted their screening programmes should ensure that an
15 appropriate catch-up screening test is offered as soon as possible for those to all women whose
16 screening was interrupted. It is also crucial to ensure that all women with positive screening
17 tests receive appropriate colposcopic diagnosis. Without these measures, increases in the
18 incidence and the mortality of cervical cancer is to be expected in Europe as collateral damage
19 of the COVID-19 pandemic.

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23
24

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1 Macedonia, Moldavia, Netherlands, Norway, Poland, Portugal, Romania, Spain, Switzerland
2 and Wales

3

4 **list of Abbreviations and Acronyms used in the manuscript:**
5

6 EFC: European Federation for Colposcopy

7 HPV: Human Papillomavirus

8 MCQs: Multiple-Choice Questions

9 WHO: World Health Organization

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- Reported stopping cervical cancer screening
- Reported never stopped cervical cancer screening
- Not participated



Figure 1. Representation of all participating European countries who reported they were recommended to stop cervical cancer screening at least in one of the 3 rounds of questionnaires.

Table 1. Impact of COVID outbreak on cervical cancer screening and prevention in European countries during the 3 rounds of the survey.

	Round 1 (n=23)	Round 2 (n=23)	Round 3 (n=21)
Population confined at home	23 (100)	15 (65.2)	10 (47.6)
Advised to			
Stop screening	17 (73.9)	19 (82.6)	0 (0)
Stop performing colposcopy	7 (30.4)	10 (43.5)	0 (0)
Stop performing treatment	11 (47.8)	10 (43.5)	0 (0)

- Reported stopping cervical cancer screening
- Reported never stopped cervical cancer screening
- Not participated



Figure 1. Representation of all participating European countries who reported they were recommended to stop cervical cancer screening at least in one of the 3 rounds of questionnaires.