

Gendered aspects of sexual and reproductive health

Adequate screening, treatments and
research, including fertility,
endometriosis, HPV and toxic shock
syndrome in EU Member States



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Abstract

This study, commissioned by the European Parliament's Policy Department for Citizens' Rights and Constitutional Affairs at the request of the FEMM Committee, contributes to assessing the state of sexual and reproductive healthcare and rights in the EU. It assesses the regulatory and policy frameworks that ensure access to affordable and quality reproductive care services in the Member States and the support provided by the EU.

This document was requested by the European Parliament's Committee on Women's Rights and Gender Equality (FEMM).

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LIST OF ABBREVIATIONS

AI	Artificial Intelligence
ART	Assisted Reproductive Treatment
BPA	Bisphénol A
CAD	Chemical Agents Directive
CBRC	Cross-border reproductive care
CDC	Centers for Disease Control
CEDAW	Convention on the Elimination of all Forms of Discrimination against Women
CERV	Citizens, Equality, Rights and Values Programme
CESCR	UN Committee on Economic, Social and Cultural Rights
CMR	Carcinogenic, Mutagenic or Reprotoxic
CRC	Convention on the Rights of the Child
CRPD	Convention on the Rights of Persons with Disabilities
DBT	Digital Breast Tomosynthesis
DM	Digital Mammography
ECHA	European Chemical Agency
ECIBC	The European Commission Initiative on Breast Cancer
ECHA	European Chemical Agency
ECHR	European Convention on Human Rights
EDC	Endocrine disruptor chemicals
EFSA	European Food Safety Agency
EIC	European Innovation Council
EIE	European Innovation Ecosystems
EMA	European Medical Agency

EMA	European Medical Agency
ERC	European Research Council
ESC	European Social Charter
ESHRE	European Society for Human Reproduction and Embryology
ESMO	European Society for Medical Oncology
EU	European Union
ESF+	European Social Fund Plus
EU-OSHA	European Union Occupational Safety and Health Agency
FEMM Committee	Committee of Women's Rights and Gender Equality
GnRH	Gonadotropin-Releasing Hormone
HPV	Human papillomavirus
ICCPR	International Covenant on Civil and Political Rights
ICESCR	International Covenant on Economic, Social and Cultural Rights
ICMART	International Committee of Monitoring Assisted Reproductive Technologies
ICSI	Intracytoplasmic Sperm Injection
IFEI	International Fertility Education Initiative
IUI	Intrauterine Insemination
IVF	In-vitro fertilization
LGBTI	Lesbian, Gay, Bisexual, Transgender, and Intersex
MNP	Microplastic and Nanoplastic Pollution
MAR	Medically Assisted Reproduction
MFF	Multiannual Financial Framework
MRI	Magnetic Resonance Imagery

mTSS	Menstrual toxic shock syndrome
OECD	Organization for Economic Co-operation and Development
PCB	Polychlorinated Biphenyls
PGT-M/SR	Preimplantation Genetic Testing for Monogenic Disorders/ Chromosomal Structural Rearrangements
REACH	Registration, Evaluation, Authorization and Restriction of Chemicals
SDGs	Sustainable Development Goals
SRH	Sexual and reproductive health
SRHR	Sexual and reproductive health and rights
STIs	Sexually Transmitted Infections
TSS	Toxic Shock Syndrome
UK	United Kingdom
USA	United States of America
TEU	Treaty on European Union
TFEU	Treaty on the Functioning of the European Union
WHO	World Health Organization

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EXECUTIVE SUMMARY

Background and aim

Sexual and reproductive rights are human rights and intrinsically connected to the achievement of gender equality, combating gender-based violence and the achievement of universal healthcare coverage. Sexual and reproductive health and rights (SRHR) itself is an umbrella term covering a range of issues affecting an individual while the realization of sexual and reproductive rights requires not only a positive and proactive approach to healthcare but also a commitment to providing healthcare that is high quality, accessible, and affordable for all throughout their lifetime, whether it be prevention of reproductive diseases, screening, diagnosis, treatment or care.

Focusing on specific reproductive health diseases and conditions, this study contributes to the assessment of the state of sexual and reproductive healthcare and rights in the EU by describing:

- how the Member States respect, protect and fulfil their commitment to sexual and reproductive rights, the right to dignity, and the right to access sexual and reproductive goods and services;
- support, opportunities and financing available at the EU level;
- breast and cervical cancer screenings, their target groups, accessibility and participation rates;
- HPV vaccination programmes across the EU;
- public information campaigns on the prevention of breast and cervical cancers, endometriosis and menstrual toxic shock syndrome;
- on-going EU-financed research, including technologies and digitalization, on the diagnosis and treatment of breast and cervical cancers and endometriosis, as well as describing research into the status of sexual and reproductive rights;
- environmental factors that contribute to the prevalence of infertility, endometriosis and reproductive cancers; and
- gendered socioeconomic impacts of reproductive health episodes including infertility and endometriosis.

Study methodology

The study has been carried out as desk research. Key EU sources include EU databases such as Cordis, relevant EU documents including strategies, resolutions and communications, programmes and work programmes, and financial regulations. International treaty reporting sources include state party reports and concluding observations of the International Covenant on Civil and Political Rights (ICCPR), International Covenant on Economic, Social and Cultural Rights (ICESCR), Convention on the Elimination of all Forms of Discrimination against Women (CEDAW), Convention on the Rights of the Child (CRC), Convention on the Rights of Persons with Disabilities (CRPD) and the Istanbul Convention. Where available, their shadow or alternative reports have also been examined. In addition, a broad range of academic literature relevant to the topics as well as civil society reports and media articles from across Europe and relevant to the scope of the study have all been investigated.

Main findings

The findings clearly show that where healthcare systems and health insurances are resourced, access to quality reproductive healthcare is higher. In general, great variation in the accessibility of reproductive care, and fertility treatment in particular, is found across the Member States. The research findings also point to limited knowledge and investments in reproductive health including technology development, with relatively little on-going research within the EU in the fields that this study covers. Overall, the findings point to fairly limited investment in sexual and reproductive health and rights, leading in turn to a lack of policy coherence on gender equality and the measures for the achievement of gender equality. This is found to be the case at both the EU and the Member State levels. Data on reproductive health and health services are lacking at all levels in the EU which makes it difficult for policy-makers to make informed policy costings or accurate cost-benefit analyses of free sexual and reproductive healthcare services. Moreover, with only a few analyses available in certain Member States, the socio-economic impacts of reproductive health, and particularly reproductive health episodes, continue to be poorly understood across Europe.

Sexual and reproductive rights in the EU

- the EU has several instruments by means of which quality reproductive healthcare can be strengthened for the achievement of universal access to health and gender equality. Currently, only a small fraction of expenditure through these instruments is allocated to reproductive health and care.
- the legal frameworks in Member States are neither sufficient to give full effect to individuals' sexual and reproductive rights nor to meet the EU's policy commitments on sexual and reproductive health.
- the right to free and informed consent is not fully protected across Member States, as is reflected in laws that permit, or do not clearly prohibit, forced sterilization for persons with disabilities, sterilization as a requirement of legal recognition of gender identity, or unnecessary medical and surgical interventions for intersex infants and children. Barriers to accessing necessary goods and services for sexual and reproductive health also exist across Member States.

Fertility treatment and socioeconomic impacts

- differences are found in the regulations regarding eligibility for treatments, coverage of costs and in-country coverage of services. These differences are significant and lead to inequality in access to treatment depending on factors such as gender, place of residence and economic status.
- a growing body of evidence shows the widening gap in access to affordable and quality fertility treatment for a variety of reasons in the EU. This poses a risk of moving further away from the targets instead of achieving universal access to quality health care and sexual and reproductive healthcare services.
- whether economically or physically, women are disproportionately affected by infertility and fertility treatment as compared to men.
- female poverty is tightly linked to experience of health, including reproductive health, and is among the key factors affecting access to treatment.
- variation exists in the provision of paid reproduction-related and parenting-related leave across the Member States in terms of the number of weeks of paid leave, financial provision for paid leave and limitations on access to adoption leave.

- in addition to the need to continue to invest in public healthcare systems, common regulation that would protect workers during their fertility journeys could mitigate the financial impact of fertility treatments significantly.

Breast and cervical cancer screenings, HPV vaccinations

- there are some variations in breast cancer screening between Member States but most have population-based screenings for, at minimum, women aged 50-69. It is believed that high incidence and high mortality can be partly attributed to screening guidance/protocols, prevalence of risk-factors, and to largely economic factors.
- there is a broad range of Member State practices and guidelines for cervical cancer screening with only a few countries systematically utilizing HPV-based tests as part of their national screening programmes.
- participation rates in screening and HPV vaccination programmes vary significantly across the EU. The reasons for non-participation vary and include lack of awareness of the risks of cancer and inaccessibility of screenings and vaccination programmes, but more research would be needed to properly establish and address the reasons for low participation where it is the case.

Diagnosis and treatment of endometriosis

- due to a combination of factors including atypical presentation, lack of public awareness, insufficient education of health professionals, and failure to seek healthcare, diagnosis of endometriosis takes an average of seven to eight years from the onset of symptoms, which leads to significant suffering, higher infertility and decreased quality of life.
- more research is necessary to improve understanding of all elements of this disease and improve its diagnosis and treatment, to preserve fertility and to improve the quality of life and well-being of women with endometriosis.
- increased public awareness through educational campaigns is needed to destigmatize women who suffer from dysmenorrhea and chronic pain in order to encourage them to seek healthcare earlier.
- targeted education aimed at health professionals on non-invasive diagnosis criteria and the destigmatization of women presenting with chronic pain, particularly at primary health services, could be beneficial for earlier diagnosis and relevant treatment.

Menstrual toxic shock syndrome

- there is a striking lack of research and information on both the prevalence and the levels of awareness on menstrual toxic shock syndrome in the EU. Nevertheless, in the past ten years a larger body of evidence supports earlier clinical diagnosis and treatment.
- prevention measures include manufacturers using fewer toxic materials in tampons and having clear and explicit instructions on appropriate use of their products.
- individual preventive measures include education on menstrual hygiene and awareness of mTSS in order to ensure healthcare is sought in a timely manner.

Impact of environmental toxicants on reproductive health

- European workers are routinely exposed to reproductive toxicants in their work environments.
- research clearly establishes the impact of exposure to certain harmful chemicals on fertility and reproductive diseases such as endometriosis but thus far this research seems to have had little impact on regulating the use of toxicants in most of the EU Member States.
- research also shows that exposure to environmental toxicants cannot be adequately reduced by individual lifestyle choices and therefore regulation is needed.

- knowledge and understanding are both increasing yet still not enough is known about the impact of environmental factors, including toxicants and viruses, on various aspects of reproductive health.

Recommendations

Sexual and reproductive rights

- Most Member States directly or indirectly protect sexual and reproductive rights. The constitutions of all but nine Member States (**Austria, Croatia, Cyprus, Denmark, France, Ireland, Luxembourg, Malta, Netherlands**) expressly protect a right to dignity, while all but eight (**Cyprus, Denmark, France, Germany, Ireland, Malta, Sweden, Spain**) include express protection of the right to healthcare. Member States should adapt their legal frameworks and associated policies and their implementation to give full effect to individuals' sexual and reproductive rights and to the EU's policy commitments on sexual and reproductive health including those articulated in the EP Resolution on sexual and reproductive health and rights in the EU.
- 13 Member States (**Bulgaria, Croatia, Czechia, Cyprus, Denmark, Estonia, Finland, Hungary, Latvia, Lithuania, Malta, Portugal, and Slovakia**) allow forced sterilization of persons with disabilities. Member States should ensure that the right to free and informed consent is fully protected across Member States, including by expressly prohibiting forced and coerced sterilization, including of persons with disabilities, expressly ensuring sterilization is not a requirement of the legal recognition of gender identity, and expressly prohibiting unnecessary medical and surgical interventions on intersex infants and children.
- Emergency contraception is available without prescription in all but two Member States (**Hungary** and **Poland**), but it is not covered by health insurance in more than half of the Member States (**Austria, Bulgaria, Croatia, Cyprus, Czechia, Greece, Hungary, Italy, Malta, Netherlands, Poland, Romania, Slovakia** and **Spain**). Member States should remove barriers to accessing necessary goods and services for sexual and reproductive health including cost-related barriers to access to contraception and prescription requirements for emergency contraception. Barriers to accessing abortion, including non-evidence-based regulatory requirements, should be removed in line with the WHO's Abortion Care Guideline (2022).
- The available instruments and programmes under the EU4Health Strategy offer several opportunities from SRH promotion to SRH system-strengthening to joint procurement plans for essential medicine and affordable contraceptives. In order to ring-fence financing, SRHR should be considered a priority working area in the work programmes of the EC.
- Targeted calls for proposals (under appropriate financial instruments) for multisectoral collaboration on policy formulation and promotion would help to address the above-described legal and policy gaps and further promote gender equality in the Member States.

Fertility treatment

- Legal barriers to accessing fertility treatment exist in all Member States. Clear legal frameworks for fertility-related treatment ensuring access for single people and same-sex couples while also addressing cost-related barriers to accessing treatment, should be introduced. The harmonization of regulatory environments combined with investments in publicly available fertility treatment would reduce the harmful effects of the massive online commercialization of ART treatment and cross-border reproductive care, and the health effects of low-quality treatment.

- Currently, seven Member States (**Denmark, France, Greece, Italy, Malta, Portugal** and **Sweden**) guarantee statutory leave during fertility treatment, while in **Hungary** and **Spain**, related protection exists. Provision for paid reproduction-related leave, including for access to fertility treatment, should be introduced in those Member States where it does not yet exist.
- Where public healthcare systems generally are accessible through the comprehensive regulation of services and insurances for citizens, ART is also typically regulated: ART and donor registers exist and are affordable, and high-quality fertility treatment is available. Currently, insurance coverage as regards the number of cycles of fertility treatment covered varies from unlimited coverage until 43 years of age in **Luxembourg** to none in **Ireland**. In most Member States, health insurance partially covers three to six cycles of IVF while IUI is often not covered by state insurance. Further financial investment in healthcare systems and targeted financing for ART is needed in those Member States in which it continues to be relatively low (for example **Bulgaria, Greece, Ireland** and **Portugal**). This would increase access to ART.
- Insurance coverage of IUI in Member States in which it is not covered would enable more citizens to benefit from ART, which would in turn contribute to meeting the demand for both fertility treatment and health equity in Europe. Where IUI is currently not covered by national health insurance (**Bulgaria, Cyprus, Czechia, Estonia, Greece, Latvia, Lithuania, Malta, Poland, Romania** and **Slovakia**), insurance coverage of IUI should be introduced.
- National ART registers do not yet exist in **Cyprus, Estonia, Ireland, Latvia, Poland** and **Slovenia**. In **Bulgaria** and **Romania**, registers exist, but laws to regulate them do not exist. 12 Member States (**Belgium, Croatia, Cyprus, Czechia, Denmark, Estonia, Hungary, Ireland, Italy, Latvia, Malta** and **Romania**) have no donor register in place. Where donor registers exist, practices vary in terms of donor anonymity. There is a need to harmonize obligatory data collection, through national ART registers and donor registry practices across the EU-27. More aligned practices across the EU would allow for more accurate data to identify gaps and understand the challenges facing women and men seeking fertility treatment, to improve quality of ART and reduce the risk of misconduct.
- Only a few Member States including **Belgium** and **Germany** offer limited psychosocial support as part of the treatment packages. The psychological wellbeing of patients with infertility should be routinely included in medically assisted fertility treatment.
- Evidence from **France, Netherlands** and **Spain** show differences based on wealth and ethnicity between patient profiles in public and private sector services, but the existing studies as regards access to fertility treatments do not yet allow solid conclusions on potentially discriminated groups within the EU to be drawn, nor do they elucidate the reasons for opting for treatments abroad. National surveys across the EU would help to understand patient movement patterns, which in turn would help to target resources more efficiently i.e. where they are needed most.
- Data and research on the economic impact of fertility treatments and reproductive health and diseases is lacking at all levels across the EU. National longitudinal studies are needed to understand the costs to healthcare systems of declining fertility vis-à-vis the costs of an increasing need for treatment of reproductive diseases and fertility. More data is also needed on requirements for out-of-pocket payments by patients, and the gendered cost impacts arising from medicine, psycho-social support and supplementary non-medical treatments. Such data would also help to regulate and resource publicly funded ART.
- The reasons for non-medical childlessness are still under-explored areas that potentially lead to discriminatory practices and unequal access to ART. Studying the psycho-social and cultural

reasons for childlessness and their impact on individuals is a prerequisite to ensuring that fertility treatment is non-discriminatory.

Breast and cervical cancer screenings

- Population-based breast cancer screening programmes are not yet in place in **Bulgaria, Czechia, Greece** and **Slovakia**. Considering the positive impact of screening programmes on early interventions and in the prevention of breast cancer, these Member States should adopt accessible breast cancer screening programmes as a matter of urgency.
- The participation rate in breast cancer screening continues to be low in **Romania** and in countries where population screening programmes do not exist, and in **Romania** and **Poland** for cervical cancers. Additionally, HPV vaccination, a major preventive measure against cervical cancer, is low in **Luxembourg, France** and **Germany**. The low levels of participation in statutory cancer screening programmes and HPV vaccination programmes highlight the need to increase the knowledge of citizens as regards the benefits of screening. Particularly at the EU level, more resources could be allocated to multi-sectoral partnerships, campaigning and knowledge-building. At the national level, additional financing should be allocated to making screening programmes more accessible to all.
- All Member States have adopted HPV vaccination programmes for girls and most Member States target both girls and boys. HPV vaccination programmes should be extended to boys in **Bulgaria, Cyprus, Czechia, Greece, Lithuania** and **Malta**.
- Participation rates in HPV vaccination programmes are found to be high in countries in which HPV vaccination programmes have been carried out in schools. To increase the participation rate in **France** and **Germany**, school-based HPV vaccination programmes could be promoted.

Diagnosis and treatment of endometriosis

- All EU Member States should invest more in raising awareness of endometriosis amongst the general public and healthcare professionals so that both groups acknowledge the condition as a benign, inflammatory, lifelong, chronic disease which requires proactive diagnosis as early as possible, and lifelong treatment.
- Further efforts are also required in the form of educational campaigns aimed at de-stigmatizing women who suffer from dysmenorrhea and chronic pain. Women should be encouraged to seek healthcare earlier, and healthcare professionals should be encouraged to make a proper diagnosis in all cases where they suspect endometriosis is present.
- Targeted education for healthcare professionals on non-invasive diagnosis criteria for women presenting with chronic pain, particularly in primary healthcare settings, could be beneficial in that it could lead to earlier diagnosis and relevant treatment, and should therefore be developed in the Member States.
- Studies and guidelines concur that more research is necessary to improve understanding of all elements of endometriosis, to improve diagnosis and treatment, preserve fertility and improve the quality of life and well-being of women with the condition. Special attention should be paid to adolescents, women of lower socio-economic status or with lower levels of education, and post-menopausal women.
- New non-invasive biomarker diagnostic tools show effective results according to preliminary testing. One, recently commercialized by a French company, is already available in **Italy** and **Germany**, and will be available in **Luxembourg, Belgium** and **Hungary** by the end of 2023. These tools should be monitored closely and if indeed these diagnostic tools prove to be efficient at detecting 80 % of endometriosis cases as preliminary study results indicate, then the EU should introduce an endometriosis screening programme for adolescents and young

adults in order to create a culture of diagnosis, treatment and follow-up for this chronic disease that affects one in every ten women. This screening could be piloted at the same time as the HPV vaccine is given to teenage girls or those assigned female at birth, as a means of promoting early diagnosis and adequate life treatment and care, avoiding the costly (but largely invisible costs) of endometriosis to women across all Member States.

Impact of environmental factors on reproductive health

- Better enforcement of existing regulations including REACH regulation and the introduction of EU-wide sanction mechanisms could reduce exposure to environmental toxicants. Such mechanisms should be extended to online distribution, which would halt the bypassing of existing safeguards.
- Moving forward with EU-wide regulation to reduce the use of harmful chemicals would in turn reduce the circulation of such chemicals and provide significant health benefits for EU citizens. Withdrawing harmful chemicals from the European market could have significant reproductive health impacts, particularly in maintaining fertility and preventing conditions such as endometriosis and reproductive cancers.
- Currently research is largely focused on harmful chemicals and environmental toxicants and their harmful effects on reproductive health. More research is also needed on chemical compounds to counter the effects of exposure to environmental toxicants.
- Research on environmental impacts on reproductive health should be extended to additional environmental factors such as viruses, pharmaceuticals, metals and air pollution.

SRHR, gender equality and socio-economic rights

- A prerequisite of improved SRHR services is working towards gender equality in a broader framework. Several factors including growing inequalities at the societal level and between social groups, and discrimination and hostility towards fundamental civil rights and equality values among populist movements underscore the need to intensify EU-level support and policymaking for gender equality. Taking forward the EU Horizontal Anti-Discrimination Directive would be a significant step towards democracy and the realization of fundamental rights and equality regardless of religion or belief, sex, age, ethnicity, disability or sexual orientation.
- The lack of employer protection when undergoing fertility treatment in the EU fuels inequality in access to fertility treatment, which may also further contribute to social stratification in Europe. Women's employment and income generation opportunities are found to be disproportionately affected in **Denmark** and **Sweden** owing to the costs of fertility treatments and the loss of working time during reproductive health episodes. There is a striking lack of similar evidence across the EU. Institutional support for building more robust, research-based evidence on the type of cost burdens on individuals and particularly on small-to-medium size enterprises during reproductive health episodes would help to harmonize regulations and employment policies at a national level and within companies.
- Some reproductive health diseases, such as endometriosis require life-long care and the costs for individuals are found to be significant. Currently the needs continue to be poorly understood and more research is needed on the specific costs that are incurred and how to alleviate the cost burden for women. Policies that promote flexible working arrangements and support non-medical treatment could significantly reduce sick leaves.
- The existing research points to a positive correlation between introducing and disclosing company sustainability and inclusion policies and more efficient financial performance. More comparable national and EU-wide research and evidence on the links between cost of equity

and gender-inclusive employment policies would support the promotion of, and create incentives for, the adoption of more inclusive employment policies at a national level.

- Targeted calls for proposals under appropriate instruments, such as the CERV programme and ESF+, could include calls for research and knowledge building, the strengthening of cross-sectoral partnerships for reproductive health in healthcare systems, and awareness-raising on the social and financial impacts of reproductive diseases. Such research and knowledge building would help to improve the accessibility of services, including through the development of digital services.

Menstrual toxic shock syndrome

- With relatively few studies available in the Member States, very little is known about the occurrence of menstrual toxic shock syndrome in the EU or about health care professionals' knowledge of it. As reusable menstrual hygiene products gain more popularity, more research is needed on the related risks of toxic shock syndrome and awareness of their proper usage.
- A large share of the information available is produced by menstrual hygiene product manufacturers. It would be beneficial to form private-public partnerships and with civil society for more efficient public awareness campaigning on menstrual toxic shock syndrome.

1. GENERAL INFORMATION

With specific focus on fertility, endometriosis, Human Papilloma Virus (HPV) and menstrual toxic shock syndrome (mTSS), this multi-sectoral and inter-disciplinary study maps the positive and proactive approaches to delivering reproductive health services in the European Union (EU). The study contributes to the EU's commitments to equal opportunities for all, gender equality and strengthening of the European Health Union aimed at increasing resilience in health systems and for their users, as well as in the EU's ability to respond to health challenges and threats. There is also a growing body of evidence on the correlation between women's socio-economic position and health, and this study maps how progressively the EU as an institution and the Member States have used evidence on these gendered socio-economic aspects, and particularly reproductive health, in policymaking and in national legislation to guarantee reproductive health and rights.

The Covid-19 pandemic and the economic crisis that followed increased female poverty. Many factors have contributed to this increase, from loss of jobs to the persistent and significant gender pay gap, increased unpaid care responsibilities, a rise in gender-based violence and structural challenges in healthcare delivery across the EU (¹). However, a distinction needs to be drawn between whether the pandemic caused sexual and reproductive health (SRH) and care to deteriorate, or whether it rather unmasked and underscored the challenges that already existed in SRH services across Europe before the global health crisis. To that end, it is reasonable to assume that whether health in general, and sexual and reproductive health and rights (SRHR) in particular, are political priorities in a Member State will correlate either positively or negatively with investment, accessibility, affordability and quality of SRHR services in that Member State. The specific conditions that have been selected as analytical entry points; endometriosis, fertility, breast and cervical cancers and mTSS all of which fall into the remit of SRH, provide a comprehensive window to assess the state of the SRHR in the EU in several ways:

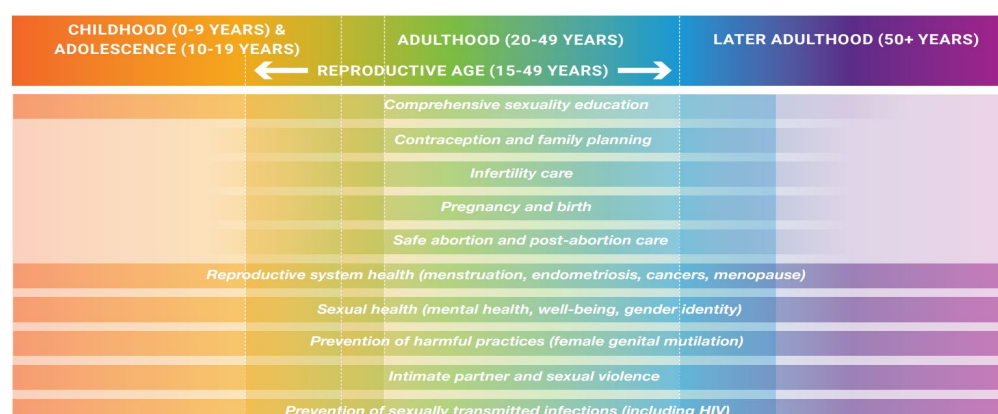
- medical research and new diagnostic technologies for endometriosis, HPV related cancers, mTSS and fertility are needed to increase the understanding of reproductive health conditions and the social and environmental factors that influence and fuel them;
- financial resources and disaggregated data on the expenditure in different areas of health are needed to strengthen and build the resilience of health care systems. This is particularly important in the field of affordable and high quality sexual and reproductive health (SRH) care services, which must cater for the increasing need for prevention and treatment of reproductive health diseases such as cancer;
- prevention of reproductive diseases requires awareness of reproductive health and rights, risks and health literacy. These require further building of multi-sectoral partnerships in all aspects and at all stages of sexual and reproductive health (SRH) provision from sexual education to improved diagnostics and understanding of diseases, their risks factors and their treatment options;
- treatment of endometriosis, infertility, mTSS and reproductive cancers requires inclusive health care systems, a more comprehensive understanding of reproductive health challenges by health professionals and the provision of quality patient-centred care;
- and the achievement of Sustainable Development Goal (SDG) 3 and universal reproductive health and rights call for policy coherence. Enabling and protective social and employment policies are needed to ensure equal treatment and socio-economic equality of opportunity for families undergoing fertility treatments or individuals suffering from reproductive diseases.

¹ European Parliament, 'Achieving gender equality in the face of the pandemic and existing challenges', 2021 [https://www.europarl.europa.eu/RegData/etudes/ATAG/2021/659440/EPRS_ATAG\(2021\)659440_EN.pdf](https://www.europarl.europa.eu/RegData/etudes/ATAG/2021/659440/EPRS_ATAG(2021)659440_EN.pdf)

1.1. Definitions of sexual and reproductive health and rights

The EU's approach to ensuring universal SRHR services follows the World Health Organization's (WHO) all-encompassing definition of SRHR through a whole-life approach. The European Parliament's Committee on Women's Rights and Gender Equality (FEMM Committee) adopted the Resolution on Sexual and Reproductive Health and Rights in the EU within the framework of women's health, on 24 June 2021. The Resolution specified that SRHR are an umbrella term for various issues affecting all persons and representing four separate areas: sexual health, sexual rights, reproductive health and reproductive rights, and they are based on the rights of all individuals to have their bodily integrity, privacy and personal autonomy respected. The Resolution also stressed that the realization of SRHR is an essential element of human dignity and is intrinsically linked to the achievement of gender equality. The EU is committed to the achievement of the SDGs, in which gender equality and the reduction of inequalities are embedded horizontally across the 17 Goals. Equality in health and universal access to health care are outlined in SDG 3: *Ensure healthy lives and promote well-being for all ages*. SDG 5: *Achieve gender equality and empower all women and girls*, embeds targets for universal access to sexual and reproductive health and rights in its sub-goal 5.6.

Figure 1: WHO definition of SRHR ⁽²⁾



SRH is an intrinsic part of health and well-being, and indivisibly inter-connected with both social and ecological determinants of health. Investment in gender equality and SRH results in positive socio-economic outcomes at individual and societal levels, while neglecting it increases poverty and the cost burden on healthcare systems in the long run ⁽³⁾. In this context, the EU has adopted World Health Organization's (WHO) One Health approach. As such, the EU recognizes the 'complex interconnection between humanity, climate, environment and animals; for a more effective disease surveillance worldwide; and for stronger international rules and cooperation mechanisms on health', and takes a horizontal bearing on health, including SRH, as a fundamental right across policy sectors ⁽⁴⁾.

1.2. Scope and methodology of the study

The study assesses how the Member States ensure SRHR as part of their commitment to universal health coverage in their legislation and national policies. Covering all 27 Member States and starting

² https://cdn.who.int/media/docs/default-source/reproductive-health/uhc-srh-advocacy-brief.pdf?sfvrsn=d4ca3e16_5

³ O'Neil, A., Russell, J., Thompson, K., Martinson, M., and Peters, S., 'The impact of socioeconomic position (SEP) on women's health over the lifetime', 2020 <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7273147/pdf/main.pdf>

⁴ European Commission, 'EU Global Health Strategy: Better Health for All in a Changing World', 2022 https://health.ec.europa.eu/publications/eu-global-health-strategy-better-health-all-changing-world_en

from the premise that different aspects of SRHR are indivisible and inter-linked, the study takes both general and specific stances to mapping of SRHR in the EU. It provides an overview of the realization of SRHR in the EU by analysing legal and policy environments of the Member States as is relevant to SRHR and the ways they connect to socio-economic rights, particularly employment rights. Covering several specific aspects of accessibility, quality and affordability of sexual and reproductive healthcare, the study attempts to answer the following general research questions: 1) which Member States have comprehensive SRH legislation and policies in place; 2) what types of legal and policy measures the Member States have in place to improve accessibility to fertility treatments, prevention and treatment of endometriosis and breast and cervical cancers as measures to improve gender equality; 3) how do the Member States cater for their citizens with incapacitating SRHR conditions, particularly endometriosis and cancers; and 4) which Member States have introduced a gender lens to employment policies and laws to minimize losses of income because of reproductive health challenges. In addition to these broader research topics, national regulations for screening programmes and treatments, including breast and cervical cancer screenings, HPV vaccine programmes and fertility treatments, are presented in this report.

To the extent that information has been available, the study assesses the investments, whether in skills or financial, in SRHR by mapping the existing research for innovations and new technologies to improve the diagnosis, treatment and care of endometriosis, mTSS, and breast and cervical cancers in Europe. It also offers an overview of the existing research on the impact of environmental factors on fertility, endometriosis and reproductive cancers.

The study relies on secondary sources. For the legal and policy analysis, national policies and regulations within the international treaty frameworks were analysed. In addition, state party reports, concluding observations and shadow reports by the Committee on the Elimination of all Forms of Discrimination against Women (CEDAW), the International Covenant on Economic, Social and Cultural Rights and the Istanbul Convention, were reviewed ⁽⁵⁾. In order to assess investments in SRHR at the EU level, several relevant policy and financial instruments and programmes, including the EU4Health Programme, Horizon Europe and the European Social Fund Plus, as relevant to SRHR, were reviewed. In a similar vein, projects in the field of SRHR and financed by the EU, were mapped. In the case of public awareness campaigns, the mapping was limited to the themes of this study as described above and not extended to general sexuality education campaigns, which have been covered in another study in 2022 ⁽⁶⁾. As for the socio-economic and environmental aspects of endometriosis, both research from academic sources and reports from different expert organizations were utilized, also with a view to establishing the state of play in the EU in comparison with other regions in the world.

1.3. Limitations of the study

The knowledge gaps related to several aspects of this study including the link between environmental factors, reproductive health and mTSS are widely recognized. The lack of evidence leads, at times, to somewhat inconclusive results. In addition, the Member States are at different stages of achieving gender equality and universal access to health care, with considerably different socio-political and cultural climates for SRHR. This also leads to differences in the availability of SRHR-related national data, making it challenging to present comprehensive and comparative outcomes on the topics in the study. Identification of gaps nonetheless is also an important research outcome, resulting in many

⁵ Shadow or alternative reports have not been systematically produced or available. They have been assessed when available.

⁶ European Parliament, 'Comprehensive sexuality education: why is it important?', 2022 [https://www.europarl.europa.eu/thinktank/en/document/IPOL_STU\(2022\)719998](https://www.europarl.europa.eu/thinktank/en/document/IPOL_STU(2022)719998)

recommendations to the EU and the Member States, which can be found in the concluding chapter of this study.

The study is organized as follows: Chapter 2 begins with an introduction to health as a policy area in the EU, also describing the different instruments in which financing for health can be provided. It then moves to an overview of the legal and policy frameworks that guarantee SRHR in the Member States. Utilizing both international treaty reports and national laws, chapter 2 gives an overview of the state of SRH laws and policies in the EU, highlighting different legal and policy approaches as well as gaps in the Member States' provisions. Chapters 3 and 4 list and analyse fertility treatments in 27 Member States and provide consolidated information on national breast and cervical cancer screening programmes and HPV vaccination programmes. In both chapters attention has been paid to availability, national coverage, accessibility and target groups of the programmes. In chapter 5, the state of play of the prevention and treatment of endometriosis is discussed. It describes the recent advances in the field in Europe and presents examples of the on-going research to improve diagnosis and treatment of endometriosis. Chapter 5 is followed by an overview of the impact of environmental factors on fertility and the incidence of endometriosis, making the case for the need for stronger regulation on the use of toxicants in chapter 6. In chapter 7, mTSS is briefly discussed based on existing research. Before conclusions and recommendations are presented in chapter 9, and drawing from key findings in the preceding chapters, chapter 8 discusses the socio-economic impacts of the conditions that are the focus of this study.

2. SRHR IN THE EU AND NATIONAL POLICY AGENDAS

KEY FINDINGS

- The EU's policy architecture underpins policy coherence for gender equality and equality of opportunity in the EU. Investments in the reproductive health and well-being of women seem not to have been integrated into implementation of the policies efficiently.
- The EU has several instruments by means of which quality reproductive healthcare can be strengthened for the achievement of universal access to health and gender equality. Currently, only a small fraction of expenditure through these instruments is allocated to reproductive health and care.
- The legal framework in Member States is not sufficient to give full effect to individuals' sexual and reproductive rights or to meet the EU's policy commitments on sexual and reproductive health.
- The right to free and informed consent is not fully protected across Member States, reflected in laws that permit, or do not clearly prohibit, forced sterilisation for people with disabilities, sterilisation as a requirement of legal recognition of gender identity, and unnecessary medical and surgical interventions for intersex infants and children.
- Barriers to accessing necessary goods and services for sexual and reproductive health exist across Member States. These include cost-related barriers to access to contraception, prescription requirements for emergency contraception, and barriers to accessing abortion, including non-evidence-based regulatory requirements.
- Barriers to accessing fertility-related treatment exist across Member States. These include the absence of legal frameworks for fertility-related treatment, exclusion of single people and/or same-sex couples, and cost-related barriers to accessing treatment.

2.1. SRHR in the EU policy architecture

The roots of the EU's gender equality agenda can be traced back to the establishment of the European Economic Community and Treaties of Rome in the 1950s during the post-war era that also marked the first steps towards building the European welfare state model. Whereas the joint agenda was first strongly motivated by the need to remove barriers to employment and to ensure the equal treatment of workers within the European single market, since then the notion of gender equality has gradually been mainstreamed into all EU policy areas with the objective of introducing an all-encompassing approach by integrating a gender dimension to all general and sectoral policies of the Union⁽⁷⁾, ⁽⁸⁾. The EU has a strong legal basis for gender equality with its foundations laid down in Articles 2 and 3(3) of

⁷ European Parliamentary Research Service, 'Exploring gender equality across policy areas', 2021 <https://epthinktank.eu/2021/10/21/exploring-gender-equality-across-policy-areas/>

⁸ Jacquot, S., 'European Union gender equality policies since 1957'. Digital encyclopaedia of European history <https://ehne.fr/en/encyclopedia/themes/gender-and-europe/gender-citizenship-in-europe/european-union-gender-equality-policies-1957>

the Treaty on European Union (TEU), Articles 8, 10, 19 and 157 of the Treaty of the Functioning of the European Union (TFEU), and in Articles 21 and 23 of the EU Charter of Fundamental Rights.

The EU's dual approach to achieving gender equality entails putting in place targeted policy interventions that are backed by financing through different instruments, and by strengthening equal rights in a broader rights framework especially through abolishing restrictive legislation and by providing protection from discrimination. The approach is visible in the European Commission's (EC) Gender Equality Strategy 2020-2025, which encompasses tackling structural and tacit forms of gender inequality by means of targeted interventions as well as supporting the broader, enabling legislative, policy and socio-economic environment for equality of opportunity and well-being, and leaving no one behind ⁽⁹⁾. Equality of opportunity, access to public services and decision-making, fundamental rights and non-discrimination have been agenda priorities of the EC in order to create a resilient, stable and economically competitive Union.

Progress to date notwithstanding, significant gaps remain in the well-being and equal treatment between individuals in the EU, and there is uneven progress towards gender equality and access to health in different EU Member States. The EC's gender equality agenda continues to be largely geared towards achieving socio-economic equality and equal opportunities in the job markets by strengthening equal employment policies and laws, and equal pay through transparent remuneration structures. It has also had an increasing focus on balancing inequalities in unpaid care responsibilities at family and society levels. These working areas embed the EU's strategic and cross-cutting objectives of breaking gender stereotypes and tackling gender-based violence.

With identifiable and significant pay gaps between men and women, gaps in access to social services, decision-making structures and employment, the recent evidence suggests a declining trend of gender equality in many Member States ⁽¹⁰⁾. The Covid-19 pandemic also exposed several vulnerabilities in the Member States' care infrastructures that leave women more at risk of poverty and ill-health in comparison to men ⁽¹¹⁾. In addition, several factors including growing inequalities at the societal level and between social groups, and discrimination and hostility towards fundamental values among populist movements already in existence prior to the global pandemic all underscore the need to intensify EU-level support and policymaking for gender equality.

2.2. Policy coherence for gender equality and health: Available means and institutional financing

The EU's approach to health has been aligned with WHO's One Health approach and the Sustainable Development Goals (SDGs), in particular SDG 3: '*Ensure healthy lives and promote well-being for all, at all ages*', underscoring the delivery of universal and better-quality health for all through EU support for the building of health systems in the Member States. To implement the EU's Global Health Strategy, the EC has taken new measures to boost support for health systems by strengthening in the Multiannual Framework 2021-2027 both through the provision of financial support to Member States in areas that are identified by the Member States themselves, and through strengthening European-

⁹ European Commission, 'A Union of Equality: Gender Equality Strategy 2020-2025' https://commission.europa.eu/strategy-and-policy/policies/justice-and-fundamental-rights/gender-equality/gender-equality-strategy_en

¹⁰ European Parliament, 'Backlash in Gender Equality and Women's and Girls' Rights', 2018 [https://www.europarl.europa.eu/RegData/etudes/STUD/2018/604955/IPOL_STU\(2018\)604955_EN.pdf](https://www.europarl.europa.eu/RegData/etudes/STUD/2018/604955/IPOL_STU(2018)604955_EN.pdf)

¹¹ European Parliament, 'COVID-19 and its economic impact on women and women's poverty. Insights from 5 European Countries' 2021 [https://www.europarl.europa.eu/RegData/etudes/STUD/2021/693183/IPOL_STU\(2021\)693183\(SUM01\)_EN.pdf](https://www.europarl.europa.eu/RegData/etudes/STUD/2021/693183/IPOL_STU(2021)693183(SUM01)_EN.pdf)

wide health data collection, the exchange of information and the digitalization of health services, 'and boosting joint procurement for more efficient health expenditure and sustainable availability of pharmaceuticals in the EU.'⁽¹²⁾ With its legal basis in Article 168(5) of the Treaty of the Functioning of the European Union, the EU4Health Programme brings several of the Union's common health objectives into one facility. With a budget of approximately EUR 5 billion in the Multiannual Financial Framework (MFF) 2021-2027, the EU4Health Programme has a substantial focus on tackling health inequalities through grants, financing public-private partnerships and joint investments. Health remains a Member State competence and the Member States define the investment priorities and development needs of their health infrastructures.

The priority working areas under the EU4Health programme include tackling:

- inequalities in health status among population groups, countries and regions, and access to affordable, preventive and curative healthcare of good quality;
- burden from non-communicable diseases, including cancer, mental health, rare diseases and risks from health determinants;
- uneven distribution of healthcare system capacity, including healthcare workers; obstacles to the wide uptake and best use of digital innovations as well their scaling up;
- growing health burden from environmental degradation and pollution, in particular air, water and soil quality, and also from demographic changes⁽¹³⁾.

The importance of sexual and reproductive health and rights and universal access to sexual and reproductive healthcare services as a building block of health equity and equal employment opportunities is recognized and yet SRHR as a working area continues to be weak in the EU's policy and programming architecture. The Global Health Strategy makes only anecdotal references to sexual and reproductive health, and the EU's employment policies and the related programming are weak in underpinning SRHR as a target intervention area in working towards more equal employment policy and practice in the EU⁽¹⁴⁾. In this regard, several Member States and the EU have indeed experimented with gender-responsive budgeting, but it has not been mainstreamed into policy planning in a way that would embed SRHR in EU or national employment policies⁽¹⁵⁾.

2.3. Institutional financing for health and SRHR

The EU4Health programme contributes to the implementation of the European Social Pillar and cuts horizontally across several financial instruments and facilities including Horizon Europe, European Social Fund Plus (ESF+), the European Regional Development Fund, the Digital Europe Programme, the Resilience and Recovery Facility, and the Connecting Europe Facility 2. The programme is, at least in part, the result of an evaluation of the Health Programme 2014-2020: among the identified weaknesses of the preceding programme was its loosely defined focus, which allowed substantial scope in the selection of supported action and thereby increased the risk of not contributing to streamlining quality

¹² European Commission, 'EU Global Health Strategy to improve global health security and deliver better health for all', Press release 30 November 2022 https://ec.europa.eu/commission/presscorner/detail/en/ip_22_7153

¹³ European Commission, 'Proposal for a REGULATION OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL on the establishment of a Programme for the Union's action in the field of health – for the period 2021-2027 and repealing Regulation (EU) No 282/2014 ("EU4Health Programme")' <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A52020PC0405>

¹⁴ https://ec.europa.eu/commission/presscorner/detail/en/ip_22_7153

¹⁵ European Parliament, 'Gender-responsive budgeting. Innovative approaches to budgeting', 2015 [https://www.europarl.europa.eu/RegData/etudes/BRIE/2015/559503/EPRS_BRI\(2015\)559503_EN.pdf](https://www.europarl.europa.eu/RegData/etudes/BRIE/2015/559503/EPRS_BRI(2015)559503_EN.pdf)

and types of care services for all citizens across the EU (¹⁶). While there was a substantial focus on public health, for example in Horizon 2020, and particularly in its financial envelope for Societal Challenges - Health, Demographic Changes and Well-being, the EU4Health Programme is a further effort to respond to common and pan-European communicable and non-communicable health challenges more efficiently (¹⁷). These efforts entail research and the development of cutting-edge technologies to combat, for example, cancer, but also action to increase preparedness for global health threats in Europe. EU4Health has also a substantial emphasis on tackling health inequalities with a single facility for increasing quality health service coverage and leaving no one behind. Within these premises, the EU4Health can provide comprehensive EU assistance to the Member States, ranging from professional skills, health infrastructure development and increasing outreach to the digitalization of services, research and development, and the facilitation of Member State collaboration on data and knowledge exchange and the efficient use of health services and resources.

In the negotiation phase of the MFF 2021-2027, the Parliament called for horizontal financial allocations for gender equality, which would enhance fair and transparent employment practices and increase productivity (¹⁸). Gender tracking was introduced to the implementation of the EU's cohesion policy, which includes specific instruments such as ESF+ and the European Regional Development Fund, and which forms the largest single policy area in the EU's budget (¹⁹). In line with the EU's policy objectives, the tracking of expenditure on gender equality is strongly focused on improving the situation of women in the job markets (²⁰).

Despite their broad focus and emphasis on health equity, the programmes and financial instruments seem to have been weak in addressing gaps in equal access to quality care, in particular in the area of women's health and SRHR. Similarly, the Member States seem not to have utilized EU support for health to improve reproductive health in particular. For the purposes of this analysis, on-going projects were screened to the extent information was available, and the exercise showed that only a small fraction of the financial support available through projects under the health cluster of Horizon Europe, ESF+, the Regional Development Funds, Digital Europe Programme and Connecting Europe 2 Facility, is allocated to health financing at the EU or Member State levels. As the MFF 2021-2027 is entering into a mid-term review based on an analysis of fund allocations and on-going projects, EU support within the current MFF in the health sector appears to have been minimal to non-existent in terms of SRHR or broader gender equality. An exception is the Citizens', Equality, Rights and Values (CERV) programme, which has a substantial focus on supporting civil society actors in combating sexual and gender-based violence (SGBV) through advocacy, innovative service development, breaking harmful behavioural patterns, changing attitudes, and the mobilization of multi-sectoral collaboration for prevention and the protection of individuals from all forms of violence. However, no action that would address other

¹⁶ European Commission, 'Proposal for a REGULATION OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL on the establishment of a Programme for the Union's action in the field of health –for the period 2021-2027 and repealing Regulation (EU) No 282/2014 ("EU4Health Programme")'

<https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A52020PC0405>

¹⁷ https://research-and-innovation.ec.europa.eu/funding/funding-opportunities/funding-programmes-and-open-calls/horizon-2020_en

¹⁸ European Parliament, 'Gender Budgeting: State of Play and way forward' Hearing 20.6.2018 <https://www.europarl.europa.eu/committees/en/product/product-details/20180604CHE04161>

¹⁹ <https://cohesiondata.ec.europa.eu/stories/s/Cohesion-policy-supporting-gender-equality/gkxm-7hxd>
<https://www.consilium.europa.eu/en/infographics/mff2021-2027-ngeu-final/>

²⁰ There are no health-related projects under Connecting Europe 2 Facility. The data available on gender-tracking for the implementation of the Commission's cohesion policy is based on planned amounts, not expenditure. There are notable gaps in the availability of data on implemented projects and expenditure in the Commission web sources: on-going Regional Development Fund projects are not available on the websites.

reproductive health topics, such as advocacy for health in the case of incapacitating reproductive diseases, or on safe abortion, is to be found. As for research, nine projects in eight Member States focusing on reproductive health and more specifically on improved diagnostics of breast cancer and endometriosis under Horizon Europe could be found. Eight of the on-going projects are in the field of life sciences while one project funded by the European Research Council (ERC) falls into the remit of social sciences with the focus on processes to bring about changes in abortion laws. Only four of the nine research projects can be considered longitudinal research (five years or more), and no projects were to be found in the field of the socio-economic impact of SRHR. The projects are funded under the European Innovation Ecosystems (EIE) programme, by the ERC or by the European Innovation Council (EIC). More information on the on-going projects can be found in Annex II.

2.4. Sexual and reproductive rights in the Member States

Sexual and reproductive rights implicate a number of human rights protected in international and European human rights law. These include the right to life, the right to be free from torture, inhuman and degrading treatment or punishment, the right to privacy, the right to education, the prohibition on discrimination, and the right to health. Selected relevant rights are included in Box 1.

International treaty monitoring bodies have made it clear that '[t]he right to sexual and reproductive health is an integral part of the right to health'. As articulated by the Committee on Economic, Social and Cultural Rights (CESCR), the right to sexual and reproductive health 'include[s] the right to make free and responsible decisions and choices, free of violence, coercion and discrimination, regarding matters concerning one's body and sexual and reproductive health [...and...] unhindered access to a whole range of health facilities, goods, services and information, which ensure all people's full enjoyment of the right to sexual and reproductive health'. All Member States are state parties to the relevant international human rights treaties including the International Covenant on Civil and Political Rights (ICCPR), International Covenant on Economic, Social and Cultural Rights (ICESCR), Convention on the Elimination of all Forms of Discrimination against Women (CEDAW), Convention on the Rights of the Child (CRC), and Convention on the Rights of Persons with Disabilities (CRPD). Member States are also all contracting parties to the European Convention on Human Rights (ECHR) and the European Social Charter (ESC). Accordingly, states are obliged to respect, protect and fulfil the sexual and reproductive rights of all those within their jurisdiction including by reforming laws, policies and practices that restrict, deny, or impede access to sexual and reproductive health care. In accordance with the general principles of international human rights law, the introduction of retrogressive measures is almost never permitted⁽²¹⁾.

²¹ See for example, CESCR, General Comment No. 22 (2016) on the right to sexual and reproductive health (article 12 of the International Covenant on Economic, Social and Cultural Rights), UN Doc. E/C.12/GC/22, paragraph 38; CESCR, General Comment No. 3 (1990) on The Nature of States Parties' Obligations (Art. 2, Para. 1, of the Covenant), contained in UN Doc. E/1991/23, paragraph 9; CESCR General Comment No. 14 (2000) on The Right to the Highest Attainable Standard of Health (Art. 12), contained in UN Doc. E/C.12/2000/4, paragraphs 32, 48, 50. See also International Commission of Jurists, Maastricht guidelines on violations of economic, social and cultural rights, 1997, Guideline 14(e); Limburg principles on the implementation of the ICCPR, 1987, Principle 72.

Box 1: Selected relevant sexual and reproductive rights

- **The right to life:** Article 2 EU Charter of Fundamental Rights, Article 2 ECHR, Article 6 ICCPR, Article 6 UNCRC

Also relevant: Articles 1 and 2 CEDAW

- **The right to be free from torture, inhuman and degrading treatment or punishment:** Article 4 EU Charter of Fundamental Rights, Article 3 ECHR, Article 7 ICCPR, Article 2 and 16 UN Convention against Torture, Article 37 UNCRC

Also relevant: Articles 1 and 2 CEDAW

- **The right to privacy:** Article 7 EU Charter of Fundamental Rights, Article 8 ECHR, Article 17 ICCPR, Article 16 CEDAW, Article 16 UNCRC

Also relevant: The right to respect for physical and mental integrity: Article 3 EU Charter of Fundamental Rights, Article 19 UNCRC

- **The right to education:** Article 14 EU Charter of Fundamental Rights, Article 17 Revised European Social Charter, Article 2 Protocol 1 ECHR, Article 13 ICESCR, Article 28 UNCRC
- **The prohibition on discrimination:** Article 21 and 23 EU Charter of Fundamental Rights, Article 14 ECHR, Part V Article E Revised European Social Charter, Article 3 ICCPR, Articles 2 and 3 ICESCR, CEDAW, Article 2(1) UNCRC, Articles 5 and 6 CRPD.
- **The right to health:** Article 35 EU Charter of Fundamental Rights, Article 12 Revised European Social Charter, Article 12 ICESCR, Article XX CEDAW, Article 24 UNCRC, Article 24 CRPD

Also relevant: The right to benefit from scientific progress, Article 15(c) ICESCR

Most Member States directly or indirectly protect sexual and reproductive rights. The constitutions of all but nine Member States (**Austria, Croatia, Cyprus, Denmark, France, Ireland, Luxembourg, Malta, Netherlands**) expressly protect a right to dignity, while all but eight (**Cyprus, Denmark, France, Germany, Ireland, Malta, Sweden, Spain** (c.f. the right to health education in Section 43.3, Constitution of Spain)) include express protection for the right to healthcare. Two Member States (**Portugal** and **Slovenia**) expressly respect a right to decide on the number and spacing of children either through a right to family planning (Article 67.d, Constitution of Portugal) or a right to “decide whether to bear children” (Article 55, Constitution of Slovenia). While few Member States refer to abortion in their constitutional texts (**Ireland** (Article 40.3.3, Constitution of Ireland), **Czechia** (Article 6, Constitution of Czechia), and **Slovakia** (Article 15, Constitution of Slovakia)), abortion is legally available in all Member States, albeit subject to highly restrictive laws in some (**Poland, Malta**).

2.4.1. The right to free and informed consent

The realization and effective protection of sexual and reproductive rights require a supporting framework of law and policy, including effective protection of the right to free and informed consent. International human rights law recognises this as a core aspect of the right to health. As articulated by the CESCR, ‘The right to health contains both freedoms and entitlements.’ The freedoms include the right to control one’s health and body, including sexual and reproductive freedom, and the right to be free from interference, such as the right to be free from ‘torture, non-consensual medical treatment

and experimentation' ⁽²²⁾. Article 3.2 of the EU Charter of Fundamental Rights protects the right to integrity and provides a requirement for free and informed consent in medical settings. While Member States generally recognize and protect the right to informed consent, some Member States permit acts (such as forced sterilization) that are contrary to this right. In general, such permissions apply to specific groups of people such as minors or people with disabilities, notwithstanding their expressly protected rights to informed consent as a matter of international human rights law ⁽²³⁾.

2.4.2. Forced sterilization

The UN Special Rapporteur on torture and other cruel, inhuman or degrading treatment or punishment has described forced sterilization as 'an act of violence, a form of social control, and a violation of the right to be free from torture and other cruel, inhuman, or degrading treatment or punishment.' ⁽²⁴⁾ Sterilization without the informed consent of the sterilized person is a serious violation of internationally protected human rights that may constitute torture or inhuman treatment and is 'incompatible with respect for human freedom and dignity.' ⁽²⁵⁾

Thirteen Member States allow forced sterilization for persons with disabilities either by exempting them from general prohibitions on forced sterilization if they do not have the capacity to consent, or by expressly exempting people with disabilities from general criminal prohibitions on forced sterilization (**Bulgaria, Croatia, Czechia, Cyprus, Denmark, Estonia, Finland, Hungary, Latvia, Lithuania, Malta, Portugal, and Slovakia**) ⁽²⁶⁾. Even where Member States expressly prohibit forced sterilization for persons with disabilities, some permit a guardian or specially convened body to consent to sterilization on behalf of the person in question if they are deemed incapable of consenting (**France, Germany, Bulgaria, Cyprus, Denmark, Estonia, Hungary, Latvia, Lithuania, Malta, Portugal**) albeit, in some cases, subject to a strict process where the guardian is required to respect the preferences of the person concerned (**Germany**: amendments to the Civil Code introduced by an Act in the Reform of Guardianship Law). According to the European Disability Forum, sterilization is a de facto requirement for admission to residential institutions for people with disabilities in **Belgium, France, and Hungary** ⁽²⁷⁾. Furthermore, NGOs report practices of forced or coerced sterilization of women with disabilities in institutions in other Member States and concerns about such practices have been expressed in the concluding observations of several human rights treaty bodies ⁽²⁸⁾. In other

²² CESCR General Comment No. 14 (2000) on The Right to the Highest Attainable Standard of Health (Art. 12), contained in UN Doc. E/C.12/2000/4, paragraph 8.

²³ CRC Committee, General Comment No. 4 (2003), Adolescent Health and Development in the Context of the Convention on the Rights of the Child, UN Doc. CRC/GC/2003/4; CRC Committee, General comment No. 20 (2016) on the implementation of the rights of the child during adolescence, UN Doc. CRC/C/GC/20*, esp. paragraph 39, Articles 14 and 25, CRPD; CRPD Committee Guidelines on Article 14: The right to liberty and security of persons with disabilities (2015) contained in Annex to UN Doc. A/72/55.

²⁴ Report of UN Special Rapporteur on torture and other cruel, inhuman or degrading treatment or punishment (2013), UN Doc. A/HRC/22/53, paragraph 48.

²⁵ ECtHR, *Soares de Melo v Portugal* App. No. 72850/14 [2016] ECHR 186, paragraph 110. See also *VC v Slovakia* App. No. 18968/07 [2011] ECHR 1888.

²⁶ European Disability Forum, 'Forced Sterilisation of Persons with Disabilities in the European Union', 2022 <https://docs.google.com/document/d/1m3h1qdzVqjFNxVGEIuf8v8Gf4zPDsCpl/edit>

²⁷ European Disability Forum, 'Forced Sterilisation of Persons with Disabilities in the European Union', 2022 <https://docs.google.com/document/d/1m3h1qdzVqjFNxVGEIuf8v8Gf4zPDsCpl/edit>

²⁸ See for example CEDAW Committee, Concluding observations on the combined sixth and seventh periodic reports of Luxembourg, UN Doc. CEDAW/C/LUX/CO/6-7, paragraph 27; CEDAW Committee, Concluding observations on the sixth periodic report of Lithuania, UN Doc. CEDAW/C/LTU/CO.6, paragraph 42; CRPD Committee, Concluding observations on the initial report of Lithuania, UN Doc. CRPD/C/LTU/CO/1*, paragraphs 37-38; CRPD Committee, Concluding observations on the initial report of Portugal, UN Doc. CRPD/C/PRT/CO/1, paragraphs 36-37.

Member States, general prohibitions on forced sterilization apply but there is no provision expressly reinforcing the application of this prohibition to people with disabilities (**Netherlands, Greece, Ireland, Italy, Luxembourg, Romania, Slovenia, Sweden**).

2.4.3. Sterilization as a condition of legal recognition of gender identity

Principle No. 3 of the Yogyakarta Principles on the application of international human rights law in relation to sexual orientation and gender identity (2006) provides that 'No one shall be forced to undergo medical procedures, including sex reassignment surgery, sterilization or hormonal therapy, as a requirement for legal recognition of their gender identity'. The European Parliament has called on Member States 'to abolish the sterilization requirement and to protect transgender persons' right to self-determination⁽²⁹⁾. Furthermore, the European Court of Human Rights and European Committee on Social Rights have both recognised that requiring sterilization for the purposes of gender recognition is a violation of the ECHR and European Social Charter respectively⁽³⁰⁾.

Sterilization is not strictly required for gender recognition in most Member States, but some Member States lack clear legislation on the exact process for gender recognition or expressly prohibit requiring sterilization for the purposes of gender recognition. That said, over the past five years, almost half of all Member States have expressly provided that sterilization is not required as part of the legal recognition process and in many Member States gender recognition is now an administrative process based on self-determination and definition and without requiring medical intervention⁽³¹⁾. Nevertheless, other requirements continue to apply including mandated waiting periods (**Denmark, Estonia, Spain**), requirements of medical certification of a prescribed condition or expert opinions from mental health professionals (**Croatia, Ireland, Estonia, Latvia, Slovakia**), and divorce (**Italy, Czechia, Greece**). In certain settings there are de facto waiting periods either because of medical practice (**Poland**) or extremely long waiting times to avail oneself of specialised medical services (**Ireland**).

Sterilization can still be required in a small number of Member States. For example, in **Romania** the Law on Civil Status Acts (Law No. 119, 1996) requires judicial authorization of a change of gender in order for a name change to be approved. However, the legislation does not specify the requirements for such judicial authorisation and in practice some national courts require surgical interventions which can include sterilization⁽³²⁾. **Slovakia's** Law on Personal Identification Numbers (Law No. 301, 1995) requires a medical certificate to permit a change in legally recognized gender and, while the law does not specify that medical intervention is required for such a certificate to be issued, there is an administrative requirement that the medical certificate must establish that the 'reproductive functions of the patient have been definitively eliminated'⁽³³⁾. In **Slovenia** the Law on the Register of Births, Deaths and Marriages (2005) required 'medical certification' to attain legal gender recognition but there are no clear criteria for such certification. As a result there is persistent uncertainty about whether surgical intervention is required and, if so, whether medical staff may mandate sterilization as a condition of certification.

²⁹ European Parliament resolution of 24 June 2021 on the situation of sexual and reproductive health and rights in the EU, in the frame of women's health (2020/2215(INI)), paragraph 21.

³⁰ ECtHR, A.P., Garçon and Nicot v. France [2017] ECHR 338; European Committee of Social Rights, *Transgender Europe and ILGA-Europe v. Czech Republic* Complaint No. 117/2015 (2018)

³¹ See ILGA Database of Requirements for Gender Recognition <https://database.ilga.org/legal-gender-recognition>

³² X. and Y. v. Romania (Apps. No. 2145/16 and 20607/16) (2021), Judgment of 19 January 2021.

³³ *Parliamentary question: Reintroduction of forced sterilisation of transgender persons in Slovakia: E-008856/2016: European Parliament*. European Parliament. (2016, November 28). https://www.europarl.europa.eu/doceo/document/E-8-2016-008856_EN.html

2.4.4. Unnecessary medical or surgical intervention for intersex infants and children

There are persistent practices of subjecting intersex infants, children and adolescents to medically unnecessary surgeries, hormonal treatment and other procedures intended to change their appearance and/or physical development to align with 'societal expectations about female and male bodies' ⁽³⁴⁾. The European Parliament has repeatedly called on Member States 'to adopt legislation ensuring that intersex persons are not subjected to non-vital medical or surgical treatment during infancy or childhood and that their right to bodily integrity, autonomy, self-determination and informed consent is fully respected' ⁽³⁵⁾. UN treaty monitoring bodies have repeatedly stressed the need for states to develop rights-based protocols for health and medical care for intersex children.

Numerous Member States have prohibited unnecessary surgical interventions for intersex infants and children, however in most cases medically unnecessary genital surgery can still proceed with court authorization and various treaty monitoring bodies have urged Member States to prevent - and provide remedies - in respect of non-consensual surgical interventions ⁽³⁶⁾. **Malta's** Gender Identity, Gender Expression and Sex Characteristics Act 2015 prohibits non-consensual, cosmetic medical interventions. In **Portugal** Law No. 75/XIII/2 introduced a moratorium on genital surgeries on intersex infants but did not prohibit surgical interventions on children who cannot consent. While **Germany** has banned cosmetic surgeries that seek to ensure a child's genitals reflect traditional notions of male and female genitalia, children diagnosed with 'variations of sexual development' can be subject to surgical intervention following authorization from a family court and based on its assessment of whether a proposed intervention is in the best interests of the child ⁽³⁷⁾. **Greek** law prohibits 'sex-normalizing' surgeries on intersex babies and children under 15 except with court authorization. **Spanish** law prohibits medically unnecessary genital surgery on intersex infants and children under 12 ⁽³⁸⁾.

2.4.5. Access to goods and services

The right to sexual and reproductive health includes an entitlement to 'unhindered access to a whole range of health facilities, goods, services and information, which guarantee all people full enjoyment of the right to sexual and reproductive health' ⁽³⁹⁾. The European Parliament has affirmed existing calls for Member States to 'guarantee sufficient budgetary provision for SRHR and ensure the availability of adequate human resources and necessary goods across all levels of the health system' ⁽⁴⁰⁾.

³⁴ UNOHCHR, *Human Rights Violations against Intersex People: A Background Note* 2019, p. 13.

³⁵ European Parliament resolution of 24 June 2021 on the situation of sexual and reproductive health and rights in the EU, in the frame of women's health (2020/2215(INI)), paragraph 19. See also European Parliament Resolution on the Rights of Intersex People, OJC 449, 23.12.2020, p. 142.

³⁶ See for example CEDAW Committee, Concluding observations of Czechia, France, Germany Italy, Luxembourg, Netherlands and Slovakia (sixth or seventh, or sixth and seventh combined reporting cycles).

³⁷ Bundestag Gesetz zum Schutz von Kindern mit Varianten der Geschlechtsentwicklung, Federal Law Volume 2021 Part I No. 24, (§ 1631e (1.3) issued in Bonn on May 21, 2021 [https://www.bqbl.de/xaver/bqbl/start.xav?start=//\[*\]\[@attr_id=%27bqbl121s1082.pdf%27\]#_bqbl_%2F%2F%5B%40a_ttr_id%3D%27bqbl121s1082.pdf%27%5D_1698732847830](https://www.bqbl.de/xaver/bqbl/start.xav?start=//[*][@attr_id=%27bqbl121s1082.pdf%27]#_bqbl_%2F%2F%5B%40a_ttr_id%3D%27bqbl121s1082.pdf%27%5D_1698732847830)

³⁸ Ley 4/2023, para la igualdad real y efectiva de las personas trans y para la garantía de los derechos de las personas LGTBI, Spain, BOE núm. 51, 2023 <https://www.boe.es/buscar/doc.php?id=BOE-A-2023-5366>

³⁹ CESCR General Comment No. 22 (2016) on the right to sexual and reproductive health (article 12 of the International Covenant on Economic, Social and Cultural Rights), UN Doc. E/C.12/GC/22, paragraph 5.

⁴⁰ European Parliament resolution of 24 June 2021 on the situation of sexual and reproductive health and rights in the EU (2020/2215(INI)), paragraph 7. See also Council of Europe Commissioner for Human Rights, *Women's sexual and reproductive health and rights in Europe*, Council of Europe Commissioner for Human Rights, Council of Europe, 2017.

2.4.6. Access to contraception

All Member States are under an international human rights law obligation to provide women with access to a full range of contraceptives and contraceptive information. International treaty monitoring bodies recognize that failures to address cost-based barriers to contraception through subsidising, reimbursing, or providing no-cost contraception may constitute discrimination against women ⁽⁴¹⁾. Furthermore, a wide range of contraceptives are on the WHO List of Essential Medicines meaning states must ensure access to them. Both the European Parliament and the Parliamentary Assembly of the Council of Europe have called on states to ensure all modern methods of contraception are available, accessible and affordable ⁽⁴²⁾. The availability of contraception across the Member States is illustrated in Annex III.

2.4.7. Access to emergency contraception without prescription

With the exception of **Poland** and **Hungary**, emergency contraception is available without prescription in all Member States.

2.4.8. Access to abortion

Access to quality abortion care is a recognized part of sexual and reproductive health. International human rights law obliges states to 'provide safe, legal and effective access to abortion where the life and health of the pregnant woman or girl is at risk, or where carrying a pregnancy to term would cause the pregnant woman or girl substantial pain or suffering, most notably where the pregnancy is the result of rape or incest or where the pregnancy is not viable' ⁽⁴³⁾. Treaty monitoring bodies consistently urge the full decriminalization of abortion, and it is clear under both international and European human rights law that where abortion is lawful it must be available and accessible in practice ⁽⁴⁴⁾. In its Abortion Care Guideline (2022), the World Health Organization identifies a supportive law and policy framework as part of the enabling environment for quality abortion care, and makes seven law and policy recommendations ⁽⁴⁵⁾. These are contained in Box 2.

⁴¹ HRC, Report of the Working Group on the issue of discrimination against women in law and in practice (2016), UN Doc. A/HRC/32/448; CESCR General Comment No. 22 (2016) on the right to sexual and reproductive health (article 12 of the International Covenant on Economic, Social and Cultural Rights), UN Doc. E/C.12/GC/22, paragraph 63; CRC Committee, General comment No. 20 (2016) on the implementation of the rights of the child during adolescence, UN Doc. CRC/C/GC/20, paragraph 60.

⁴² Parliamentary Assembly of the Council of Europe: resolution 2331 (2020) empowering women: promoting access to contraception in Europe. European Parliament resolution (2021) on the situation of sexual and reproductive health and rights in the EU, (2020/2215(ini))

⁴³ HRC General Comment No. 36 Article 6: Right to Life (2019), UN Doc. CCPR/C/GC/36, paragraph 8.

⁴⁴ See for example HRC, General Comment No. 36: Article 6 of the International Covenant on Civil and Political Rights, on the right to life (2018) (UN Doc. CCPR/C/GC/36); HRC, *LMR v Argentina* (2011) (UN Doc. CCPR/C/101/D/1608/2007); HRC, *LC v Peru* (2011) (UN Doc. CEDAW/C/50/D/22/2009); CESCR, General Comment No. 22: The right to sexual and reproductive health (Article 12 of the International Covenant on Economic, Social and Cultural Rights) (2016) (UN Doc. E/C.12/GC/22); Special Rapporteur on the right of everyone to the enjoyment of the highest attainable standard of physical and mental health, Report (2004) (UN Doc. E/CN.4/2004/49);

⁴⁵ World Health Organization, *Abortion Care Guideline* 2022.

Box 2: WHO law and policy recommendations for quality abortion

These recommendations recommend the full decriminalization of abortion:**Grounds-based approaches**

- a. *Recommend against* laws and other regulations that restrict abortion on grounds
- b. *Recommend* that abortion be available on request by the woman, girl, or other pregnant person

Gestational age limits

- *Recommend against* laws and other regulations that prohibit abortion based on gestational age limits

Mandatory waiting periods

- *Recommend against* mandatory waiting periods for abortion

Third-party authorization

- *Recommend* that abortion be available on the request of the woman, girl or other pregnant person without the authorization of any other individual, body or institution

Provider restrictions

- *Recommend against* regulation on who can provide and manage abortion that is inconsistent with WHO guidance

Conscientious objection

- *Recommend* that access to and continuity of comprehensive abortion care be protected against barriers created by conscientious objection.

Source: World Health Organization, *Abortion Care Guideline* 2022

While abortion is lawfully available in at least some circumstances in every Member State, some states' laws are highly restrictive (**Malta, Portugal**) and no Member State has an abortion law that is fully consistent with all the WHO's recommendations. Abortion remains a criminal offence either for some or all of the women, providers, or persons who assist in accessing abortion in all Member States. All Member States also impose gestational limits for access to abortion except, in some jurisdictions, in cases of emergency, risk to the life of the pregnant person, or diagnosed fatal foetal anomaly. Similarly, all Member States adopt a grounds-based approach to abortion to some extent, although most provide access to legal abortion on request for the pregnant person or on very broad social or distress grounds for at least some period of pregnancy (**Austria, Belgium, Bulgaria, Croatia, Cyprus, Czechia, Denmark, Estonia, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, Netherlands, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden**). Mandatory waiting periods for access to abortion apply in **Belgium, Germany, Hungary, Ireland, Italy, Latvia, Luxembourg, Portugal, Slovakia**, and **Spain**. Some Member States require prior permission (i.e. a Third Party Authorization) from parents, guardians, doctors, committees or courts before abortion can lawfully be provided. Conscientious objection is experienced as a barrier to access to abortion across the Member States. While two Member States prohibit conscientious objection to abortion care provision (**Finland, Sweden**), a further two permit conscientious objection without explicit limits thereto (**Estonia, Luxembourg**), three Member States neither expressly permit nor prohibit conscientious objection (**Lithuania, Bulgaria, Cyprus**), and most recognise but regulate conscientious objection in legislation, medical regulations (**Romania**), or the constitution (**Slovenia**). However, even where regulated, conscientious objection continues to pose significant barriers to accessing abortion care especially where such objection is highly prevalent (e.g. **Italy**).

2.4.9. Regulatory framework for fertility—related treatment

With the exceptions of **Bulgaria, Ireland** and **Romania**, all Member States have laws on access to medically assisted reproduction and most Member States make some financial provision for access to assisted reproduction. However, across the Member States these laws impose significant restrictions on accessing fertility-related treatment. Exclusions or limitations commonly apply to single women (**Austria, Croatia, Czechia, Germany, Italy, Latvia, Lithuania, Poland, Slovakia, Slovenia, Sweden**), female couples (**Austria, Croatia, Cyprus, Czechia, Germany, Greece, Hungary, Latvia, Lithuania, Poland, Slovakia, Slovenia, Sweden**), and male couples (all Member States except **Belgium, Malta**, and **Romania**). Annex IV summarizes the regulatory framework for access to medically assisted reproduction across the Member States. More information on national regulations and donor registries is also provided in Chapter 3.

2.4.10. Paid parenting-related leave

All Member States make provision for paid reproduction- and parenting-related leave meeting at least the maternity and paternity leave requirements laid down in the relevant EU directives, although there is significant variation in the number of weeks of paid leave available and the percentage of salary (or other financial provision) that is to be paid during such leave. Some Member States impose exclusions or limitations in respect of such leave. For example, while adoption leave is provided for in all Member States, **Croatia** permits only one parent to take paid leave in cases of adoption, adoption leave is unpaid in **Cyprus**, and while adoption leave is provided for in **Hungary**, adoption is not available to single people. Thirteen Member States make no provision for adoption leave for same-sex couples, and where it is available there are *de facto* restrictions on such leave emanating from restrictions on when same-sex parents are permitted to adopt. Current laws on reproduction- and parenting-related leave are summarized in Annex V.

3. AVAILABILITY OF FERTILITY TREATMENTS IN EUROPE

KEY FINDINGS

- Infertility impacts approximately 25 million women and men across Europe resulting from injury, biological and hormonal disorders, aging, endometriosis or a combination of factors. Infertility is a multifactorial disorder, which has in psychological and physical consequences that frequently results in self-stigma and social stigma.
- There is increasing inequity across EU-27 for women and men that are childless for non-medical reasons, with discriminatory policies in different Member States.
- Fertility treatment is widely available across EU-27 Members' States but there is considerable variation in the availability and use of ART in Europe, influenced by factors such as legislation, funding, social acceptance, and medical practice with a wide variety of treatment options and costs.
- Fertility treatment, in terms of quality, accessibility and affordability are entirely dependent on the equivalent characteristics of Member State public health systems.

3.1. Causation and impacts of infertility

It is estimated that over 25 million people across Europe are affected by infertility. Infertility is a disease of the male or female reproductive system and is characterized either as a failure to achieve a pregnancy after 12 months or more of regular sexual intercourse without the use of any protection or contraceptive measures or as an impairment of a person's capacity to reproduce either as an individual or with their partner ⁽⁴⁶⁾. In the EU, there are also individuals who are involuntarily childless for non-medical reasons; these include the LGBTI community and single individuals ⁽⁴⁷⁾.

While not explicitly a right in the EU, fertility is related to several human rights that are protected by the EU Charter of Fundamental Rights, including the right to respect for private and family life, the right to health care, the right to non-discrimination — infertility is considered a hidden disability — and the right to equality between men and women. In 2002, based on the global burden of disease using disability-adjusted life-years to measure health loss, the WHO, ranked 'women with infertility' as the fifth highest serious global disability ⁽⁴⁸⁾. Infertility can have a profound impact, both socially and psychologically, on the well-being and quality of life of individuals and couples who desire to have children. Infertility can affect their sense of identity, self-esteem, relationships, sexuality and mental

⁴⁶ European Society of Human and Reproduction and Embryology, 'Factsheet on Infertility – Prevalence, Treatment and Fertility Decline in Europe', European Society of Human Reproduction and Embryology, July 2021, https://www.eshre.eu/-/media/sitecore-files/ESHRE-internal/EUAffairs/ESHRE_InfertilityFactsheet_v9.pdf

⁴⁷ FertilityEurope, European Parliamentary Forum, June 2023, 'The imperative of equal access to fertility treatments across Europe [White Paper]', https://fertilityeurope.eu/wpcontent/uploads/2023/06/FE_WhitePaper_2023-WEB.pdf

⁴⁸ European Society of Human and Reproduction and Embryology, 'Factsheet on Infertility – Prevalence, Treatment and Fertility Decline in Europe', European Society of Human Reproduction and Embryology, July 2021, https://www.eshre.eu/-/media/sitecore-files/ESHRE-internal/EU-Affairs/ESHRE_InfertilityFactsheet_v9.pdf

health. Infertility has also been shown to cause stress, anxiety, depression, grief, isolation, stigma and discrimination⁽⁴⁹⁾.

The causes of infertility vary, but they are linked to factors concerning female fertility, male fertility, lifestyle and environmental factors. Female infertility has been linked to increasing age at time of desired conception, disorders of the reproductive organs (which can be genetic), endocrine disorders resulting in imbalances of reproductive hormones and/or a combination of all these factors. While no definitive cause-and-effect connection has been identified between infertility and endometriosis, the relation is clinically recognized and well supported by evidence⁽⁵⁰⁾. Endometriosis is thought to contribute to between 30-50 % of infertility in women. Male infertility can be due to abnormal sperm function or insufficient quality of sperm, hormonal disorders, injuries, infections or congenital abnormalities of the genital tract. Lifestyle factors include smoking, the use of recreational drugs, excessive alcohol intake and obesity. Exposure to environmental pollution and toxins can be toxic for both eggs and sperm, again leading to infertility⁽⁵¹⁾,⁽⁵²⁾.

3.2. Fertility treatments and treatment policies across the EU

There are three main types of medically assisted fertility treatment (MAR): drugs to help with ovulation; surgery to treat abnormalities; and assisted contraception⁽⁵³⁾. According to the latest data (2018) from the International Committee for Monitoring Assisted Reproductive Technologies (ICMART), 3.2 million Assisted Reproductive Treatment (ART) cycles were carried out in 79 countries, which is an increase of 63.4 % on the 2017 data⁽⁵⁴⁾,⁽⁵⁵⁾. Data from 39 European countries gathered by the European IVF-Monitoring Consortium for the ESHRE⁽⁵⁶⁾ indicate a consistent growth in ART treatments in Europe with **Spain, France, Germany and Italy** among the top 10 countries in terms of reported ART cycles. It is also estimated that 2-7 % of all births in Nordic countries resulting from ART⁽⁵⁷⁾.

⁴⁹ FertilityEurope, European Parliamentary Forum, June 2023, 'The imperative of equal access to fertility treatments across Europe [White Paper]', https://fertilityeurope.eu/wpcontent/uploads/2023/06/FE_WhitePaper_2023-WEB.pdf

⁵⁰ Coccia M., Nardone L., and Rizzello F., 'Endometriosis and Infertility: A Long-Life Approach to Preserve Reproductive Integrity.' Int J Environ Res Public Health, 2022 <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC9141878/>

⁵¹ European Society of Human and Reproduction and Embryology, 'Factsheet on Infertility – Prevalence, Treatment and Fertility Decline in Europe', European Society of Human Reproduction and Embryology, 2021 https://www.eshre.eu/-/media/sitecore-files/ESHRE-internal/EU-Affairs/ESHRE_InfertilityFactsheet_v9.pdf

⁵² Calhaz-Jorge, C, C h De Geyter, M S Kupka, C Wyns, E Mocanu, T Motrenko, G Scaravelli, J Smeenk, S Vidakovic, and V Goossens, 'Survey on ART and IUI: Legislation, Regulation, Funding and Registries in European Countries: The European IVF-Monitoring Consortium (EIM) for the European Society of Human Reproduction and Embryology (ESHRE)', Human Reproduction Open, 2020, p. hoz044, <https://doi.org/10.1093/hropen/hoz044>

⁵³ European Patients Forum, 2020, 'Who can access fertility treatments in Europe?' <https://www.eu-patient.eu/news/latest-epf-news/2020/who-can-access-fertility-treatments-in-europe/>

⁵⁴ The increase in MAR was largely attributed to China reporting ART treatments.

⁵⁵ European Society of Human Reproduction and Embryology, 'ICMART Preliminary World Report 2018', 2022 July, <https://www.icmartivf.org/wp-content/uploads/ICMART-ESHRE-WR2018-Preliminary-Report.pdf>

⁵⁶ Albania, Armenia, Austria, Belarus, Belgium, Bosnia, Bulgaria, Czechia, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Kazakhstan, Latvia, Lithuania, Luxembourg, Macedonia, Malta, Moldova, Montenegro, Netherlands Norway, Poland, Portugal, Romania, Russia, Serbia, Slovenia, Spain, Sweden, Switzerland, Ukraine, United Kingdom.

⁵⁷ European Society of Human and Reproduction and Embryology, 'Factsheet on Infertility – Prevalence, Treatment and Fertility Decline in Europe', European Society of Human Reproduction and Embryology, July 2021, https://www.eshre.eu/-/media/sitecore-files/ESHRE-internal/EU-Affairs/ESHRE_InfertilityFactsheet_v9.pdf

Europe is one of the few regions in the world where most of the countries have MAR regulations ⁽⁵⁸⁾. Preimplantation genetic testing, including PGT-M/SR, is regulated across the EU by ESHRE ⁽⁵⁹⁾. However, the utilization of, access to, and affordability of, fertility treatments vary greatly across the EU and are influenced by non-medical issues such as legal, ethical, cultural, religious and economic factors. Some countries offer publicly-funded programmes while others rely on private insurance and out-of-pocket payments by patients. Inequities also exist within countries, depending on where people live and the types of obligatory public health insurance for citizens. A 2019 study from Greece reported that approximately 20 000 to 25 000 couples travel abroad to seek reproductive care, citing the cost of fertility treatment as a key reason people seek care outside their country of residence. Referred to as cross-border reproductive care, this global phenomenon is not without risk or ethical issues and is promulgated by easily accessible information and options offered online ⁽⁶⁰⁾.

Public funding for ART varies widely, from no financial assistance for patients to limited provision depending on a defined criterion. In certain countries reimbursement is linked to clinical policy, but generally with little consistency in what is covered per cycle and up to what limit. There are large discrepancies between out-of-pocket payments by patients. 31 out of 43 European countries have national registers for MAR in place, while only 18 have a donor register ⁽⁶¹⁾. The most affordable private in-vitro fertilization (IVF) combined with high-quality care is found in **Czechia, Greece, Denmark and Spain**. In 2021, the reported percentage of births from ART in Europe ranged from less than one per cent in some countries (e.g. Albania, Bosnia and Herzegovina, **Romania**) to more than six per cent in others (**Denmark, Iceland, Slovenia**). The number of ART cycles per million women of reproductive age varied widely, from less than 500 per million women in some countries (**Bulgaria, Croatia, Lithuania**) to more than 14,000 per million women in others (**Denmark, Czechia, Belgium, Slovenia, Spain and Greece**). ⁽⁶²⁾ A study on the population of Czechia using data from the Institute of Health Information and Statistics distinguishes between resident and non-resident mothers and estimates the percentage of live births in Czechia arising from MAR to have been 3.9 % in 2018. Differences in MAR treatment across Member States were attributed to legislation and accessibility ⁽⁶³⁾, ⁽⁶⁴⁾.

The fragmentation of legal approaches and funding systems across Europe impacts the ability of different patient groups to have access to fertility treatment, surrogacy and fertility preservation.

⁵⁸ Seiz M., Eremenko T., Salazar L. 'Socioeconomic differences in access to and use of Medically Assisted Reproduction (MAR) in a context of increasing childlessness.' EU Science Hub, January 13 2023, https://joint-research-centre.ec.europa.eu/publications/socioeconomic-differences-access-and-use-medically-assisted-reproduction-mar-context-increasing_en

⁵⁹ European Society of Human Reproduction and Embryology PGT Consortium Steering Committee, Carvalho F., Coonen E., Goossens V., Kokkali G., Rubio C., et al. 'ESHRE PGT Consortium good practice recommendations for the organisation of PGT'. Hum Reprod Open. 2020 Mar 1;2020(3):hoaa021, <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7257038/>

⁶⁰ Simopoulou M., Sfakianoudis K., Giannelou P., Pierouli A., Rapani A., Maziotis E., et al. 'Treating Infertility: Current Affairs of Cross-border Reproductive Care'. Open Med. 2019 Mar 12;14:292–9m, <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6434662/>

⁶¹ Calhaz-Jorge, C., C h De Geyter, M S Kupka, C Wyns, E Mocanu, T Motrenko, G Scaravelli, J Smeenk, S Vidakovic, and V Goossens, 'Survey on ART and IUI: Legislation, Regulation, Funding and Registries in European Countries: The European IVF-Monitoring Consortium (EIM) for the European Society of Human Reproduction and Embryology (ESHRE)', Human Reproduction Open, Vol. 1, January 1, 2020, p. hoz044, <https://doi.org/10.1093/hropen/hoz044>

⁶² Wyns C., De Geyter C., Calhaz-Jorge C., Kupka M.S., Motrenko T., Smeenk J., et al. 'ART in Europe, 2018: results generated from European registries by ESHRE'. Hum Reprod Open. 2022 Jul 5;2022(3):hoac022. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8342033/>

⁶³ Fincham A. 'European Atlas of Fertility Treatment Policies', Fertility Europe. 2021, <https://fertilityeurope.eu/european-atlas-of-fertility-treatment-policies/>

⁶⁴ Wyns C., De Geyter C., Calhaz-Jorge C., Kupka M.S., Motrenko T., Smeenk J., et al. 'ART in Europe, 2018: results generated from European registries by ESHRE'. Hum Reprod Open. 2022 Jul 5;2022(3):hoac022, <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8342033/>

Depending on the country, its financial investments in public healthcare plus several individual factors such as place of residence and income level, there is demonstrable inequality in access to fertility treatments. While cross-border reproductive care can be an opportunity for European citizens, there are variations in practices that can fuel unethical cross-border reproductive care. Countries such as **Denmark** and **Belgium** were noted to have highly developed and well-funded healthcare systems that provide non-discriminatory access to fertility treatments to all citizens and for which a high proportion of the cost is covered by mandatory health insurance. Other countries, particularly those in Eastern Europe, had more limited access to fertility treatments, with high out-of-pocket costs for patients⁽⁶⁵⁾. The European Atlas of Fertility Treatment is a primary source of information for MAR treatment in the EU (excluding Luxembourg). Designed as a dashboard, it provides a snapshot of fertility services and policies across Europe in 2021. Creating a hypothetical 'perfect' country, countries were measured in terms of the existence of regulations, treatment, funding of MAR, availability of the genetic test PGT-M/SR (but not accessibility), psychological support, patient consultation and state-funded education programmes on fertility in schools. The overall scoring ranged from excellent to exceptionally poor, as seen in Table 1⁽⁶⁶⁾. Details per country can be found in Annex III.

Table 1: European Atlas of Fertility Treatment Policies, key findings (2021) – Adapted EU-27

Excellent (100 - 81%)	Very good (80 - 70%)	Medium (69 - 60%)	Poor (59 - 50)	Very poor (49 - 31%)	Exceptionally poor (30 - 0%)
<ul style="list-style-type: none"> • Good regulations. • Access to treatments for most patients. • Good funding 	<ul style="list-style-type: none"> • Quite good regulations. • Access to treatments for many patients. • Quite good funding 	<ul style="list-style-type: none"> • Access to treatments for select groups of patients. • Variable funding 	<ul style="list-style-type: none"> • Access to treatments for select groups of patients. • Poor funding 	<ul style="list-style-type: none"> • Access to treatments limited. • Funding poor or none 	<ul style="list-style-type: none"> • Access to treatments very limited • No funding
<ul style="list-style-type: none"> • Belgium (86) • France (84) • The Netherlands (86) 	<ul style="list-style-type: none"> • Croatia (76) • Denmark (73) • Finland (79) • Hungary (76) • Malta (71) • Norway (77) • Portugal (80) • Slovenia (71) • Spain (73) • Sweden (71) 	<ul style="list-style-type: none"> • Austria (65) • Bulgaria (68) • Germany (69) • Italy (63) • Latvia (63) 	<ul style="list-style-type: none"> • Republic of Cyprus (59) • Estonia (55) • Lithuania (55) • Romania (56) • Slovakia (51) 	<ul style="list-style-type: none"> • Czech Republic (49) 	<ul style="list-style-type: none"> • Ireland (27) • Poland (27)

Source: <https://fertilityeurope.eu/atlas/>

The following information provides snapshots of the state of fertility treatments in the EU. The information is predominantly extracted from two key sources, the European Atlas of Fertility Treatment Policies and the country map associated with the European Society of Human Reproduction and Embryology legislation and reimbursement map. Additional information has been added with references when appropriate⁽⁶⁷⁾. As for age limits of fertility treatment covered by insurances, the practices vary greatly across the Member States. In most countries the lower limit for women and men is 18 years. The upper limit for women ranges from 37 in **Latvia** and 40 in **Sweden** to 51-52 in **Bulgaria** and **Spain**. The upper limit is above 45 in at least 18 Member States, and 50 or above in at least 9 Member States. In a number of Member States, such as **Austria, France, Poland, Slovenia** and **Spain**,

⁶⁵ FertilityEurope, European Parliamentary Forum, June 2023, 'The imperative of equal access to fertility treatments across Europe [White Paper]', https://fertilityeurope.eu/wpcontent/uploads/2023/06/FE_WhitePaper_2023-WEB.pdf

⁶⁶ Fincham A. 'European Atlas of Fertility Treatment Policies', Fertility Europe. 2021, <https://fertilityeurope.eu/european-atlas-of-fertility-treatment-policies/>

⁶⁷ <https://cm.eshre.eu/cmCountryMap/home/index/2020>

the upper limit for women is dependent on reproductive age or age of menopause. Most Member States do not have an upper limit for men, with the exception of **Portugal**, where it is 60, and **Finland**, where it is also 60, but clinic dependent. Detailed information on the age limits for fertility treatment are compiled in a table in Annex IV.

3.2.1. Austria

Austria has ART regulation and a national ART register. There is also a partially anonymous national donor register. The donor register is not completely anonymous however, as children from the age of 14 conceived with donor sperm have the right to information on their donor's identity. The donor can choose to be made known to the recipient couple, but the couple may not request the donor's identity⁽⁶⁸⁾,⁽⁶⁹⁾.

Funding for ART is available equally in all areas of the country and public health reimbursement is available for up to six rounds of IUI and IVF. Patient groups are not consulted on public policy and there is a no state-sponsored fertility education programme. Psychological support is offered once if IVF fails. Genetic testing (PGT-M/SR) is available, but it is not covered by statutory private health insurance and is considered a private service. However, some private institutions offer financial assistance to couples for PGT-M/SR testing, for example the Kinderwunschzentrum Goldenes Kreuz clinic, in cooperation with the Austrian Cystic Fibrosis association and the Austrian Huntington's Disease association⁽⁷⁰⁾.

3.2.2. Belgium

Belgium has ART law and a national register⁽⁷¹⁾. At present, it has no national donor register, however, in 2023, the Ministry of Health has announced that such a register is underway. PMG-M testing is available and under certain conditions is covered by Belgian statutory medical insurance⁽⁷²⁾. Likewise, up to six funded cycles of both IUI and IVF are equally available across the country but there are separate criteria that must be met for each ART. Psychological support is partially reimbursed through medical insurance as part of ART. Patient groups are consulted on policies. In 2020 the Flemish government launched a website, klaarvoorkinderen.be, as a response to low fertility awareness in the Flemish population. In the same year the Belgian Fertility Education Initiative worked on a national fertility learning platform for pupils, teachers, healthcare providers and people of reproductive age, which is available in French, Flemish and English and called Reproductive Health Education.be⁽⁷³⁾.

3.2.3. Bulgaria

Bulgaria has no laws that directly regulate ART, but it has both a national ART register and a donor register. The donor register is a mix of anonymous and non-anonymized data with protection of donor identity from conceived children established in 2021. PGT-M/SR is available, but while funding is evenly distributed across the country there is only partial funding for IVF and none for IUI. Examples of patient

⁶⁸ Fincham A. 'European Atlas of Fertility Treatment Policies', Fertility Europe. 2021, <https://fertilityeurope.eu/european-atlas-of-fertility-treatment-policies/>

⁶⁹ Ambulatorium Döbling, 2023, 'Sperm Donation', <https://www.kinderwunschzentrum-doebling.at/en/conceiving-a-child/sperm-donation>

⁷⁰ <https://www.privatklinik-goldenes-kreuz.at/de/medizinische-leistungen/kinderwunschzentrum>

⁷¹ Fincham A. 'European Atlas of Fertility Treatment Policies', Fertility Europe. 2021, <https://fertilityeurope.eu/european-atlas-of-fertility-treatment-policies/>

⁷² Siermann M, Claesen Z., Pasquier L., Raivio T., Tšuiiko O., Vermeesch J. R., et al. 'A systematic review of the views of healthcare professionals on the scope of preimplantation genetic testing.' J Community Genet. 2022 February, <https://pubmed.ncbi.nlm.nih.gov/35028914/>

⁷³ <https://www.allesovervruchtbaarheid.be/en#>

group consultations on public policy exist but there is no psychological support as part of the fertility treatment package nor is public education on fertility available.

3.2.4. Croatia

Croatia has regulatory laws for ART and a national ART register but no donor register exists ⁽⁷⁴⁾. Donations remain anonymous for recipients but children have a right to know the identities of donors. IUI is fully funded while IVF is only partially funded. Funding is evenly available across the country. Some consultations with patient groups on public policy have taken place, but no known psychological support as part of MAR treatment or state-funded education on fertility is provided. In May 2023, it was reported that Croatia did not have sufficient local donors and would work with other EU countries to import sex cells from highly controlled and licensed banks. This process would be overseen but the Croatian Society for Human Reproduction and Endocrinology ⁽⁷⁵⁾.

3.2.5. Cyprus

Cyprus has laws to regulate ART, but neither national ART nor donor registers exist. Donors are strictly anonymous. No public funding for IUI is available and only partial funding is available for IVF. No information is provided on the consultation of patients, patient organizations or the general public on public policy, on psychological care as part of the MAR treatment package or on school education around fertility.

3.2.6. Czechia

ART regulations and a national register for ART exist in **Czechia**. While no national donor register exists, at the age of 18 children have the right to know their genetic origins and the identity of the donor or donors. PGT-M/SR treatment is available. Partial funding is available for IVF across the country, while no funding is available for IUI. There is no information forthcoming on policy engagement of patient groups or psychological support as part of MAR treatment. There is a national website designed as part of the International Fertility Education Initiative (IFEI), by a diverse group of local health experts that addresses facts and myths about male/female reproductive health, conception and the psychological aspects of infertility ⁽⁷⁶⁾. The website has a link to the 2019 Fertility Europe quiz on reproductive health ⁽⁷⁷⁾, and a translation of the facts poster.

3.2.7. Denmark

Denmark has one of the highest rates of ART in Europe, in terms of number of cycles per million of the population ⁽⁷⁸⁾. Danish law forbids the use of double-donor IVF. Denmark does not have a national donor register, therefore there is a mix of anonymous and non-anonymous donors. IUI cycles are fully funded, while IVF is partially funded. There is not equal funding across the country. There is no

⁷⁴ Calhaz-Jorge C., De Geyter C., Kupka M.S., Wyns C., Mocanu E., Motrenko T., et al. 'Survey on ART and IUI: legislation, regulation, funding and registries in European countries: The European IVF-monitoring Consortium (EIM) for the European Society of Human Reproduction and Embryology (ESHRE)', Hum Reprod Open, 2020 Jan 1;2020(1):hoz044.

⁷⁵ Andelkovic K., 'Croatia to import donor sex cells from other EU countries.' Total Croatia, May 31st 2023, <https://total-croatia-news.com/news/sex-cells/>.

⁷⁶ <https://www.mojereprodukcniizdravi.cz/>

⁷⁷ <https://fertilityeurope.eu/quiz/>

⁷⁸ European Society of Human and Reproduction and Embryology, 'Factsheet on Infertility – Prevalence, Treatment and Fertility Decline in Europe', European Society of Human Reproduction and Embryology, July 2021, [https://www.eshre.eu/-/media/sitecore-files/ESHRE-internal/EU-Affairs/ESHRE InfertilityFactsheet_v9.pdf](https://www.eshre.eu/-/media/sitecore-files/ESHRE-internal/EU-Affairs/ESHRE%20InfertilityFactsheet_v9.pdf)

information given on patient consultations for public policy nor psychological support or state funded school educational programmes on fertility. Denmark is a member of the IFEI (⁷⁹).

3.2.8. Estonia

Estonia has ART regulations, but it has no national register for ART treatment nor is there a donor register. Any donation of sex cells is strictly anonymous. PGT-M/SR treatment is available. Funding is not evenly available across the country, and there is no funding for IUI and only partial funding available for IVF. No information on public consultations for fertility policy, the inclusion of psychological support as part of the MAR package, or whether there is an existing publicly funded programme of school education on fertility is available. According to the OECD European Observatory, 15 % of the Estonian population had unmet healthcare needs, which is a significantly higher share of the population compared to the European average of 0.7 % in 2021. Waiting lists for MAR was reported as between 6-12 months (⁸⁰). Additionally, out-of-pocket payments for health accounted for nearly a quarter of all health spending in 2019 (⁸¹).

3.2.9. Finland

Finland has ART regulations in place, a national ART register and a donor register. Donations of sex cells are not anonymous, and the identity of the donor is revealed to children. PGT-M/SR is available and IUI and IVF are partially funded in public health centres. Funding is evenly available across the country. There are no publicly funded school education programmes or psychological care. The public are consulted on policy. With the exception of 2021 when fewer cycles of ART were recorded than in the previous year, the overall provision of ART has increased as university hospitals began treatment in 2020. ART live births represent 6.2 % of all children born in 2021, an increase from 4.9 % in 2020 (⁸²). Finland is a member of the IFEI (⁸³).

3.2.10. France

France is considered to be one of the best providers of ART in the EU, with ART regulations and a national ART register in place and PGT-M/SR available. In September 2022, donor law changed with children now having the right to know their biological origins after 18 years of age. IUI is fully funded up to a maximum of six cycles and IVF is partially funded. Funding is evenly available across the country. The French government has a website with all the information on ART which is easily accessible to the public under the section *Procréation médicalement assistée* (⁸⁴). Psychological support is available as part of the MAR package but at an additional cost. Patient associations are consulted on public policy. In February 2022, a national report on the causes of infertility and a proposal for an ambitious national

⁷⁹ Harper J. C., Hammarberg K., Simopoulou M., Koert E., Pedro J., Massin N., et al. 'The International Fertility Education Initiative: research and action to improve fertility awareness.' Hum Reprod Open. 2021 Sep 1, <https://pubmed.ncbi.nlm.nih.gov/34532596/>

⁸⁰ Calhaz-Jorge C., De Geyter C., Kupka M.S., Wyns C., Mocanu E., Motrenko T., et al. 'Survey on ART and IUI: legislation, regulation, funding and registries in European countries: The European IVF-monitoring Consortium (EIM) for the European Society of Human Reproduction and Embryology (ESHRE)', Hum Reprod Open. 2020 Jan 1;2020(1):hoz044.

⁸¹ WHO, 'Estonia: Country Health Profile 2021', European Observatory on Health Systems and Policies, 2021 December 13, <https://eurohealthobservatory.who.int/publications/m/estonia-country-health-profile-2021>

⁸² <https://thl.fi/en/web/thlfi-en/statistics-and-data/statistics-by-topic/sexual-and-reproductive-health/assisted-fertility-treatments>

⁸³ Harper J. C., Hammarberg K., Simopoulou M., Koert E., Pedro J., Massin N., et al. 'The International Fertility Education Initiative: research and action to improve fertility awareness.' Hum Reprod Open. 2021 Sep 1, <https://pubmed.ncbi.nlm.nih.gov/34532596/>

⁸⁴ <https://www.service-public.fr/particuliers/vosdroits/F31462>

strategy was published by the French Government ⁽⁸⁵⁾. The report established that 3.3 million French citizens were directly impacted by infertility which therefore constituted a major public health issue in France. The report recommended regular national educational campaigns, the development of diagnostics and training for health personnel, and, as part of the IFEI, the *Comité francophone d'information sur la fertilité* was launched. Additionally, the government laid out a framework for a more comprehensive and ambitious national strategy on human reproduction and fertility.

3.2.11. Germany

Germany has ART regulations, a national ART register and a donor register. Donations can be either anonymous or non-anonymous. PGT-M/SR is available and up to six cycles of IUI are fully refunded, while IVF is partially refunded. However, funding is unevenly available across the country with different regions of Germany offering different levels of coverage. Psychological support is included as part of MAR treatment. Patient groups are consulted on policy. No publicly-funded school education on fertility is reported.

3.2.12. Greece

Greece has ART regulation, a national register and a donor register although donors are accorded anonymity. PGT-M/SR is available, IVF is fully covered but IUI is not covered at all. While funding is even across the country only some MAR centres offer psychological care as part of the treatment package. Patient associations are not consulted on public policy. As part of IFEI Greece in 2020, Greece started an initiative called *MyFertility*, which included translating and promoting the fertility education poster as well as an animated video. Most of the education from this initiative is delivered through talks or reporting on emerging data. This includes the study from 2019 on cross-border reproductive care, a study on artificial oocyte activation and more recently, in 2021, a systematic review and network meta-analysis around PGT-A testing ⁽⁸⁶⁾.

3.2.13. Hungary

Hungary is one of the few EU-27 countries that has seen a steady increase in national fertility rates, from 1.23 live births per woman in 2011 to 1.61 live births per woman in 2021 ⁽⁸⁷⁾. It has ART regulations and a national ART register but no national donor register exists. Donation can either be anonymous or non-anonymous. To encourage the formation of families with two or more children, Hungary has put in place multiple pronatalist policies over the years, including constructing daycare facilities and nurseries, providing subsidies for families and a lifelong tax exemption for women with four or more children. These measures are accompanied by a progressively more conservative definition of the family as seen in the recently passed LGBTI laws which attracted a motion of censure in the European Parliament ⁽⁸⁸⁾, ⁽⁸⁹⁾, ⁽⁹⁰⁾. PGT-M/SR is available and up to six cycles of IUI are fully funded while IVF is partially funded, with even funding across the country. While patient associations are reportedly

⁸⁵ https://sante.gouv.fr/IMG/pdf/rapport_sur_les_causes_d_infertilite.pdf

⁸⁶ Anifandis G., Tempest H. G., Oliva R., Swanson G. M., Simopoulou M., Easley C. A., et al. 'COVID-19 and human reproduction: A pandemic that packs a serious punch', *Syst Biol Reprod Med*. 2021 Feb, <https://pubmed.ncbi.nlm.nih.gov/33719829/>

⁸⁷ https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Fertility_statistics

⁸⁸ FIDESZ, 'All you need to know about the latest in Hungary's pro-family policy', Fidesz Newsletter, 19.02.2019, <https://fidesz-eu.hu/en/all-you-need-to-know-about-the-latest-in-hungarys-pro-family-policy/>

⁸⁹ BBC, 'EU votes for action over Hungary's anti-LGBT law', BBC News Europe, 08.07.2021, <https://www.bbc.com/news/world-europe-57761216>

⁹⁰ Irion A., 'Family First: Exclusionary Social Policy in Orban's Hungary', *illiberalism blog*, 31.03.2022, <https://www.illiberalism.org/family-first-exclusionary-social-policy-in-orbans-hungary/>

consulted on public policies, no publicly-funded school education programmes or psychological support are found.

3.2.14. Ireland

Ireland is considered to be one of the poorest providers of MAR within the EU-27 and according to a study carried out in 2022, Ireland is the only European country without any form of specific regulation of human reproduction. There is no legislation and no national register for ART nor is there a donor register. Donors can be either anonymous or non-anonymous. PGT-M/SR is available but there is no funding available through the public health system for any MAR although state support of EUR 114 per month is available for medication. According to the study conducted in 2022, the 2019 Irish draft legislation under discussion at that time required significant changes⁽⁹¹⁾. The Health (Assisted Human Reproduction) Bill was introduced to the Irish parliament in March 2022 (Bill No. 29 of 2022). This bill would address many of the concerns around regulation and quality of services and data collection⁽⁹²⁾. While patient groups are consulted on public policy, psychological support is not offered as part of MAR treatment and there is no school education programme on fertility. The currently available sexual education in schools has been criticized for focusing too heavily on 'how not to get pregnant' while failing to provide any real education on sexual health or understanding of fertility or causes of infertility⁽⁹³⁾.

3.2.15. Italy

Italy has ART regulation and a national register but no donor register. Donations are strictly anonymous. ART treatments are partially reimbursed and unevenly funded across the country. PGT-M/SR treatment is available and one psychological support session is available as part of MAR treatment. No publicly-funded school education on fertility is reported.

3.2.16. Latvia

Latvia has ART legislation but no national register for ART or donors. Donors remain anonymous. PGT-M/SR treatment is available and funding is available for IVF across the country with costs being partially covered, although costs of IUI are not covered at all. Psychological services are available for an additional fee but no patient consultation on policies or publicly-funded school education fertility programmes are reported.

3.2.17. Lithuania

Lithuania has ART legislation, a national ART register and a donor register. Donors remain anonymous. PGT-M/SR is available. IUI is not funded and IVF is only partially funded, but funding is evenly available across the country. Psychological support is at an additional cost and no public consultation on policies or school education programmes on fertility are reported.

⁹¹ McDermott O., Ronan L., and Butler M., 'A comparison of assisted human reproduction (AHR) regulation in Ireland with other developed countries.' Reprod Health. 2022
<https://reproductive-health-journal.biomedcentral.com/articles/10.1186/s12978-022-01359-0>

⁹² <https://www.oireachtas.ie/en/bills/bill/2022/29/>

⁹³ Walker M., 'Irish teenagers are leaving school with little understanding of how their bodies work.' IMAGE 2022, <https://www.image.ie/self/irish-teenagers-are-leaving-school-with-little-understanding-of-how-their-bodies-work-403943>

3.2.18. Luxembourg

Luxembourg has national ART legislation, an ART register and a donor register. Donor identity can be revealed to children on request once they have passed 18 years of age. ART treatment is funded evenly across the country and IUI and IVF are fully covered up to a woman's 43rd birthday ⁽⁹⁴⁾. Psychological support as part of MAR appears to be covered if is prescribed by a specialist or a general practitioner ⁽⁹⁵⁾ and supplied by a practitioner recognized by the *Caisse Nationale de Sante*. No information is available about policy consultation with patient groups or publicly-funded fertility education in schools. PGT-M/SR treatment is available. ⁽⁹⁶⁾.

3.2.19. Malta

Malta has ART legislation and a national register and while it has no donor register, donor identity is revealed to children. PGT-M/SR treatment is not available. Funding is available across the country but only for IVF, which is partially reimbursed. Psychological support is available at an additional cost. No consultation of patient groups or school-based education on fertility treatment is reported.

3.2.20. Netherlands

Netherlands has national ART legislation and national registers for ART and donors. Donor identities can be requested by children when they reach the age of 18 years PGT-M/SR treatment is available. Depending on the personal insurance package, IUI is fully reimbursed and IVF is partially funded with funding being evenly available across the country. No psychological support is included in MAR treatment packages. Patients are consulted on public policy but no state-funded school education programmes on fertility are reported ⁽⁹⁷⁾. A study conducted in 2019 reported that the general population of Netherlands felt that fertility problems put people at a disadvantage. There was strong support for a complete reimbursement of fertility treatments within the Dutch basic benefits package ⁽⁹⁸⁾.

3.2.21. Poland

Poland has ART legislation but no ART national register. It has a national donor register and donors are strictly anonymous. PGT-M/SR treatment is available. IUI is not reimbursed, while IVF is partially reimbursed. No psychological support is included in the treatment package. No public policy consultation is carried out with patient groups and no school-based education on fertility is reported.

3.2.22. Portugal

Portugal has ART laws and a national register for ART and donors, and the donors' identities are revealed to children. PGT-M/SR treatment is available. Up to three IVF cycles are funded and IUI is partially funded, with funding for MAR evenly available across the country. Some psychological support is included in MAR treatment and patient groups are consulted on public policy ⁽⁹⁹⁾. Since 2017, a

⁹⁴ <https://cns.public.lu/en/assure/vie-privee/sante-prevention/fiv-pma.html>

⁹⁵ Buswell G., 'Sexual and reproductive health in Luxembourg', EXPATICA, 2023 September, <https://www.expatica.com/lu/healthcare/healthcare-services/sexual-health-luxembourg-88159/#pregnancy>

⁹⁶ Wyns C., De Geyter C., Calhaz-Jorge C., Kupka M.S., Motrenko T., Smeenk J., et al. 'ART in Europe, 2018: results generated from European registries by ESHRE'. Hum Reprod Open. 2022 Jul 5;2022(3):hoac022, <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8342033/>

⁹⁷ <https://cm.eshre.eu/cmCountryMap/home/index/2020>

⁹⁸ Krol M., Nap A., Michels R., Veraart C., and Goossens L., 'Health state utilities for infertility and subfertility', Reprod Health. 2019 <https://reproductive-health-journal.biomedcentral.com/articles/10.1186/s12978-019-0706-9>

⁹⁹ <https://cm.eshre.eu/cmCountryMap/home/index/2020>

nationwide campaign and website, *take care of your fertility*, have been available, including information on fertility preservation ⁽¹⁰⁰⁾.

3.2.23. Romania

Romania has no laws that regulate ART and no national donor register but it does have a national ART register. Donors can be anonymous or non-anonymous. PGT-M/SR treatment is available. IUI is not refunded but IVF is partially refunded with funding being evenly available across the country. No psychological support is included in the MAR package but it is reported that patient associations have been consulted on policy. No publicly-funded school education programmes on fertility are reported.

3.2.24. Slovakia

Slovakia has ART laws and a national donor register but no national ART register. Donors can be anonymous or non-anonymous. PGT-M/SR treatment is available and IVF is partially funded up to three cycles with this funding being evenly available across the country. No information is reported on psychological support as part of MAR treatment, nor are there any reports of public consultation on policy or state-sponsored education on fertility.

3.2.25. Slovenia

Slovenia has national ART legislation but no national register for ART treatments. A national register for donors is in place but donors remain strictly anonymous. PGT-M/SR treatment is available and both IUI and IVF are fully funded, up to six cycles of IVF for the first child and four cycles for the following child. Funding is evenly available across the country and by law psychological care should be part of MAR, however it was reported that in practice it was not. On some occasions patients have been consulted on public policy, but no publicly-funded fertility education programme is reported.

3.2.26. Spain

Spain has a national ART law, ART register and donor register, but donors remain anonymous. PGT-M/SR treatment is available. Public funding is limited to three cycles of IUI and IVF and no psychological support is included in the treatment package. No public consultations or school-based fertility education are reported ⁽¹⁰¹⁾.

A study conducted in 2021 compared the effectiveness of publicly provided ART to that provided by private facilities. The study suggested that long waiting times could contribute to a lower incidence of pregnancies through ART provided by state-funded facilities compared to private facilities. The study also indicated that the higher the household's education and income levels, the greater the likelihood of using private healthcare facilities. The report concluded that for more equitable access to ART, policymakers should work on resource allocation optimization in ART and focus on clinical efficacy ⁽¹⁰²⁾. In 2022, the government of Spain announced reforms on sexual and reproductive health, including an emphasis on children, adolescents and young people learning about their own bodies, with the intention of making sex education compulsory across all stages of education. The new law

¹⁰⁰ <http://www.cuidadatuafertilidade.pt/>

¹⁰¹ <https://cm.eshre.eu/cmCountryMap/home/index/2020>

¹⁰² Alon I., and Pinilla J., 'Assisted reproduction in Spain, outcome and socioeconomic determinants of access', Int J Equity Health. 2021 <https://equityhealth.biomedcentral.com/articles/10.1186/s12939-021-01438-x>

contemplated the introduction of lifelong learning, comprehensive specialized care and a telephone hotline ⁽¹⁰³⁾.

3.2.27. Sweden

Sweden has ART legislation and national registers for ART and donors. Donors can be anonymous or non-anonymous. PGT-M/SR treatment is available. Donor sperm is available to heterosexual couples, female couples and single females. Funding is equal across the country with partial funding for both IUI and IVF. No information is reported on the availability of psychological services as part of MAR treatment or on consultation with patient's groups on public policy. Sweden is part of the IFEI and in 2016, the *reproduktivlivsplan.se* website was launched to increase young people's knowledge of the impact of age and lifestyle habits on fertility. Available in seven languages, the aim was to target people of reproductive age and health professionals, with the website acting as a counselling tool ⁽¹⁰⁴⁾.

In summary, the information currently available generally confirms the great variation in investment, accessibility, and availability of national data on ART across Europe. Depending on the country, its financial investments in public healthcare plus several individual factors such as place of residence and income level, there is demonstrable inequality in access to fertility treatments. While cross-border reproductive care can be an opportunity for European citizens, there are variations in practices that can fuel unethical cross-border reproductive care. At the European level, creating safe and harmonized regulations for treatment protocols and medicines, and supporting the development of comprehensive services ranging from sex education to improving access to treatment and to high quality psychological support, is key. In addition, Fertility Europe – an umbrella association whose members are European organizations and associations involved in co-morbidities associated with fertility issues – has published 12 key recommendations to promote access to fertility treatments in Europe following up on the development of a European Atlas of Fertility Treatment Policies ⁽¹⁰⁵⁾, ⁽¹⁰⁶⁾. The recommendations include the facilitation of data collection on fertility, research on demography and the launching of public awareness campaigns on fertility and factors causing infertility.

¹⁰³ Council of Ministers, 'The Government of Spain reforms the law on sexual and reproductive health and the voluntary interruption of pregnancy', La Moncloa, 17.05.2022, https://www.lamoncloa.gob.es/lang/en/gobierno/councilministers/Paginas/2022/20220517_council.aspx

¹⁰⁴ <https://www.reproduktivlivsplan.se/en/reproductive-life-plan/#>

¹⁰⁵ Members include organizations from Bulgaria, Croatia, Cyprus, Czechia, Estonia, Germany, Greece, Hungary, Latvia, Lithuania, Malta, Poland, Romania, Slovakia, Spain, and Sweden, and multiple European and international patient and disease associations. Fertility Europe concentrates on sharing best practice, carrying out advocacy on fertility issues and promoting access to fertility treatment across Europe. Fertility Europe is a member of the European Patients' Forum.

¹⁰⁶ Fertility Europe, European Parliamentary Forum, June 2023, 'The imperative of equal access to fertility treatments across Europe' [White Paper], https://fertilityeurope.eu/wpcontent/uploads/2023/06/FE_WhitePaper_2023-WEB.pdf

4. REPRODUCTIVE CANCER SCREENINGS AND PREVENTIVE PROGRAMMES IN THE EU

KEY FINDINGS

- Breast cancer holds a distinctive significance in the realm of women's reproductive health due to its high morbidity and mortality. Worldwide and in the European Union, breast cancer is the leading cause of cancer death among women;
- Despite the high mortality for breast cancer, when detected and treated early, the chances of survival are very high. The role of regular breast cancer screening for high-risk age groups is strongly linked to a reduction in mortality and thus pivotal to prevention efforts. Cervical cancer is one of the most preventable and treatable forms of cancer affecting women;
- There are some variations in breast cancer screening between Member States however most have population-based screenings for at minimum women aged 50-69. It is believed that high incidence and high mortality can be partly attributed to screening guidance/protocols, prevalence of risk-factors, and largely economic factors;
- The WHO Global Strategy for the Elimination of Cervical Cancer and the EU's Beating Cancer Plan set targets for 90 per cent HPV vaccination coverage by 2030. As of 2021, no EU Member State has reached this target;
- Since 2021, the WHO recommends HPV DNA-based tests as the preferred method for cervical cancer screening, rather than the commonly used method of visual inspection with cytology tests (Pap Smears) to detect pre-cancer lesions;
- There is a broad range of Member State practices and guidelines for cervical cancer screening, with only a few countries systematically utilizing HPV-based tests as part of their national screening programmes.

4.1. Breast cancer in Europe

Breast cancer is a type of cancer that develops in the cells of the breast, most frequently in the milk-producing glands (lobules) or the duct that carries milk from the lobules to the nipple. Though rarer, it can also develop in the fatty or fibrous tissue of the breast. Over time, it can spread to other parts of the body. Symptoms of breast cancer may include a lump or mass in the breast, changes in breast size or shape, nipple discharge or skin changes. However, the nature of the symptoms is associated with the stage of the disease. In its early stages, breast cancer may not cause noticeable symptoms. Reducing mortality is highly correlated to early detection, therefore regular screening for early detection is crucial.

Breast cancer can be detected and treated promptly through regular screening and early diagnosis. Early diagnosis is based on improved public and professional awareness of the signs and symptoms associated with breast cancer, recognizing warning signs and taking prompt action. Screening involves the systematic use of testing, such as mammography, across an asymptomatic population to detect

and treat cancer or pre-cancers. Table 2 outlines the positive impact of screening on deaths prevented due to current screening coverage if coverage were to increase to 100 %. In addition to screening, disease outcomes are improved through adequate funding and access for the population, and research. In all 27 EU Member States breast cancer screening is provided free of charge and/or covered through public insurance for women in the age group of the national programme ⁽¹⁰⁷⁾.

Table 2: Number of preventable breast cancer deaths

Countries	Prevented breast cancer deaths				
	A # BC deaths already prevented due to current screening coverage	B # BC deaths prevented if screening coverage were to be increased to 100	C # BC deaths in the absence of screening	A/C	B/C
North					
Denmark	200	38	721	28%	5%
Estonia	21	26	142	15%	18%
Finland	147	30	537	27%	6%
Latvia	32	60	279	11%	22%
Lithuania	51	53	316	16%	17%
Sweden	208	59	813	26%	7%
Total	659	266	2808	23%	9%
Comp. base case					
West					
Austria	232	284	890	26%	32%
Wallonia (B)	167	154	553	30%	28%
Brussels (B)	31	27	100	31%	27%
Vlaanderen (B)	493	221	1229	40%	18%
France	3059	1645	8102	38%	20%
Germany	3663	2868	11238	33%	26%
Ireland	166	125	501	33%	25%
Luxembourg	16	10	45	36%	22%

¹⁰⁷ International Agency for Research on Cancer, 'Against Cancer: Cancer Screening in the European Union: Report on the implementation of the Council Recommendation on cancer screening', 81, 2017. Map: Screening guidelines by country: Densebreast-info, inc., DenseBreat 2023 <https://densebreast-info.org/europe/european-screening-guidelines/map-screening-guidelines/>

Netherlands	1436	338	3064	47%	11%
Total	9263	5672	25722	36%	22%
Comp. base case					
East					
Bulgaria	231	240	942	25%	25%
Croatia	175	177	708	25%	25%
Czechia	358	230	1181	30%	19%
Hungary	318	439	1515	21%	29%
Poland	1418	992	4839	29%	21%
Romania	605	630	2472	24%	25%
Slovakia	176	183	718	25%	25%
Slovenia	64	57	241	27%	24%
Total	3345	2948	12616	27%	23%
Comp. base case					
South					
Cyprus	29	14	87	33%	16%
Greece	433	176	1257	34%	14%
Italy	1724	1097	5624	31%	20%
Malta	23	9	63	37%	14%
Portugal	377	194	1139	33%	17%
Spain	1818	402	4462	41%	9%
Total	4404	1892	12632	35%	15%
Comp. base case					
ALL	17671	10778	53778	33%	20%
<p>Comp. base case</p> <p>Abbreviation: BC, breast cancer.</p> <p>a. Effectiveness of opportunistic screening to lower cancer specific mortality was set to be 10%, 20% and 30% lower than organised screening. In these analyses, the gained percentages of screening coverage (up to 100%) were distributed over organised and opportunistic screening to the same distribution as was already present in the specific country [eg, if present screening coverage was 40% organised and 20% opportunistic (ratio 2:1), the additional coverage was 27% organised and 13% opportunistic (2:1)].</p> <p>b. Application of each of the regional point estimates across all European countries, that is, we applied a 58% (West), a 33% (North) and a 50% (South) breast cancer mortality reduction due to screening irrespective of the location of the country.</p>					

There are several known risk factors associated with the development of breast cancer. The most significant are gender and age as 99 % of cases are found in women and 75 % of cases are in women over age 50. Additionally, genetics, hormones, procreation factors and lifestyle are known risk factors.

Table 3: Risk factors for breast cancer¹⁰⁸

Risk Factors for breast cancer	
Hormonal and reproductive	Early age of the first menstruation
	Late age of the last menstruation
	The first reported pregnancy at a late age (after 30 years of age)
	No pregnancies
	Postmenopausal condition
	Use of oral contraception
	Use of hormone replacement therapy
Related to physiological factors and health status	Older age (increased risk from 35 years of age)
	Family history of breast cancer
	Breast, ovarian and endometrial cancer in the past
	Occurrence of benign changes in the breasts, proceeding with the presence of atypical hyperplasia
	Ionizing radiation, used in connection with, for example, Hodgkin lymphoma therapy
	Rapid growth in adolescence and high growth in adulthood
	Infection with an oncogenic virus (e.g., Epstein–Barr)
Nutritional	Western type diet
	Excessive consumption of fats, especially animal fats
	High consumption of red and fried meat
	High iron intake
	Development of overweight/obesity after menopause
	Low consumption of fresh vegetables and fruits
	Low intake of phytoestrogens (isoflavones, lignans)
Other lifestyle-related	Regular moderate/high alcohol consumption
	Lack of regular physical activity
	Night work

¹⁰⁸ Table adapted from: Smolarz, B., Nowak, A.Z., & Romanowicz, H., 'Breast cancer—epidemiology, classification, pathogenesis and treatment (review of literature)', *Cancers*, 14(10), 2022, 2569. <https://doi.org/10.3390/cancers14102569>
<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC9139759/#B8-cancers-14-02569>

In 2022, there were 374 836 new cases of breast cancer among women in the EU and 95 829 deaths (¹⁰⁹). This makes breast cancer the most diagnosed and deadly cancer for women in the EU, with a lifetime risk of one in every seven women being diagnosed by age 74 (¹¹⁰). A high incidence of breast cancer is reported in the Northern and Western Member States (excluding Baltic countries). In 2022, it is estimated that **Finland** and **Belgium** have the highest incidence per 100 000 women in the population at 191.7 and 191.3 respectively. Meanwhile, the lowest rate of incidence is in **Bulgaria** (100.9) and **Lithuania** (114.6) (¹¹¹). The variations between incidence in Northern and Western Europe compared to Eastern Europe is understood to partly be attributed to the prevalence of risk factors and partly the degree of early detection and screening programmes (¹¹²). For example, in **Netherlands**, which has a high incidence (180), 80 % of eligible women report breast cancer screening, compared to **Poland**, where incidence is lower (125.6) and 44 % of eligible women report breast cancer screening (¹¹³). Breast cancer mortality rates are decreasing in many Member States however the overall burden continues to rise due to ageing populations (¹¹⁴). The 2022 estimates indicate the highest mortality rates are in **Italy** and **Germany** with 51.2 and 48.9 per 100 000 women, and the lowest rates are in **Spain** and **Sweden**, with 27.9 and 29.6 per 100 000 women (¹¹⁵).

4.1.1. Prevention of breast cancer: Screenings

Breast cancer screening is the cornerstone of prevention efforts as it plays a critical role in early detection and reduction of breast cancer-related mortality. Several types of breast cancer screening are used: breast exam, ultrasound, mammogram, MRI, breast biopsy and staging. The appropriate test is dependent on age, risk factors and clinical presentation. Mammography, which is an x-ray of the breast by a specialist, is the recognized standard for breast cancer screening, characterised by 75-90 % sensitivity. Other tools are used depending on a woman's risk factors. Generally, clinical breast exams are conducted for women until age 25-30 (depending on the country). If a suspicious lesion is found in mammography, or if a woman has a family history of breast cancer and/or a genetic mutation with a predisposition to breast cancer, an ultrasound and/or MRI examination may be performed. A biopsy may also be necessary to confirm diagnosis. If breast cancer is detected, staging is the process to determine the extent and severity in order to determine the appropriate treatment.

In Europe, mammography screening programmes have been effective in reducing breast cancer mortality, with a reported reduction of 25-30 % in women between the ages of 50 and 74 (¹¹⁶). Another European-based study published in 2022 found that, 'participation in mammography screening can reduce breast cancer mortality by up to 40 % even if only 70 % of the eligible population participates in preventive programmes.' (¹¹⁷) Furthermore, studies in Europe have confirmed that not only is breast

¹⁰⁹ European Cancer Information System (ECIS)

¹¹⁰ European Commission. (2020), 'Breast Cancer Burden in EU-27', https://ecis.jrc.ec.europa.eu/pdf/Breast_cancer_factsheet-Oct_2020.pdf

¹¹¹ European Cancer Information System (ECIS)

¹¹² Arnold, M., Morgan, E., Rumgay, H., Mafra, A., Singh, D., Laversanne, M., Vignat, J., Gralow, J. R., Cardoso, F., Siesling, S., & Soerjomataram, I., 'Current and future burden of breast cancer: Global Statistics for 2020 and 2040', *The Breast*, 66, 2022. pp. 15–23, <https://doi.org/10.1016/j.breast.2022.08.010>

¹¹³ Smolarz, B., Nowak, A. Z., & Romanowicz, H., 'Breast cancer—epidemiology, classification, pathogenesis and treatment (review of literature)', *Cancers*, 14(10), 2022a. 2569, <https://doi.org/10.3390/cancers14102569>

¹¹⁴ Xu, S., Liu, Y., Zhang, T., Zheng, J., Lin, W., Cai, J., Zou, J., Chen, Y., Xie, Y., Chen, Y., & Li, Z., 'The global, regional, and national burden and trends of breast cancer from 1990 to 2019: Results from the global burden of disease study 2019', *Frontiers in Oncology*, 11, 2022, <https://doi.org/10.3389/fonc.2021.689562>

¹¹⁵ European Cancer Information System (ECIS)

¹¹⁶ <https://karger.com/brc/article/14/6/354/54313/National-Breast-Screening-Programs-across-Europe>

¹¹⁷ <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC9602737/>

cancer screening with mammography effective for disease outcomes, it is also a cost-effective method for the management of breast cancer ⁽¹¹⁸⁾.

One of the most pronounced reductions in breast cancer mortality is observed in population-based screening programmes for women aged 50–69 ⁽¹¹⁹⁾. The European ⁽¹²⁰⁾ and international guidance on screening follows this evidence. The European Society for Medical Oncology (ESMO) recommends periodic mammography screening for women between 50–69 years ⁽¹²¹⁾. More specifically, the WHO strongly recommends biennial mammographic screening for women between 50–69 years of age in well-resourced settings. Regular screening for high-risk age groups allows early cancer detection and reduces the need for radical treatment of more advanced stages of cancer.

In addition to age-based screening, the ESMO recommends annual MRI and mammography together for women with a family history of breast cancer, starting 10 years prior to the age at diagnosis of the earliest case in the family ⁽¹²²⁾. This is important to ensure risk-based screening factors other than age are factored in as over one fifth of breast cancer diagnoses in Europe are in women under the age of 50 ⁽¹²³⁾.

As of 2020, most EU Member States have introduced population-based screening programmes for breast cancer in their national cancer control plans, except for **Bulgaria, Greece, Czechia, and Slovakia**, which do not have population-based programmes ⁽¹²⁴⁾. Table 4 outlines the type of screening tool used, eligible age and intervals between screenings per Member State. Furthermore, in 12 Member States there is additional screening guidance for other high-risk women, including women with a genetic predisposition or family history of breast cancer. Annual MRIs are recommended from age 25 in **Austria, Greece, Ireland, Netherlands, Portugal, and Slovenia**, and alternating between MRI and Ultrasound in **Lithuania and Sweden** with the inclusion of both plus mammography in **Spain**. At age 30, annual MRI is recommended in **France**, annual mammography in **Germany, Portugal and Slovenia**, as well as mammogram and ultrasound in **Hungary and Sweden**. Annual mammograms are then recommended from age 35 in **Austria, Greece, and Lithuania**. Additional options may also be offered to women with dense breast tissue, which may require MRI and/or ultrasound screening earlier ⁽¹²⁵⁾.

¹¹⁸ Mühlberger, N., Sroczynski, G., Gogollari, A., Jahn, B., Pashayan, N., Steyerberg, E., Widschwendter, M., & Siebert, U., 'Cost effectiveness of breast cancer screening and prevention: A systematic review with a focus on risk-adapted strategies'. *The European Journal of Health Economics*, 22(8), 2021, pp. 1311–1344, <https://doi.org/10.1007/s10198-021-01338-5>

¹¹⁹ Smolarz, B., Nowak, A. Z., & Romanowicz, H., 'Breast cancer—epidemiology, classification, pathogenesis and treatment (review of literature)', *Cancers*, 14(10), 2022a. 2569, <https://doi.org/10.3390/cancers14102569>

¹²⁰ The European Council, European Commission-provided guidelines and European Code against Cancer (ECAC)

¹²¹ De Wilde, R. L., Devassy, R., Torres-de la Roche, L. A., Krentel, H., Tica, V., & Cezar, C., 'Guidance and standards for breast cancer care in Europe', *The Journal of Obstetrics and Gynaecology of India*, 70(5), 2020, pp. 330–336, <https://doi.org/10.1007/s13224-020-01316-6>

¹²² De Wilde, R. L., Devassy, R., Torres-de la Roche, L. A., Krentel, H., Tica, V., & Cezar, C., 'Guidance and standards for breast cancer care in Europe', *The Journal of Obstetrics and Gynaecology of India*, 70(5), 2020, pp. 330–336, <https://doi.org/10.1007/s13224-020-01316-6>

¹²³ 'Breast cancer', Europa Donna. (2022, April 21), https://www.europadonna.org/breast-cancer/#:~:text=Breast%20cancer%20is%20the%20most,was%20estimated%20to%20be%20355%2C500*

¹²⁴ European Commission. (2022). 'Europe's Beating Cancer Plan', https://health.ec.europa.eu/system/files/2022-02/eu_cancer-plan_en_0.pdf

¹²⁵ Map: Screening guidelines by country, DenseBreast-info., 2023, April 25, <https://densebreast-info.org/europe/european-screening-guidelines/map-screening-guidelines/>

Table 4: Breast cancer screening programmes in Europe ¹²⁶

Country	Start	Type	All nation coverage	Test	Double read	Age screened, years	Interval, years
Austria	2014	PB	Y	DM,US	Y	45–69	2
Bulgaria	2016	NPB	Y	MM, DM	-	50 - 69	2
Belgium	2000/2001	PB	Flanders, Wallonie	DM,US	Y if , necessary	50–69	2
Croatia	2006	PB	–	DM		50–69	2
Czechia	2002	NPB	Y	DM,US	Y	45–69	2
Cyprus	2003	PB	Y	DM	–	50–69	2
Denmark	2001	PB	Y	DM	Y	50–69	2
Estonia	2002	PB	Y	DM	Y	50–65	2
Finland	1987	PB	Y	DM,US	Y	50–69	2
France	1989	PB	Y	MM,DM,CBE	Y	50–74	2
Germany	2002	PB	Y	DM	Y	50–69	2
Greece	2004–2009	NPB	Pilot	MM	–	40–69	1–2
Hungary	1995	PB	Y	DM	Y	45–65	2
Ireland	2000	PB	Y	DM	Y	50–64	2
Italy	1990–2012	PB	Y	DM or DM,US	Y	50–69	2
Luxemburg	1992	PB	Y	DM	Y	50–69	2
Malta	2007	PB	Y	DM	Y	50–60	3
Netherlands	1989	PB	Y	MM,DM	Y	50–75	2
Poland	2006	PB	Y	MM,DM	Y	50–69	2
Portugal	1990–2009	PB	No	DM	Y	45–69	2
Slovakia	–	NPB	–	–	–	40+	2
Slovenia	2008	PB	–	DM	Y	50–69	2

¹²⁶ Table adapted from Florentia Peintinger, National Breast Screening Programmes across Europe, *Breast Care*, 17 December 2019, 14 (6): pp. 354–358, <https://doi.org/10.1159/000503715> and Peintinger, F., 'National breast screening programs across Europe', *Breast Care*, 14(6), 2019, pp. 354–358, <https://doi.org/10.1159/000503715>

Spain	1990–2001	PB	Y	DM	Y	45/50–69	2
Sweden	1986–1989	PB	Y	MM,DM	Y	Diff./region	1.5–2
MM, mammography; DM, digital mammography; US, ultrasound; CBE, clinical breast examination; Y, yes; PB, population based; NPB, not population based; diff./region, different depending on region.							

Over the last decade, the availability of screening has increased across all Member States, yet the participation of eligible women still varies widely between Member States in some cases. According to one study they range from over 80 % in **Denmark, Slovenia** and **Netherlands** to under 40 % in **Cyprus** (¹²⁷). The range in implementation is thought to be connected to variations in economic resources for healthcare, screening protocols and quality of data, notably the linkage between cancer and mortality registries (¹²⁸).

4.1.2. Treatment of breast cancer

Breast cancer treatment options are based on the subtype of the cancer, the stage of the cancer, and the patient's overall health. Treatment options include multiple approaches, from locoregional therapy, such as surgery and radiation therapy, or systemic therapies, which use antineoplastic (¹²⁹) medicines like hormone therapy, chemotherapy, and immunotherapy.

There are a number of factors that impact breast cancer survival rates. Firstly, early detection is a significant factor enabling more effective, less complex and less expensive treatment. Availability of antineoplastic medicines treatment options (as such medicines may be available usually, occasionally, or never) has also been linked to survival rates (¹³⁰). Additionally, according to the European Society of Breast Cancer Specialists, treatment within a breast unit has shown to improve the chances of survival and quality of life of patients. This recommendation is reflected in two EU Parliamentary resolutions on breast cancer, in 2003 and 2006, as well as a 2016 European Breast Cancer Congress manifesto but the recommendation has not yet been adopted by most countries (¹³¹). While the development of EU-wide training curricula, certification schemes and examinations related to breast care have been proposed by the Union of European Medical Specialists and are implemented by Member States on a voluntary basis, breast care still varies greatly between Member States. For example, in some countries, breast

¹²⁷ Peintinger, F., 'National breast screening programs across Europe', *Breast Care*, 14(6), 2019, pp. 354–358 <https://doi.org/10.1159/000503715>

¹²⁸ Armaroli, P., Riggi, E., Basu, P., Anttila, A., Ponti, A., Carvalho, A. L., Dillner, J., Elfström, M. K., Giordano, L., Lönnberg, S., Ronco, G., Senore, C., Soerjomataram, I., Tomatis, M., Vale, D. B., Jarm, K., Sankaranarayanan, R., and Segnan, N. 'Performance indicators in breast cancer screening in the European Union: A comparison across countries of screen positivity and detection rates', *International Journal of Cancer*, 147(7), 2020, pp. 1855–1863, <https://doi.org/10.1002/ijc.32968> and Peintinger, F., 'National breast screening programs across Europe', *Breast Care*, 14(6), 2019a, pp. 354–358 <https://doi.org/10.1159/000503715>

¹²⁹ Antineoplastic medicines, also commonly referred to as chemotherapy, cytotoxic agents, or anticancer drugs, are used to treat cancer. They consist of chemical compounds designed to target and eliminate rapidly dividing cells, including those that are characteristic of cancer.

¹³⁰ Dafni, U., Tsourti, Z., & Alatsathianos, I., 'Breast cancer statistics in the European Union: Incidence and survival across European countries', *Breast Care*, 14(6), 2019, pp. 344–353 <https://doi.org/10.1159/000503219>

¹³¹ Markopoulos, C., 'Towards harmonisation of breast care in Europe'. *Breast Care*, 14(6), 2019, pp. 341–343 <https://doi.org/10.1159/000504526>

surgery (in training and in practice) is a subsection of general surgery, while in others it is within gynaecology.

Box 3: New and on-going research on breast cancer screenings and treatment - Examples

Digital breast tomosynthesis (DBT) can improve the accuracy of breast cancer screening and reduce the need for invasive procedures for patients. A 2018-2019 study in The Netherlands, found that DBT could provide a gain of 13 additional life-years per 1 000 women screened, with a 2 % reduction in false-positive results. The EC guidelines on breast cancer screening and diagnosis issued a conditional recommendation for the use of DBT for asymptomatic women with an average risk of breast cancer and suggests that women with high mammographic breast density may especially benefit from DBT. Research on the direct outcomes at diagnosis and impact on mortality is not yet available.

The emergence of AI with DBT has the potential to improve practice efficiency, improve patient outcomes of breast cancer screening and diagnostic evaluation. One of the challenges identified with DBT screening is a larger number of images and longer time to interpret screening results. The utilization of AI algorithms could reduce interpretation time by assisting in the detection of lesions, their characterization and classification in the diagnostic process, as well as reducing radiation dose and improving lesion conspicuity. In 2020, Google's mammography AI system outperformed human radiologists, demonstrating its potential for use in diagnostic accuracy. As a result, research that utilizes AI for DBT is growing, and several algorithms have already been approved for clinical implementation by the U.S. Food and Drug Administration.

A new breast cancer antibody therapy, clinically known as tucatinib, is being tested on patients whose breast cancer has worsened or spread despite at least one round of prior treatment. Findings in late-stage clinical trials suggest the drug can help extend the time patients lived without their disease progressing.

Sources:

Canelo-Aybar, C., Carrera, L., Beltrán, J., Posso, M., Rigau, D., Lebeau, A., Gräwingholt, A., Castells, X., Langendam, M., Pérez, E., Giorgi Rossi, P., Van Engen, R., Parmelli, E., Saz-Parkinson, Z., & Alonso-Coello, P., *Digital Breast Tomosynthesis compared to diagnostic mammographic projections (including magnification) among women recalled at Screening Mammography. A systematic review for the European Commission Initiative on Breast Cancer (ECIBC)*, *Cancer Medicine*, 10(7), 2021, pp.2191-2204 <https://doi.org/10.1002/cam4.3803>

Directorate F - Health, Consumers & Reference Materials (ISPRA), *European guidelines on breast cancer screening and diagnosis 2020*, ISPRA.

Goldberg, J. E., Reig, B., Lewin, A. A., Gao, Y., Heacock, L., Heller, S. L., & Moy, L., *New Horizons: Artificial Intelligence for Digital Breast tomosynthesis*, *RadioGraphics*, 43(1), 2022 <https://doi.org/10.1148/rq.220060>

Ortiz, S., 'Google Health expands AI-powered breast cancer screenings integration', ZDNET, 2023 <https://www.zdnet.com/article/google-health-expands-ai-powered-breast-cancer-screenings-integration/>

Sankatsing, V. D., Juraniec, K., Grimm, S. E., Joore, M. A., Pijnappel, R. M., de Koning, H. J., & van Ravesteyn, N. T., 'Cost-effectiveness of digital breast tomosynthesis in population-based breast cancer screening: A probabilistic sensitivity analysis', *Radiology*, 297(1), 2020, pp. 40–48, <https://doi.org/10.1148/radiol.2020192505>

Tel-Aviv University, S. 'A computational genetic model will make it possible to predict increased genetic risk for breast cancer', *Medical Xpress - medical research advances and health news*, 15 August 2023 <https://medicalxpress.com/news/2023-08-genetic-breast-cancer.html>

Thomson Reuters, 'Seagen's breast cancer therapy succeeds in late-stage study', Reuters 16 August 2023 [https://www.reuters.com/business/healthcare-pharmaceuticals/seagens-breast-cancer-therapy-meets-main-goal-late-stage-study-2023-08-16/#:~:text=Aug%2016%20\(Reuters\)%20%2D%20Seagen,N](https://www.reuters.com/business/healthcare-pharmaceuticals/seagens-breast-cancer-therapy-meets-main-goal-late-stage-study-2023-08-16/#:~:text=Aug%2016%20(Reuters)%20%2D%20Seagen,N)

4.2. Cervical cancer

Cervical cancer is a type of cancer that occurs in the cervix, a narrow passage between the lower part of the uterus and the vagina. It is one of the most common types of cancer in women, yet it is also one of the most preventable and treatable cancers if detected early. Symptoms are not commonly noticeable at the early stages of cancer and are often noticeable when the cancer becomes larger and spreads into nearby tissue. When this happens, common symptoms include abnormal vaginal bleeding, unusual discharge from the vagina, pain during sex and pain in the pelvic region. In advanced stages of the cancer, symptoms can also include swelling of the legs, problems in urination or bowel movements and blood in the urine. The leading risk factor for cervical cancer is the infection of the Human Papillomavirus (HPV), which has been detected in more than 90 per cent of cervical cancers. Most sexually active people (85-90 %) will acquire HPV at some point in their lives ⁽¹³²⁾. In many cases, HPV infections can go away on their own, however, in particular high-risk virus types 16 and 18, if left untreated, infections can cause changes in the cells of the cervix leading to the progression of cervical cancer. In some European countries, the prevalence of high-risk HPV infection exceeds 15 % in women ⁽¹³³⁾.

Box 4: Examples of cervical cancer prevention campaigns in Europe

Cervical Cancer Prevention Campaigns

At least 19 Member States have cervical cancer campaigns to raise awareness of the disease and encourage preventive measures, such as vaccination and screening.

#ScreenUrSelf is a 1-year regional study and campaign launched in 2023 in Flanders (**Belgium**) by the University of Antwerpen that provides free self-sampling HPV-test kits for women that have not received a smear test in office**.

A **Czechian** campaign encourages HPV vaccination for girls and boys, aiming to increase vaccination coverage, which ranges between 50-80 % depending on the region.

A campaign in **Romania** highlights free HPV tests for women. The campaign has been running since 2014 and is part of the integration of HPV tests into the national cervical cancer screening program.

Slovenia has a national screening program which offers cytology exams for the prevention of cervical cancer, as well as online resources for girls and health professionals alike.

In the EU, cervical cancer is the second most common cancer (after breast cancer) for women aged 15-44 ⁽¹³⁴⁾. In 2022, there were an estimated 28 211 new cases and 13 636 deaths in the EU. While cervical cancer incidence and mortality rates have decreased in many EU Member States, estimated cervical cancer rates vary widely across Europe. Member States with the lowest incidence are **Malta, Finland**

¹³² Chido-Amajuoyi OG, Domgue JF, Obi-Jeff C., 'A call for the introduction of gender-neutral HPV vaccination to national immunisation programmes in Africa', The Lancet Global Health Vol. 7(1): E20-E21, 2019 doi: [https://doi.org/10.1016/S2214-109X\(18\)30405-4](https://doi.org/10.1016/S2214-109X(18)30405-4)

¹³³ European Cancer Information System (ECIS) and European Commission, *Breast Cancer Burden in EU-27*, 2020 https://ecis.jrc.ec.europa.eu/pdf/Breast_cancer_factsheet-Oct_2020.pdf
<https://www.europeancancer.org/2-standard/111-the-impact-of-hpv#:~:text=In%20some%20European%20countries%2C%20the%20infection%20exceeds%2015%25%20in%20women.&text=One%20study%20of%20oncogenic%20HPV,a%20prevalence%20rate%20of%2012%25.&text=In%20men%20who%20have%20sex,be%20as%20high%20as%2020%25>

¹³⁴ *Human papillomavirus*, European Centre for Disease Prevention and Control, 2012, June 1, <https://www.ecdc.europa.eu/en/human-papillomavirus>

and **Luxembourg** where rates range between 5.2 - 6.9 per 100 000 women. The Member States with the highest incidence were **Romania** and **Bulgaria** with rates of 34.4 and 24.9 respectively. Similarly, the lowest mortality is in Finland and Malta where mortality is at or below 2.5 per 100 000 women, compared to the highest mortality (in Romania) at a rate of 18.3 per 100 000 women. This wide variation (six-fold in incidence and seven-fold in mortality) can be explained by differences in prevention efforts in Member States (¹³⁵).

4.2.1. Prevention of cervical cancer: HPV vaccination and cervical cancer screenings

Cervical cancer can be avoided through human papillomavirus (HPV) vaccination as well as cervical cancer screening through cytology and HPV tests. HPV vaccination is the most effective way to prevent cervical cancer. The current vaccines are highly effective in preventing infections with HPV types 16 and 18. The target group for HPV vaccination is girls prior to sexual activity, usually 12 – 13 years, as well as catch-up vaccination campaigns for older girls and young women.

The use of HPV vaccination for prevention of cervical cancer has been endorsed by the European Medicines Agency since 2006 and by WHO since 2009. In 2020, The European Centre for Disease Prevention and Control updated its guidance on HPV vaccination in EU/EEA countries to extend their use to males. Additionally, since 2022, the WHO recommends HPV vaccination with a one or two-dose schedule for girls/women aged 9-14 years, 15-20 years, and two-doses with a 6-month interval for women older than 21 years.

All EU Member States have introduced national HPV vaccination programmes for young girls. Additionally, as of 2021, a majority of Member States have extended national programmes to include boys, with the exception of Bulgaria, Cyprus, Denmark, Greece, Lithuania, and Malta.

Despite the availability of vaccination, efforts to ensure sufficient vaccination coverage remain a priority. The WHO Global Strategy for the Elimination of Cervical Cancer and the EU's Beating Cancer Plan (¹³⁶), both launched in 2020, set the targets for 90 % HPV vaccination coverage by 2030. As of 2021, no EU Member State had reached this target. In the absence of comprehensive data on HPV coverage, the latest available data, from 2019, show that of the then 28 Member States, 20 had reached 50 % vaccination coverage for the final dose of the target vaccination, and seven Member States have reached 80 % coverage for girls (¹³⁷). Since then, the COVID-19 pandemic has disrupted HPV vaccination programmes and contributed to significant falls in uptake rates (¹³⁸). The highest vaccination coverage for girls was found in **Malta**, **Portugal** and **Sweden** (81 %), **Spain** (79 %) and **Hungary** (78 %), and amongst the lowest coverage was found in **Luxembourg** (14 %, noting that in Luxembourg, the prevalence of cervical cancer is among the lowest in Europe), **France** (24 %) and **Germany** (31 %) (¹³⁹).

¹³⁵ European Cancer Information System (ECIS)

¹³⁶ Europe's Beating Cancer Plan encompasses a comprehensive strategy to combat cancer, including cervical cancer, through initiatives such as widespread HPV vaccination, early detection programs, and establishing a network of comprehensive cancer centres. These efforts aim to prevent cancer, improve access to high-quality diagnosis and treatment, reduce disparities, and enhance the quality of life for cancer patients and survivors, while promoting innovative research and personalised approaches to cancer care.

¹³⁷ HPV Vaccine Tracker. Resources, 2021, <https://www.europeancancer.org/resources/199:hpv-vaccine-tracker.html>

¹³⁸ Crul M, Aapro M, Price R, Couespel N, Lawler M., 'The Impact of COVID-19 on Cancer in Europe: The 7-Point Plan to Address the Urgency and Build Back Better', European Cancer Organisation, Brussels, 2020.

¹³⁹ Bruni, L., Saura-Lázaro, A., Montoliu, A., Brotons, M., Alemany, L., Diallo, M. S., Afsar, O. Z., LaMontagne, D. S., Mosina, L., Contreras, M., Velandia-González, M., Pastore, R., Gacic-Dobo, M., & Bloem, P., HPV vaccination introduction worldwide and WHO and UNICEF estimates of national HPV immunization coverage 2010–2019, Preventive Medicine, 144, 106399, 2021 <https://doi.org/10.1016/j.ypmed.2020.106399>

A European-wide study published in 2020 found that the method of delivery was correlated to a country's vaccination coverage. In particular, it noted that countries offering HPV vaccination in schools were correlated with higher vaccination coverage ⁽¹⁴⁰⁾. For example, despite free vaccination programmes in **France** and **Germany**, coverage rates there were lower. Vaccination programmes in France and Germany were organized outside of school. While some countries with vaccination outside of school also had high coverage, Member States that implemented vaccination in schools, such as **Sweden**, **Spain**, and **Hungary** were associated with higher vaccination coverage.

Cervical cancer screening is another preventive method used to detect precancerous lesions of the cervix and which has resulted in a significant reduction of cervical cancer incidence and mortality ⁽¹⁴¹⁾. In the EU, tests are commonly conducted through cytology tests (such as a Pap smear, sometimes referred to as a Pap test) and HPV DNA tests. A Pap smear involves collecting cells or tissue from the cervix using a swab or brush during a pelvic exam so that the cells can be examined for abnormalities. An HPV DNA test can often be carried out using the same swab as a Pap smear to test for the detection of the HPV virus. Samples can also be self-collected.

European and international guidance calls for the implementation of population-based screening programmes to reduce the incidence of cervical cancer and in 2003, Ministries of Health in EU Member States unanimously approved a Council of Europe recommendation on population-based screening programmes for cervical cancer screening. The EU guidance, which was most recently adapted in 2015, calls for HPV screening at five-year intervals, starting at age 30. Additionally, the WHO Global Strategy for the Elimination of Cervical Cancer set out the target of 70 % of women to be screened by age 35 and again by age 45. As of 2020, 22 EU Member States had introduced population-based screening programmes for cervical cancer into their National Cancer Control Plans ⁽¹⁴²⁾.

Recently there has been an important shift in the recommendations for cervical cancer screening. In 2021, WHO issued a recommendation for HPV DNA tests as the preferred method for cervical cancer screening, as compared to cytology tests which are the most commonly used method ⁽¹⁴³⁾. The advantage of HPV DNA tests is that they can objectively detect high-risk strains of HPV that cause most cervical cancers without relying on visual inspection and interpretation like cytology tests and is a more cost-effective screening method. The updated guidance recommends screening to start at age 30 with regular testing every 5-10 years while for women living with HIV, testing should begin at age 25 with regular screening every 3-5 years ⁽¹⁴⁴⁾. The intervals for HPV test-based programmes (including HPV DNA or HPV antibodies tests) is every five years.

Publicly available data suggest that HPV DNA testing for cervical cancer is currently part of the national screening programme in only three Member States: **Italy**, **Netherlands**, and **Spain**, and is being

¹⁴⁰ Nguyen-Huu, N.-H., Thilly, N., Derrough, T., Sdona, E., Claudot, F., Pulcini, C., & Agrinier, N., *Human papillomavirus vaccination coverage, policies, and practical implementation across Europe*, *Vaccine*, 38(6), 2020, pp. 1315–1331 <https://doi.org/10.1016/j.vaccine.2019.11.081>

¹⁴¹ Arbyn, M., Gultekin, M., Morice, P., Nieminen, P., Cruickshank, M., Poortmans, P., Kelly, D., Poljak, M., Bergeron, C., Ritchie, D., Schmidt, D., Kyrgiou, M., Van den Bruel, A., Bruni, L., Basu, P., Bray, F., & Weiderpass, E., *The European response to the who call to eliminate cervical cancer as a public health problem*, *International Journal of Cancer*, 148(2), 2020, pp. 277–284 <https://doi.org/10.1002/ijc.33189>

¹⁴² European Union, *Europe's Beating Cancer Plan: Communication from the commission to the European Parliament and the Council*, 14, 2022

¹⁴³ World Health Organization, (2021, July 6), *'New recommendations for screening and treatment to prevent cervical cancer'*, World Health Organization, <https://www.who.int/news/item/06-07-2021-new-recommendations-for-screening-and-treatment-to-prevent-cervical-cancer>

¹⁴⁴ World Health Organization, *'WHO guideline for screening and treatment of cervical pre-cancer lesions for cervical cancer prevention'*, 2021 <https://www.who.int/publications/i/item/9789240030824>

piloted in **Germany** (as of 2017) ⁽¹⁴⁵⁾. Additionally, there have been reports of HPV tests being gradually introduced in other Member States as the primary modality, including **Denmark, Finland, France, Portugal, Romania** and **Sweden** ⁽¹⁴⁶⁾.

Box 5: State of play of cervical cancer screening in the Member States - Examples

State of Play of Cervical Cancer Screening in Member States - Examples

France has a nationwide population-based screening programme recommending two cytology tests with an interval of one year starting at age 25, another single cytology test after three years followed by HPV tests every five years from ages 30-65.

In **Germany** there is a nationwide population-based screening programme recommending exclusively HPV-based tests every 3-5 years for women up to age 65.

The population-based programme in **Italy** recommends cytology-based screening every three years for women age 25-30 and HPV-based screening every five years from age 30-65.

In **Spain** the regional/community level cervical cancer programmes are a mix of population-based and opportunistic approaches. The recommendation is for a cytology screening every three years for women aged 25-30, and HPV-based screening every five years for women aged 30-65.

Sweden has a nationwide, population-based cervical cancer screening programme that recommends cytology-based screening every three years from ages 23-29, an HPV test every three years from age 30-49 with an additional cytology test at age 41, and HPV tests every seven years from age 50-64.

While Member States have differing recommendations for cervical cancer screening, Europe's Beating Cancer Plan calls for the setting-up an EU Network of National Comprehensive Cancer Centres by 2025 to link national multicentric complexes at an EU-level. The intention is to make it easier for Member States to provide screenings and cancer care that meet the standards set by European guidelines and quality assurance schemes for population-based screening programmes.

Cervical cancer treatments depend on the type and stage of the cancer. As the disease has a long pre-invasive period, early diagnosis and treatment can significantly impact the success of treatments. Common options include surgery, radiation therapy and chemotherapy. Combination therapies have proven effective; however, treatment options have debilitating side effects and improved therapies to treat cervical cancer are still needed.

More novel treatment options include targeted therapies, immunotherapies, and genetic approaches. In 2022, the European Commission approved the use of a specific immunotherapy for patients with persistent, recurrent or metastatic, cervical cancer and this is an important advance for patients whose disease has progressed even after traditional therapies ⁽¹⁴⁷⁾. This is significant given the limited options for patients with recurrent or metastatic cases. Despite showing increasing promise, other targeted and

¹⁴⁵ 'Cervical cancer screening, HPV DNA testing', The Cancer Atlas, (2017), <https://canceratlas.cancer.org/data/list/>

¹⁴⁶ 'Against Cancer: Cancer Screening in the European Union: Report on the implementation of the Council Recommendation on cancer screening', International Agency for Research on Cancer, (2017).

¹⁴⁷ Ryan, C., 'European Commission approves Cemiplimab for recurrent or metastatic cervical cancer', November 2022, OncLive, <https://www.onclive.com/view/european-commission-approves-cemiplimab-for-recurrent-or-metastatic-cervical-cancer>

immunotherapies remain at an investigational stage and are expensive. Some researchers therefore argue for alternative approaches that are less expensive and less invasive, such as the use of drugs that target the host factors that cooperate with HPV as well as thermal ablation and cryotherapy that could also be considered for the treatment of precancerous cervical lesions (¹⁴⁸). The availability of treatment options, timely intervention, and investment in more targeted therapies, are important in meeting the WHO Global Strategy for the Elimination of Cervical Cancer target of ensuring that 90 % of women with cervical disease receive treatment.

Box 6: On-going research

Ongoing research for cervical cancer prevention and treatment

There are several EU-funded research studies that aim to improve prevention efforts for cervical cancer.

The project ELEVATE is conducting studies to develop an efficient and marketable test for the detection of high-risk HPV infections in hard-to-reach populations in four states, including two EU Member States (**Belgium** and **Portugal**). The goal of the project is to design a portable test compatible with self-sampling that can generate rapid and easy-to-understand results. This would expand reach for early detection and screening outside of medical facilities.

Another project, RISCC, coordinated in the **Netherlands**, is building an open source application that will use risk-based screening algorithms (based on HPV vaccination and other relevant risk factors) to support the implementation of risk-stratified screening programmes.

¹⁴⁸ Burmeister, C. A., Khan, S. F., Schäfer, G., Mbatani, N., Adams, T., Moodley, J., & Prince, S., 'Cervical cancer therapies: Current challenges and future perspectives' *Tumour Virus Research*, 13, 2022 <https://doi.org/10.1016/j.tvr.2022.200238> and Arbyn, M., Gultekin, M., Morice, P., Nieminen, P., Cruickshank, M., Poortmans, P., Kelly, D., Poljak, M., Bergeron, C., Ritchie, D., Schmidt, D., Kyrgiou, M., Van den Bruel, A., Bruni, L., Basu, P., Bray, F., & Weiderpass, E. (2021), 'The European response to the WHO call to eliminate cervical cancer as a public health problem' *International Journal of Cancer*, 148(2), 2022, pp. 277–284 <https://doi.org/10.1002/ijc.33189>

5. ENDOMETRIOSIS: AVAILABILITY OF TREATMENT IN THE MEMBER STATES

KEY FINDINGS

- Endometriosis is a benign inflammatory, lifelong, chronic disease which one in every ten women and girls of reproductive age in Europe is estimated to have;
- Due to a combination of factors including atypical presentation, lack of public awareness, insufficient education of health professionals and failure to seek healthcare, diagnosis takes an average of seven to eight years from the onset of symptoms.
- More research is necessary to improve understanding of all elements of this disease, to improve diagnosis and treatment, preserve fertility and improve the quality of life and well-being of women with endometriosis.
- Further effort is needed to raise public awareness with particular attention in educational campaigns to destigmatizing women who suffer from dysmenorrhea and chronic pain in order to encourage them to seek healthcare earlier.
- Targeted education aimed at health professionals on non-invasive diagnosis criteria and the destigmatization of women presenting with chronic pain, particularly at primary health services, could be beneficial for earlier diagnosis and relevant treatment.

5.1. Endometriosis: Incidence and symptoms

Endometriosis is a benign inflammatory disorder defined as the presence of endometrial-like tissue outside the uterus resulting in chronic inflammation. Endometrial tissue can be found anywhere in the body, however endometrial lesions are most commonly found around the ovaries, fallopian tubes, the bladder or the bowel. The exact cause of endometriosis is unknown, with potential contributing factors including genetic, environmental, autoimmune and allergic factors ⁽¹⁴⁹⁾. A recent Japanese study points potentially to bacterial implications ⁽¹⁵⁰⁾.

Figure 2: Endometriosis symptoms (include but are not limited to) ⁽¹⁵¹⁾



The presentation of endometriosis in women varies greatly, with the number of lesions, cysts or nodules and severity of scarring and adhesions being unrelated to symptoms. Women with many endometrial lesions can be asymptomatic, while women with few endometrial lesions can suffer a

¹⁴⁹ Smolarz, B., Szyłło, K., and Romanowicz, H., 'Endometriosis: Epidemiology, Classification, Pathogenesis, Treatment and Genetics (Review of Literature)', International Journal of Molecular Sciences, Vol. 22(19), 2021, p. 10554 <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8508982/>

¹⁵⁰ Muraoka, Ayako, Miho Suzuki, Tomonari Hamaguchi, Shinya Watanabe, Kenta Iijima, Yoshiteru Murofushi, Keiko Shinjo, et al., 'Fusobacterium Infection Facilitates the Development of Endometriosis through the Phenotypic Transition of Endometrial Fibroblasts', Science Translational Medicine, Vol. 15(700), 2023, p. eadd1531, <https://www.science.org/doi/10.1126/scitranslmed.add1531>

¹⁵¹ Horne, A. W., and Missmer, S.A., 'Pathophysiology, Diagnosis, and Management of Endometriosis', BMJ, November 14, 2022, p. e070750, <https://www.bmj.com/lookup/doi/10.1136/bmj-2022-070750>

range of debilitating symptoms. The inflammatory nature of the disease means that even after surgical treatment many women continue to suffer chronic pain. Women with endometriosis commonly have coexisting conditions (referred to as co-morbidities) such as uterine fibroids, adenomyosis, fibromyalgia, migraines, irritable bowel syndrome, ulcerative colitis, intestinal cystitis, deteriorated mental health among others⁽¹⁵²⁾,⁽¹⁵³⁾.

The precise number of women and girls with endometriosis is unknown, however the WHO estimates that 10 per cent of women and girls of reproductive age suffer from it⁽¹⁵⁴⁾. International studies have estimated that prevalence ranges from 2 – 11 % in women who have no symptoms, 5 – 50 % among women who are infertile and 5 – 21 % among women who are hospitalized for pelvic pain. In adolescents with chronic pelvic pain, prevalence ranges from 49 % increasing to 75 % for girls who did not respond to treatment⁽¹⁵⁵⁾. Using European Union population data from 2020, it can be estimated that approximately 10.2 – 15.9 million women and girls suffer from endometriosis across the Member States.

Studies have shown that women with endometriosis have significantly higher risks of infertility, are at higher risk of miscarriage and ectopic pregnancies and require more healthcare visits, to both general practitioners and gynecologists, than women without the disease⁽¹⁵⁶⁾,⁽¹⁵⁷⁾,⁽¹⁵⁸⁾. Endometriosis is the most common cause of infertility in Europe, and it is estimated that women with infertility are six to eight times more likely to have endometriosis. Infertility due to endometriosis is associated with a large number of physical, biological and hormonal factors. The inflammatory nature of the disease is thought to negatively impact bodily functions necessary for a successful pregnancy (oocyte, sperm, embryo or fallopian tube functions), including potentially altering endometrial receptivity and embryo implantation. However, given the diverse presentation of the disease and study limitations, no definitive cause-effect relationship has been defined but it is clear that early diagnosis and relevant treatment is imperative in order to address sufferers' impaired fertility, and delays in diagnosis make the preservation of fertility difficult as well as complicating the use of contraceptive and infertility treatments⁽¹⁵⁹⁾.

While endometriosis is not a cause of reproductive cancer, studies have shown that women with endometriosis have an increased risk of developing ovarian, thyroid and breast cancer than non-

¹⁵² Zondervan, K. T., Becker, C.M., Koga, K., Missmer, S.A., Taylor, R.N., and Viganò, P., 'Endometriosis', *Nature Reviews Disease Primers*, Vol. 4(1), 2018, pp. 1–25 <https://www.nature.com/articles/s41572-018-0008-5>.

¹⁵³ Medina-Perucha, L., Pistillo, A., Raventós, B., Jacques-Aviñó, C., Munrós-Feliu, J., Martínez-Bueno, C., Valls-Llobet, C., et al., 'Endometriosis Prevalence and Incidence Trends in a Large Population-Based Study in Catalonia (Spain) from 2009 to 2018', *Women's Health*, Vol. 18, 2022 <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC9608029/>

¹⁵⁴ Horne, A. W. and Missmer, S.A., 'Pathophysiology, Diagnosis, and Management of Endometriosis', *BMJ*, 2022, p. e070750 <https://www.bmj.com/lookup/doi/10.1136/bmj-2022-070750>

¹⁵⁵ Zondervan, K. T., Becker, C.M., Koga, K., Missmer, S.A., Taylor, R.N., and Viganò, P., 'Endometriosis', *Nature Reviews Disease Primers*, Vol. 4(1), 2018, pp. 1–25 <https://www.nature.com/articles/s41572-018-0008-5>.

¹⁵⁶ Hansen, H., Maj V., Dalsgaard, T., Hartwell, D., Skovlund, C.V., and Lidegaard, Ø., 'Reproductive Prognosis in Endometriosis. A National Cohort Study', *Acta Obstetrica et Gynecologica Scandinavica*, Vol. 93(5), 2014, pp. 483–489 <https://obgyn.onlinelibrary.wiley.com/doi/10.1111/aogs.12373>

¹⁵⁷ Tuominen, A., Saavalainen, L., Niinimäki, M., Gissler, M., But, A., Härkki, P., and Heikinheimo, O., 'First Live Birth before Surgical Verification of Endometriosis—a Nationwide Register Study of 18 324 Women', *Human Reproduction*, Vol. 38(8), 2023, pp. 1520–1528 <https://doi.org/10.1093/humrep/dead120>

¹⁵⁸ Darbà, Josep, and Alicia Marsà, 'Economic Implications of Endometriosis: A Review', *Pharmacoeconomics*, Vol. 40(12), 2022, pp. 1143–1158 <https://doi.org/10.1007/s40273-022-01211-0>

¹⁵⁹ Tuominen, A., Saavalainen, L., Niinimäki, M., Gissler, M., But, A., Härkki, P., and Heikinheimo, O., 'First Live Birth before Surgical Verification of Endometriosis—a Nationwide Register Study of 18 324 Women', *Human Reproduction*, Vol. 38(8), 2023, pp. 1520–1528 <https://doi.org/10.1093/humrep/dead120>

sufferers ⁽¹⁶⁰⁾, ⁽¹⁶¹⁾. Endometriosis has also been linked to several other conditions, demonstrating a need to approach the diagnosis and treatment of endometriosis holistically. While specific causal genes have yet to be identified for endometriosis, a recent study by an international consortium including **Poland, Finland, Germany, Estonia and Denmark** found significant correlation between the disease and 11 pain conditions, including migraine and back and multisite chronic pain as well as inflammatory conditions such as asthma and osteoarthritis ⁽¹⁶²⁾, ⁽¹⁶³⁾. In general, endometriosis negatively impacts the quality of life of women and girls suffering from the disease, affecting both their physical and mental well-being. It is costly to individuals and society, with studies demonstrating that the need for out-of-pocket payments by workers tends to make access to care inequitable for women living in Member States with weaker public health systems or those who are economically disadvantaged ⁽¹⁶⁴⁾, ⁽¹⁶⁵⁾, ⁽¹⁶⁶⁾.

5.2. Diagnosis and treatment of endometriosis

Endometriosis is still generally a poorly researched disease, but advances in research in recent years have resulted in improved diagnosis and treatment. Thanks to the development of diagnostic tools and increased understanding of the condition among healthcare professionals, there has been an increase in detected cases of endometriosis. A study from **Spain** found that between 2009 to 2018, there was a consistent increase in diagnoses of endometriosis which was attributed to the positive impact of the implementation of non-invasive diagnostic guidelines, technological advances in imagery, increased public awareness or better training of healthcare professionals ⁽¹⁶⁷⁾. Despite advances thus far, limited understanding of the disease continues to make it nonetheless difficult to diagnose. Delays in diagnosis are common, taking on average an estimated seven to eight years from when symptoms start to eventual diagnosis. Moreover, the normalization of chronic pain and stigmatization of dysmenorrhea continue to contribute to delays in diagnosis as does the delay in

¹⁶⁰ Ye, Jiatian, Hongling Peng, Xia Huang, and Xiaorong Qi, 'The Association between Endometriosis and Risk of Endometrial Cancer and Breast Cancer: A Meta-Analysis', BMC Women's Health, Vol. 22(1), 2022, p. 455 <https://bmcmwomenshealth.biomedcentral.com/articles/10.1186/s12905-022-02028-x>

¹⁶¹ Kvaskoff, M., Mahamat-Saleh, Y., Farland, L.V., Shiges, N., Terry, K.L., Harris, H.R., Roman, H., et al., 'Endometriosis and Cancer: A Systematic Review and Meta-Analysis', Human Reproduction Update, Vol. 27(2), 2021, pp. 393–420 <https://academic.oup.com/humupd/article/27/2/393/5986656>

¹⁶² Horne, A.W., and Missmer, S.A., 'Pathophysiology, Diagnosis, and Management of Endometriosis', BMJ, 2022 <https://www.bmj.com/lookup/doi/10.1136/bmj-2022-070750>

¹⁶³ Rahmioglu, N., Mortlock, S., Ghiasi, P., Møller, P., Stefansdottir, L., Galarneau, G., Turman, C. et al., 'The Genetic Basis of Endometriosis and Comorbidity with Other Pain and Inflammatory Conditions', Nature Genetics, Vol. 55(3), 2023, pp. 423–43, <https://www.research.ed.ac.uk/en/publications/the-genetic-basis-of-endometriosis-and-comorbidity-with-other-pai-2>

¹⁶⁴ Darbà, J., and Marsà, A., 'Economic Implications of Endometriosis: A Review', PharmacoEconomics, Vol. 40(12), 2022, pp. 1143–1158, <https://doi.org/10.1007/s40273-022-01211-0>

¹⁶⁵ Grundström, H., Hammar Spagnoli, G., Löfqvist, L., and Olovsson, M., 'Healthcare Consumption and Cost Estimates Concerning Swedish Women with Endometriosis', Gynecologic and Obstetric Investigation, Vol. 85(3), 2020, pp. 237–24, <https://karger.com/goi/article/85/3/237/153807/Healthcare-Consumption-and-Cost-Estimates>

¹⁶⁶ Prast, J., Oppelt, P., Shamiyeh, A., Shebl, O., Brandes, I., and Haas, D., 'Costs of Endometriosis in Austria: A Survey of Direct and Indirect Costs', Archives of Gynecology and Obstetrics, Vol. 288(3), 2013, pp. 569–576 <https://doi.org/10.1007/s00404-013-2793-0>

¹⁶⁷ Medina-Perucha, L., Pistillo, A., Raventós, B., Jacques-Aviñó, C., Munrós-Feliu, J., Martínez-Bueno, C., Valls-Llobet, C. et al., 'Endometriosis Prevalence and Incidence Trends in a Large Population-Based Study in Catalonia (Spain) from 2009 to 2018', Women's Health, Vol. 18, 2022 <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC9608029/>

seeking healthcare, often as a result of fear of medical gaslighting due to gender bias in the perception of ailments specifically thought of as female (¹⁶⁸).

ESHRE revised the guidelines for treatment of endometriosis in 2022 and significant advances have been made towards improved diagnosis of endometriosis (¹⁶⁹). Prior to the new guidelines, the recommended gold standard for confirming diagnosis was through key-hole surgery. Technological improvements in magnetic resonance imagery (MRI) and ultrasound, combined with research resulting in a more precise classification of the physical presentation of the disease, are contributing to improved non-invasive diagnoses of endometriosis (¹⁷⁰). However, while further development of non-invasive diagnostics is needed, an absence of detection of lesions or cysts using MRI and ultrasound is not considered evidence that women do not have the disease, only that the disease has not been detected at present, with keyhole surgery (laparoscopy) remaining as the only definitive diagnosis tool (¹⁷¹). Clinical indications along with newer imaging techniques and the use of biomarkers can nevertheless allow for a diagnosis of endometriosis and the initiation of relevant treatment. A number of studies have assessed potential biomarkers to facilitate non-invasive, improved and more timely diagnosis, but to date few have proven to be sufficiently reliable for routine clinical use and research results in terms of efficacy of different diagnostic tools vary: An international study, including experts from **Austria, Belgium, Germany, Italy and Spain**, concluded that the use of the International Deep Endometriosis Analysis consensus methodology found stronger diagnostic accuracy when using transvaginal ultrasound than previous studies, the ENDO-miRNA study confirmed positive findings in a prospective study, using saliva based miRNA to identify endometriosis in women (¹⁷²), (¹⁷³). There are several advantages to this test including the fact that saliva is easily accessible and more cost-efficient to process than other diagnostic tools. In addition, study results are encouraging, with a proven efficacy for superficial peritoneal forms of endometriosis, which are often missed in key-hole surgery and imagery and account for 80 per cent of all endometriosis diagnoses (¹⁷⁴). By July 2023, the Endotest was available in **Italy and Germany**, with an intention to commercialize it in **Belgium, Luxembourg and Hungary** before the end of 2023 (¹⁷⁵).

¹⁶⁸ Jackson, G., 'It's Really Only the Beginning': Are We on the Cusp of a Breakthrough in Endometriosis?, August 9, 2023, <https://www.theguardian.com/society/2023/aug/10/its-really-only-the-beginning-are-we-on-the-cusp-of-a-breakthrough-in-endometriosis>

¹⁶⁹ ESHRE aims to promote interest in fertility care and a holistic understanding of reproductive biology and medicine. They actively develop guidelines for clinical practice. They are a membership-based organization, headquartered in Belgium.

¹⁷⁰ European Society of Human and Reproduction and Embryology, 'ESHRE Guideline Endometriosis', 2022 <https://www.eshre.eu/Guideline/Endometriosis>

¹⁷¹ Horne, A. W., and Missmer, S.A., 'Pathophysiology, Diagnosis, and Management of Endometriosis', BMJ 2022 <https://www.bmj.com/lookup/doi/10.1136/bmj-2022-070750>

¹⁷² Indrielle-Kelly, T., F. Frühauf, M. Fanta, A. Burgetova, D. Lavu, P. Dundr, D. Cibula, and D. Fischerova, 'Application of International Deep Endometriosis Analysis (IDEA) Group Consensus in Preoperative Ultrasound and Magnetic Resonance Imaging of Deep Pelvic Endometriosis', Ultrasound in Obstetrics & Gynaecology, Vol. 56(1), 2020, pp. 115–116 <https://onlinelibrary.wiley.com/doi/abs/10.1002/uog.21960>

¹⁷³ Leonardi, M., C. Uzuner, W. Mestdagh, C. Lu, S. Guerriero, M. Zajicek, A. Dueckelmann, et al., 'Diagnostic Accuracy of Transvaginal Ultrasound for Detection of Endometriosis Using International Deep Endometriosis Analysis (IDEA) Approach: Prospective International Pilot Study', Ultrasound in Obstetrics & Gynaecology: The Official Journal of the International Society of Ultrasound in Obstetrics and Gynaecology, Vol. 60(3), 2022, pp. 404–413 <https://obgyn.onlinelibrary.wiley.com/doi/full/10.1002/uog.24936>

¹⁷⁴ Bendifallah, S., Dabi, Y., Suisse, S., Delbos, L., Spiers, A., Poilblanc, M., Golfier, F. et al., 'Validation of a Salivary miRNA Signature of Endometriosis — Interim Data', NEJM Evidence, Vol. 2(7), 2023 <https://evidence.nejm.org/doi/abs/10.1056/EVIDoA2200282>

¹⁷⁵ Peter Roohi M., 'Ten years to ten days: French startup revolutionizes early diagnosis of endometriosis with a saliva test, LABIOTECH, 2023 <https://www.labiotech.eu/in-depth/ziwig-revolutionizes-early-diagnosis-of-endometriosis/>

5.3. Recent advances in treatment and care of endometriosis

There is no known treatment for endometriosis and the currently available treatment consists of treating symptoms through hormonal therapy, pain management, surgery and non-pharmacological interventions including alternative medicine ⁽¹⁷⁶⁾. Moreover, given the lack of knowledge around the cause of endometriosis combined with the significant differences in presentation of the disease in women sufferers, presently there is no definitive way to prevent the disease. Endometriosis is a lifelong disease, which requires a whole-life approach, including the preservation of fertility through early diagnosis and comprehensive multidisciplinary treatment including post-surgical follow-up given the recurrence of endometrial lesions and cysts as well as more timely diagnosis of women and girls, particularly in adolescence. ⁽¹⁷⁷⁾, ⁽¹⁷⁸⁾, ⁽¹⁷⁹⁾.

Frequent options for the symptomatic treatment of endometriosis include surgery, pain management, hormonal and non-hormonal treatments, physiotherapy, dietary interventions and mental healthcare. Traditionally, endometriosis-associated infertility has been treated by hormonal medical therapies and surgery to increase the chance of a successful pregnancy. Recent studies on surgical intervention were inconclusive on pain reduction for mild and severe endometriosis but concluded that surgery made little or no difference to fertility ⁽¹⁸⁰⁾, ⁽¹⁸¹⁾. Medically assisted reproductive therapy for patients with endometriosis is common, but more evidence is needed to support better practices ⁽¹⁸²⁾.

The use of expert consensus and evidence-based best practice classification systems and guidelines for the assessment and management of women with endometriosis has been shown to improve clinical management and support diagnosis ⁽¹⁸³⁾, ⁽¹⁸⁴⁾, ⁽¹⁸⁵⁾. There is an increasing body of evidence indicating the correlation of genetic traits with endometriosis and pain-related, menstrual, blood and

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- ¹⁷⁶ Zondervan, K. T., Becker, C.M., Koga, K., Missmer, S.A., Taylor, R. and Viganò, P., 'Endometriosis', *Nature Reviews Disease Primers*, Vol. 4(1), 2018, pp. 1–25 <https://www.nature.com/articles/s41572-018-0008-5>
- ¹⁷⁷ Becker C.M., Bokor A., Heikinheimo O., Horne A., Jansen F., Kiesel L, et al. 'ESHRE guideline: endometriosis'. *Hum Reprod Open*. 2022 Jan 1;2022(2) <https://pubmed.ncbi.nlm.nih.gov/35350465/>
- ¹⁷⁸ Nirgianakis, K., Ma, L., McKinnon, B. and Mueller, M.D. 'Recurrence Patterns after Surgery in Patients with Different Endometriosis Subtypes: A Long-Term Hospital-Based Cohort Study', *Journal of Clinical Medicine*, Vol. 9(2) 2020, p. 496 <https://www.mdpi.com/2077-0383/9/2/496>
- ¹⁷⁹ Horne, A.W., and Missmer, S.A. 'Pathophysiology, Diagnosis, and Management of Endometriosis', *BMJ*, 2022 <https://www.bmj.com/lookup/doi/10.1136/bmj-2022-070750>
- ¹⁸⁰ Leonardi, M., Gibbons, T., Armour, M., Wang, R., Glanville, E., Hodgson, R., Cave, A.E. et al., 'When to Do Surgery and When Not to Do Surgery for Endometriosis: A Systematic Review and Meta-Analysis', *Journal of Minimally Invasive Gynecology*, Vol. 27(2), 2020, pp. 390-407 <https://www.sciencedirect.com/science/article/abs/pii/S1553465019312762>
- ¹⁸¹ Bafort, C., Beebejaun, Y., Tomassetti, C., Bosteels, J., and Duffy, J. 'Laparoscopic Surgery for Endometriosis', *The Cochrane Database of Systematic Reviews*, Vol. 10(10), 2020 <https://pubmed.ncbi.nlm.nih.gov/33095458/>
- ¹⁸² Horne, A.W., and Missmer, S.A. 'Pathophysiology, Diagnosis, and Management of Endometriosis', *BMJ*, 2022 <https://www.bmj.com/lookup/doi/10.1136/bmj-2022-070750>
- ¹⁸³ Enzelsberger, S.H., Oppelt, P., Nirgianakis, K., Seeber, B., Drahoňovský, J., Wanderer, L., Krämer, B., et al., 'Preoperative Application of the Enzian Classification for Endometriosis (The cEnzian Study): A Prospective International Multicenter Study', *BJOG: An International Journal of Obstetrics and Gynaecology*, Vol. 129(12), 2022, pp. 2052–2061 <https://pubmed.ncbi.nlm.nih.gov/35596694/>
- ¹⁸⁴ Indrielle-Kelly, T., F. Frühauf, M., Fanta, A., Burgetova, D., Lavu, P., Dundr, D., Cibula, and Fischerova, D., 'Application of International Deep Endometriosis Analysis (IDEA) Group Consensus in Preoperative Ultrasound and Magnetic Resonance Imaging of Deep Pelvic Endometriosis', *Ultrasound in Obstetrics & Gynecology*, Vol. 56(1), 2020, pp. 115–116 <https://onlinelibrary.wiley.com/doi/abs/10.1002/uog.21960>
- ¹⁸⁵ Manganaro, L., Celli, V., Dolcianni, M., Ninkova, R., Ercolani, G., Ciulla, S., De Vito, C., Rizzo, S.M., Porpora, M.G., and Catalano, C., 'Can New ENZIAN Score 2020 Represent a Staging System Improving MRI Structured Report?', *International Journal of Environmental Research and Public Health*, Vol. 18(19) 2021, p. 9949 <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8508493/>

gastrointestinal related traits (¹⁸⁶). According to the International Endometriosis Consortium, women with endometriosis shared risk variants and genes, making them more prone to comorbidities and while more research is needed, this concurs with the frequent and extensive comorbidities that women afflicted by endometriosis suffer from (¹⁸⁷).

To improve holistic treatment of endometriosis, specialist endometriosis centres have been successfully implemented in **Denmark, France, Germany, and Spain**, allowing a multidisciplinary approach to diagnosing and treating endometriosis (¹⁸⁸). Other countries such as **Netherlands** have been exploring this option, although to date no specialized center has been established yet (¹⁸⁹).

It is important to mitigate the harmful effects of stigma related to key symptoms of endometriosis and particularly those that tend to be dismissed by society and medical staff alike, such as chronic pain, dysmenorrhea and co-morbidities. While more research is needed in this area to better understand and promote evidence-based practice for patient care, it is already known that endometriosis sufferers frequently disguise, underplay or hide their pain due to frequent experiences of misunderstanding and dismissal by the medical sector and resulting embarrassment. The use of social media has proven to provide sufferers one way to discuss pain online openly with their peers validating their experience and reinforcing their ownership of pain thereby allowing them to seek support (¹⁹⁰), (¹⁹¹).

Box 7: Future research needs for endometriosis

Questions for future endometriosis research:

- what causes endometriosis?
- can non-invasive screening tools be developed to aid the diagnosis of endometriosis?
- what are the most effective ways to maximize and maintain fertility in women with diagnosed or suspected endometriosis?
- what are the most effective ways to manage the emotional, psychological and fatigue-related impacts of living with endometriosis?
- how can we better predict the outcomes and success rates of surgical and medical endometriosis treatment?
- what are the most effective non-surgical ways to manage pain?

Adapted from Horne A., Missmer S., 'Pathophysiology, diagnosis, and management of endometriosis', 2022

¹⁸⁶ McGrath, I. M., International Endometriosis Genetics Consortium, Montgomery, G.W., and Mortlock, S. 'Genomic Characterisation of the Overlap of Endometriosis with 76 Comorbidities Identifies Pleiotropic and Causal Mechanisms Underlying Disease Risk', Human Genetics, Vol. 142(9), 2023, pp. 1345–1360 <https://pubmed.ncbi.nlm.nih.gov/37410157/>

¹⁸⁷ Rahmioglu, N., Mortlock, S., Ghiasi, M., Møller, P.L., Stefansdottir, L., Galarneau, G., Turman, C., et al., 'The Genetic Basis of Endometriosis and Comorbidity with Other Pain and Inflammatory Conditions', Nature Genetics, Vol. 55(3), 2023, pp. 423–436 <https://www.research.ed.ac.uk/en/publications/the-genetic-basis-of-endometriosis-and-comorbidity-with-other-pai-2>

¹⁸⁸ Horne, A. W, and Missmer, S.A. 'Pathophysiology, Diagnosis, and Management of Endometriosis', BMJ, November 14, 2022, p. e070750 <https://www.bmj.com/lookup/doi/10.1136/bmj-2022-070750>

¹⁸⁹ de Kok, L., van Hanegem, N., van Kesteren, P., Klinkert, E., Maas, J., Mijatovic, V., Rhemrev, J., Verhoeve, H., and Nap, A., 'Endometriosis Centers of Expertise in the Netherlands: Development toward Regional Networks of Multidisciplinary Care', Health Science Reports, Vol. 5(1), March 2022, p. e447 <https://pubmed.ncbi.nlm.nih.gov/35024453/>

¹⁹⁰ Sims, O., T., Gupta, J., Missmer, S.A., and Aninye, I.O., 'Stigma and Endometriosis: A Brief Overview and Recommendations to Improve Psychosocial Well-Being and Diagnostic Delay', International Journal of Environmental Research and Public Health, Vol. 18(15) 2021, p. 8210 <https://pubmed.ncbi.nlm.nih.gov/34360501/>

¹⁹¹ Kocas, H. Deniz, Lisa R. Rubin, and Marci Lobel, 'Stigma and Mental Health in Endometriosis', European Journal of Obstetrics & Gynecology and Reproductive Biology: X, Vol. 19, 2023, p. 100228 <https://www.sciencedirect.com/science/article/pii/S2590161323000534>

Multiple endometriosis classification systems exist to support diagnosis and both non-invasive and surgical treatments, and over the past five years two key tools that are actively improving non-invasive diagnostic techniques have been developed and updated. These include the #Enzian Classification System and the updated Endometriosis Guideline of the European Society of Human Reproduction and Embryology. The most recent of these classification systems, #Enzian or cEnzian classification, was developed in 2020 as a consensus by gynecologists and sonographers in **Austria, Denmark, Germany, Italy**, Switzerland, UK and Australia ⁽¹⁹²⁾. The new classification was built on pre-existing tools with the inclusion of additional elements on ovarian and peritoneal endometriosis and pelvic lesions. The tool provides a more comprehensive mapping system on location, size and degree of involvement of organs, allowing a complete assessment of superficial, deep and extra-genital endometriosis. It is applicable to both ultrasound and MRI ⁽¹⁹³⁾. Moreover, when the classification is in combination with MRI as a diagnostic tool, it allows accurate staging of endometriosis, and, importantly, provides a shared language between radiologists and surgeons ⁽¹⁹⁴⁾, ⁽¹⁹⁵⁾.

The updated version of the Endometriosis Guideline of ESHRE make 109 recommendations, aiming to set new best practices for the diagnosis, treatment and follow-up of women and girls with endometriosis and adenomyosis ⁽¹⁹⁶⁾. The 10 chapters address diagnosis, treatment, pain management, treatment of endometriosis associated fertility and fertility preservation, endometriosis in adolescents and menopause, extra-pelvic endometriosis, asymptomatic endometriosis, as well as speaking to primary prevention of the disease and endometriosis and cancer. The revision of the guidelines from the previous version in 2014 demonstrates an increased understanding of endometriosis as a disease, providing clearer and more practical treatment protocols than before, without superseding the responsibility of clinical decision-making by healthcare professionals depending on the individual needs of patients, given the wide variation of symptoms presented by women and girls ⁽¹⁹⁷⁾. Key changes in the guidelines include:

- laparoscopy (key-hole surgery) is no longer considered the gold standard (or unique way) to confirm a diagnosis of endometriosis, even in patients that have had negative imaging results or have been unresponsive to treatment. The notion of strongly suspected endometriosis is left to the discretion of the attending health professional and/or medical team dealing with the patient and is encouraged;

¹⁹² Keckstein, J., Saridogan, E., Ulrich, U.A., Sillem, M., Oppelt, P., Schweppe, K.W., Krentel, H., et al., 'The #Enzian Classification: A Comprehensive Non-Invasive and Surgical Description System for Endometriosis', *Acta Obstetrica Et Gynecologica Scandinavica*, Vol. 100(7) 2021, pp. 1165–1175 <https://obgyn.onlinelibrary.wiley.com/doi/full/10.1111/aogs.14099>

¹⁹³ Keckstein, J., Noé, G.K., Djokovic, D., van Herendael, B.J., and Hudelist, G., 'Enzian Classification, a New Description of Endometriosis for Invasive and Noninvasive Diagnosis. Background and Description of a New Approach to a Complex Disease', *The Trocar*, Vol. 3(1), 2022, pp. 1–13 <https://doi.org/10.36205/trocar1.2022001>

¹⁹⁴ Manganaro, L., Celli, V., Dolciemi, M., Ninkova, R., Ercolani, G., Ciulla, S., De Vito, C., Rizzo, S.M., Porpora, M.G., and Catalano, C., 'Can New ENZIAN Score 2020 Represent a Staging System Improving MRI Structured Report?', *International Journal of Environmental Research and Public Health*, Vol. 18(19) 2021, p. 9949 <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8508493/>

¹⁹⁵ Keckstein, J., Saridogan, E., Ulrich, U.A., Sillem, M., Oppelt, P., Schweppe, K.W., Krentel, H., et al., 'The #Enzian Classification: A Comprehensive Non-Invasive and Surgical Description System for Endometriosis', *Acta Obstetrica Et Gynecologica Scandinavica*, Vol. 100(7) 2021, pp. 1165–1175 <https://obgyn.onlinelibrary.wiley.com/doi/full/10.1111/aogs.14099>

¹⁹⁶ Adenomyosis is a type of endometriosis, whereby endometrial tissue grows into the muscular wall of the uterus, causing prolonged and heavy bleeding, severe cramps, pelvic pain and an enlarged uterus.

¹⁹⁷ Yu, Eun Hee, and Jong Kil Joo, 'Commentary on the New 2022 European Society of Human Reproduction and Embryology (ESHRE) Endometriosis Guidelines', *Clinical and Experimental Reproductive Medicine*, Vol. 49, No. 4, December 2022, pp. 219–224, <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC9732073/>

- GnRH antagonistic treatments (¹⁹⁸) are now supported as a second-line treatment option for pain management but are no longer recommended for women before assisted reproductive treatment (ART) due to inconclusive benefits according to recent studies;
- post-operative pain management treatment, particularly for women who do not intend to get pregnant, is recommended, with an additional step added to the Endometriosis Fertility Index to support decision-making on treatment options to achieve pregnancy after surgery, with new recommendations on information on pregnancy and the preservation of fertility;
- specific information was included to highlight both the importance and the challenges of managing endometriosis recurrence in women, with a more extensive chapter on endometriosis and cancer;
- while the diagnosis and treatment of endometriosis is not significantly different in adolescents, these guidelines include a new chapter to emphasize the importance of management of the disease in adolescents, particularly of timely diagnosis (which usually takes longer in adolescents than adults) and of addressing information on management of the disease and fertility preservation options;
- the guidelines provide additional treatment recommendations for women in menopause, including addressing the ambiguity regarding the risk of cancer in post-menopausal women;
- the guidelines list 30 research recommendations addressing the prevention of endometriosis, diagnosis, pain management, infertility and ART, the impact of endometriosis on pregnancy and pregnancy outcomes, endometriosis and menopause, extra-pelvic endometriosis, and endometriosis and cancer.

The ESHRE guidelines are in use as principal guidelines for diagnosis and treatment of endometriosis in most of the EU Member States including **Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, and Luxembourg**. In others, the guidelines are used in combination with other sources (**Malta, Netherlands, Poland, Portugal, Romania, Slovakia, Slovenia, Spain and Sweden**) (¹⁹⁹).

¹⁹⁸ GnRH antagonistic treatments are a therapy used to block the action of GnRH, a hormone that stimulates the production and release of other reproductive hormones. It is used, among other things, for the treatment of pain and inflammation in patients with endometriosis.

¹⁹⁹ Gameiro, S, M Sousa-Leite, and N Vermeulen, 'Dissemination, Implementation and Impact of the ESHRE Evidence-Based Guidelines', Human Reproduction Open, Vol. 2019(3), 2019, <https://doi.org/10.1093/hropen/hoz011>

6. ENVIRONMENTAL FACTORS AND THEIR IMPACT ON HUMAN REPRODUCTION

KEY FINDINGS

- European workers are routinely exposed to reproductive toxicants (reprotoxicants) in their work environments.
- More research is needed to improve an understanding on how and where environmental factors impact human reproductive health and the environment.
- Endocrine-disrupting chemicals are of particular concern.
- Better regulation is needed to ensure that all chemicals are being rigorously tested against evolving evidence.

Environmental factors that impact human reproduction include industrial chemicals, environmental pollutants and radiation. Whereas the link between exposure to harmful chemicals and reproductive health, including infertility and endometriosis, is well established, there are also increasing concerns about the lack of research into environmental factor such as air pollution and climate change and how these are affecting reproductive health ⁽²⁰⁰⁾.

Toxicants that impact reproductive health are found in a variety of everyday domestic and workplace products and chemicals:

- metals such as lead, mercury and cadmium;
- organic solvents, including those found in fuel, paints, paint strippers, industrial and agricultural chemicals and plastics, electronics, cleaning and adhesive products;
- epoxy resins including bisphenol A (BPA) which is also used in the electronics industry, insulators, laminates, molds, etc.;
- pesticides, noting that many pesticides are suspected of having endocrine-disrupting properties ⁽²⁰¹⁾.
- polychlorinated biphenyls (PCBs), used in plastics, printing inks, other inks, adhesives, glues and pesticides;
- pharmaceuticals including anesthetic gases and drugs used in chemotherapy;
- particulate matter, including nanoparticles, welding particles and diesel exhaust particles ⁽²⁰²⁾.

In recent years, the understanding of toxicants and their impact on health has increased tremendously. The existing evidence points strongly to levels of daily exposure that are difficult to avoid by individual lifestyle choices alone. While chemicals impact citizens everywhere, one particular at-risk group is workers who are continuously exposed to harmful chemicals and the reproductive health of citizens could be affected by working with hazardous chemicals, pesticides and pharmaceuticals, as well as the

²⁰⁰ Segal T.R., Giudice L.C., 'Systematic review of climate change effects on reproductive health', Fertil Steril 118(2), 2022, pp. 215-23 [https://www.fertstert.org/article/S0015-0282\(22\)00383-1/fulltext](https://www.fertstert.org/article/S0015-0282(22)00383-1/fulltext)

²⁰¹ EDCs (Endocrine disruptor chemicals) are chemicals that mimic, block or interfere with the hormones in the body's endocrine systems and have been associated with a diverse array of health issues. They are found in many products in daily use including food containers, furniture, electronics and clothing.

²⁰² European Agency for Safety and Health at Work, 'State of the art report on reproductive toxicants – Summary', Publications Office, 2016, <https://data.europa.eu/doi/10.2802/87916>

biological, physical and psychological factors. Particularly endocrine-disrupting compounds, which are estimated to be found in about 1000 everyday chemicals, put workers' fertility at risk including the ability to conceive children or consequences that directly impact offspring (²⁰³). As to how chemicals impact reproductive health, the known mechanisms are numerous, ranging from disruption to the normal process of reproduction to trans-generational effects, as presented in Table 5 below.

Table 5: Reproductive toxicants: processes and effects / endpoints

Processes affected	Effects/endpoints	Examples
<ul style="list-style-type: none"> • Production of germ cells • Libido 	<ul style="list-style-type: none"> • Direct injury of male and female reproductive cells causing reduced fertility or infertility • Premature biological aging 	<ul style="list-style-type: none"> • Menstrual dysfunction • Delayed conception • Erectile dysfunction and ejaculation difficulty • Reduced sperm quality, low motile sperm count
<ul style="list-style-type: none"> • Fertilization, implantation of the fertilized egg • Embryonic and fetal development 	<ul style="list-style-type: none"> • Induction of metabolic disorders in the mother's body, causing changes in internal homeostasis • direct toxic effect on the fetus • Abnormal embryogenesis and organogenesis period 	<ul style="list-style-type: none"> • Spontaneous abortions • Miscarriage in partners of exposed men or related birth defects • Masculinization of female fetuses and feminization of male fetuses • Congenital cryptorchidism (absence of one or both testes from the scrotum at birth) • Low birth weight
<ul style="list-style-type: none"> • Childbirth and lactation 	<ul style="list-style-type: none"> • Initiation of preterm uterine contractions through elevated cortisol levels due to physical or psychological stressors • Toxic effects from substances, including those mobilized from fatty tissues 	<ul style="list-style-type: none"> • Preterm delivery • Exposure through breast milk
<ul style="list-style-type: none"> • Postnatal development • Development until puberty 	<ul style="list-style-type: none"> • Effects on the later postnatal development of offspring 	<ul style="list-style-type: none"> • Increased risk of childhood cancers • Increased propensity to develop allergies
<ul style="list-style-type: none"> • Transgenerational effects 	<ul style="list-style-type: none"> • Genetically based heritable effects 	<ul style="list-style-type: none"> • Heart Malformations, cardiovascular disease

²⁰³ Endocrine Society, 'Common EDCs and Where They Are Found', Endocrine Society, 2019 <https://www.endocrine.org/topics/edc/what-edcs-are/common-edcs>

		<ul style="list-style-type: none"> • Testicular cancer • Diabetes, obesity • Neurodevelopmental effects
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Source: European Agency for Safety and Health at Work, European Risk Observatory Summary, State of the art report on reproductive toxicants 2016

6.1. Addressing the links between environmental factors and health: research and current regulations in the EU

The urgency of addressing exposure to toxicants in Europe has been recognized and debated with increasing numbers of researchers, universities, research facilities and EU institutions engaging in multi- and interdisciplinary, pan-European research under the umbrella of planetary health. The volume of on-going research conveys the need for more knowledge and action to tackle environmental health risks and, for example, in May 2023 an ESHRE environmental seminar, 'The Impact of the Environment on Human Fertility and Reproductive Health', brought together a number of experts to discuss the impact of environmental factors on reproductive health ⁽²⁰⁴⁾. Key areas explored included research on:

- declining human fertility;
- environmental exposure and female fertility;
- the impact of endocrine disruptors on reproductive health and the regulation of EDC at European Union and national levels;
- the impact of air pollution on assisted reproductive treatment; and
- pharmaceutical and organic pollutants impacting fertility.

Recent studies recognize that the EU has made headway in better regulation of reproductive toxicants but that more research is needed for a better understanding of the impact of exposure to certain compounds on reproductive health as well as the potential impact of pharmaceutical and therapeutic measures on fertility ⁽²⁰⁵⁾. Among the conclusions of the seminar was a recognition of the insufficient classification of chemicals and of a discrepancy between the number of chemicals tested and the number tested specifically for reproductive toxicity as standard practice. To that end, a study focusing on female professional painters and decorators carried out in **Denmark** concluded that multiple exposures in the workplace capable of interfering with all stages of human reproduction were the norm, while a study carried out in **Portugal** confirmed the concerns over endocrine-disrupting compounds, which nevertheless continue to be poorly understood ⁽²⁰⁶⁾, ⁽²⁰⁷⁾. Similarly, recent research from **Italy** provides further evidence on the link between higher exposure to bisphenol A (BPA) and interference in female fertility ⁽²⁰⁸⁾. Results from a consortium of institutions in Europe led by **Sweden** reported multiple negative and adverse effects of toxicants on (but not limited to) ovarian function,

²⁰⁴ European Society of Human Reproduction and Embryology, 'Environmental Seminar', May 2023 <https://www.eshre.eu/Education/Environmental-Seminar>

²⁰⁵ Irailoa M., 'The environmental impacts on reproductive health', EURACTIV, 2023, <https://www.euractiv.com/section/health-consumers/news/the-environmental-impacts-on-reproductive-health/>

²⁰⁶ Sørig Hougaard, K., 'Reproduktionsskadelige kemiske stoffer i det danske arbejdsmiljø', Det Nationale Forskningscenter for Arbejdsmiljø (NFA), 2023 <https://nfa.dk/da/Forskning/Udgivelse?journalid=b452a7dd-4a90-4f24-9da7-f75eb3d4f>

²⁰⁷ Silva A. B. P., Carreiró F., Ramos F., Sanches Silva A., 'The role of endocrine disruptors in female infertility', Mol Biol Rep., 1;50(8), 2023 pp. 7069–88 <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC10374778/>

²⁰⁸ Gentile M., Raimondo S., Gentile R., Gentile T., Fortunato A., Piscopo M., et al., 'Bisphenol A in blood serum and follicular fluid of women undergoing to cycle of IVF living in areas with different environmental impact', (EcoFoodFertility Project). Hum Reprod. 37, 2022 https://academic.oup.com/humrep/article/37/Supplement_1/deac106.079/6619658

endometrial biology, fertility and reproductive outcomes. While the impact of air pollution on reproductive health remains less well understood than the impact of chemicals on reproductive health, studies from **Spain** have highlighted the impacts of air pollution on assisted reproductive treatment including as a contributing factor to low birth weight of infants, stressing the negative impact of endocrine-disrupting compounds, including genital tract anomalies. These findings generally align with the EU's own research on chemical toxicants and their specific impacts on women and men. A recent study by the European Agency for Safety and Health at Work, (EU-OSHA), which has a partial mandate to implement the EU's Registration, Evaluation, Authorization and Restriction of Chemicals (REACH) regulation, explored exposure to specific toxicants in certain workforce, for example firefighters, agricultural and horticultural workers. The research pointed to a number of chemicals that affect human reproduction negatively, as presented in Table 6.

Table 6: Chemical agents reported in human studies to have adverse effects on reproduction

Agent	Industry or occupational group	Reported effects of female exposure	Reported effects of male exposure
<i>Organic solvents</i>			
In general	Painting, degreasing, shoemaking, printing, dry cleaning, metal industry and several other fields of industry	Reduced fertility, menstrual disorders, foetal loss, birth defects, preterm birth, neurobehavioral effects. childhood leukaemia	Delayed conception, reduced semen quality, foetal loss, birth defects
Benzene	Petrochemical industry. laboratory personnel	Foetal loss, reduced fertility. low birth weight.	n/a
Carbon disulphide	Viscose rayon industry	Menstrual disorders	Decreased libido and potency
Some ethylene glycol ethers and their acetates	Electronics industry, silk screen printing, photography and dyeing, shipyard painting, metal casting. chemical industry, other industries	Reduced fertility, foetal loss. birth defects, menstrual disorders	Reduced semen quality
Tetrachloro-ethylene	Dry cleaning, degreasing	Reduced fertility, foetal loss	n/a
Toluene	Shoe industry, painting. laboratory work	Reduced fertility, foetal loss	n/a
<i>Metals</i>			
Lead	Battery industry, lead smelting, foundries, pottery industry, ammunition industry and some other metal industries	Reduced fertility, foetal loss, preterm birth, low birth weight, birth defects. impaired cognitive development	Reduced semen quality. reduced fertility, foetal loss, birth defects

Inorganic mercury	Lamp industry, chloralkali industry, dental personnel	Reduced fertility, menstrual disorders, foetal loss	Foetal loss
Pesticides ²⁰⁹	Agriculture, gardening, greenhouse work	Reduced fertility, foetal loss, birth defects, preterm birth, reduced foetal growth, neurodevelopmental effects, childhood leukaemia	Reduced sperm quality, reduced fertility, foetal loss, birth defects, childhood cancer
Pharmaceuticals			
Anaesthetic gases	Operating rooms, delivery wards, dental offices	Foetal loss, reduced birth weight, preterm birth, birth defects, reduced fertility	n/a
Nitrous oxide	Operating rooms, delivery wards, dental offices	Foetal loss, reduced birth weight, reduced fertility	n/a
Antineoplastic agents	Hospital workers, pharmaceutical industry	Menstrual dysfunction, reduced fertility, foetal loss, premature birth, low birth weight, birth defects	n/a
Carbon Monoxide	Iron and steel foundries, welding, food industry, car repair, service stations	Preterm birth, intrauterine death	n/a

Source: EU-OSHA, Reproductive effects caused by chemical and biological agents, 2022, <https://oshwiki.osha.europa.eu/en/themes/reproductive-effects-caused-chemical-and-biological-agents>

Several EU agencies are involved in research, in producing information and regulation for consumers' and citizens' protection and in collaborating with the Member States and academia for the safety and health of Europeans within the EU Health and Safety Strategic Framework 2021 – 2027, which includes a priority to update and expand the protection of workers exposed to reproductively toxic substances (²¹⁰). A number of research projects supported by Horizon Europe investigate the impacts of chemicals on reproductive health (presented in Table 7 below), and both research and the actions listed in the EU Health and Safety Strategic Framework align with the recommendations of the European Risk Observatory (²¹¹). In 2020, the EU introduced a regulation on the Chemicals Strategy for Sustainability: Towards a Toxic-Free Environment, which prioritized tackling endocrine disruptors (²¹²). Importantly,

²⁰⁹ Examples of pesticides with adverse effects in men include dibromochloropropane (DBCP), 2,4- dichlorophenoxyacetic acid (2,4-D), ethylene dibromide, chlordecone, carbaryl, alachlor, atrazine and diazinon

²¹⁰ <https://osha.europa.eu/en/safety-and-health-legislation/eu-strategic-framework-health-and-safety-work-2021-2027>

²¹¹ European Agency for Safety and Health at Work, 'State of the art report on reproductive toxicants', Publications Office, 2016, <https://data.europa.eu/doi/10.2802/87916>

²¹² <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=COM%3A2020%3A667%3AFIN>

EU-OSHA has recognized that as the number of and roles for women in the workforce is increasing across the EU, so are accumulating effects on health from occupational reproductive toxicants ⁽²¹³⁾.

The EC's rapid alert system for dangerous non-food products, the Safety Gate system, has been operational since 2003, and through it, thirty-one European countries (EU-27, Norway, Iceland, Liechtenstein and the UK) exchange information and take measures to address dangerous non-food products in circulation. While the mechanism has contributed to the exchange of information in Europe, the European Consumer Organization reported that consumers still have access to a worrying number of products that pose a danger to the public, with 2 117 notifications to Safety Gate in 2022. 23 % of the notifications concerned toys, while 35 % concerned chemical risk.

Table 7: Examples of research projects on environmental factors on reproductive health financed by Horizon Europe

Horizon research projects on environmental factors on reproductive health			
Participating countries	Name	Content	Duration
Netherlands, UK, Denmark, Sweden, Belgium, France, Estonia, USA	FREIA Female Reproductive toxicity of EDCs: a human evidence-based screening and Identification Approach	Identify human-made endocrine-disruptive compounds and their effects on the female reproductive system. Current safety tests often overlook the impact of endocrine-disruptive compounds, and women's reproductive health is at risk globally. The well-positioned to accumulate novel information on the reproductive health risks to improve women's reproductive health around the world.	January 2019 - December 2023
Finland, France, Netherlands, Germany, Czechia, UK, Spain, Norway	EDCMET Metabolic effects of Endocrine Disrupting Chemicals: novel testing Methods and adverse outcome pathways	Adequate testing methods for metabolic effects of endocrine-disruptive compounds are lacking. The project "Metabolic effects of Endocrine Disrupting Chemicals: novel testing methods and adverse outcome pathways" (EDCMET) brings together experts in various research fields, including systems toxicologists, experimental biologists with a thorough understanding of the molecular mechanisms of metabolic disease and comprehensive in vitro and in vivo methodological skills and ultimately,	January 2019 - December 2023

²¹³ Lindbohm, M. L., and Sallmén, M. 'Reproductive Effects Caused by Chemical and Biological Agents', European Agency for Safety and Health at Work, 2022 <https://oshwiki.osha.europa.eu/en/themes/reproductive-effects-caused-chemical-and-biological-agents>

		epidemiologists linking environmental exposure to adverse metabolic outcomes.	
Belgium, Ireland, Germany, France, Denmark, Czechia, UK, Japan	ERGO Breaking down the wall between human health and environmental testing of endocrine disruptors: Endocrine Guideline Optimisation	The research aims to improve the identification and characterisation of endocrine disrupting chemicals, by developing innovative screening tools through an integrated approach that aims to extrapolate the effects of them across different vertebrate classes. This means that if a chemical has adverse effects on fish, it may be dangerous for humans too. The ERGO approach envisions faster, safer and simpler hazard and risk assessment procedures.	January 2019 - December 2023
Netherlands, Spain, Belgium, USA, Czechia, Finland, Switzerland, UK, Germany	AURORA Actionable European Roadmap for early-life health Risk Assessment of micro- and nanoplastics	Revealing the true cost of microplastic and nanoplastic pollution: Microplastic and nanoplastic pollution (MNP) is becoming an ever-present concern amongst environmental issues that need to be addressed. However, little is known regarding how these plastics affect health, especially during early life and development. The EU-funded AURORA project aims to develop a framework for MNP risk assessment to evaluate its impact during pregnancy and early life. It will achieve this through in-depth testing and epidemiological data to reveal how MNP exposure can affect child development and health. The ultimate goal is to provide a comprehensive way to evaluate the true impact of MNP while informing European policy and improving quality of life.	April 2021 - March 2026

Source of information: <https://cordis.europa.eu>

The EU has several regulatory means at its disposal to reduce the usage of harmful chemicals. Different EU institutions including the **European Chemical Agency, (ECHA), EU-OSHA, the European Food Safety Authority (EFSA)**, and the **EC** have a shared and complementary responsibility to implement the REACH regulation, which is the main EU law to ensure a high level of protection for human health and the environment from the risks that can be posed by chemicals. REACH regulation is currently under review with the aim of eliminating the most dangerous chemicals for health and the consumer as part of the European Green Deal. In late 2022, this included harmonizing criteria for endocrine-disrupting chemicals amongst others and adding to them a more extensive list of substances of very high concern. This in-depth revision of the REACH regulation on chemical substances, which included

a risk assessment per substance group rather than on a case-by-case basis, was delayed until the fourth quarter of 2023. Analysts believe that industry has been overly influential, having succeeded in delaying the vote, and this regulation is unlikely to pass prior to the next European elections in 2024⁽²¹⁴⁾, ⁽²¹⁵⁾. Through its previous amendment in 2021, REACH also regulates the distribution and regulation of substances within chemical and pharmaceutical products that are carcinogenic, mutagenic or toxic to reproduction.

Box 8: EU regulatory framework covering reprotoxicants and the protection of workers

EU Regulatory Framework covering reprotoxicants and the protection of workers:

- Registration, Evaluation, Authorization & Restriction of Chemicals (REACH) Regulation
- The Chemical Agents Directive
- The Carcinogens and Mutagens Directive
- The Pregnant Workers Directive
- The Protection of Young People at Work Directive
- Chemicals Strategy for Sustainability Towards a Toxic-Free Environment

6.2. Recommendations stemming from existing research

As noted above, with the prevalence and number of chemicals in everyday products, there are not many measures beyond joint regulation that can halt usage of, or exposure to, toxic chemicals. While some research evidence on the potential of protective compounds (vitamins) exists, more research is needed on compounds to counter the effects of exposure to environmental toxins and at present the only known tool to remedy the situation is to eradicate or significantly reduce the presence of toxins⁽²¹⁶⁾. Moving forward with EU-level regulation would reduce the circulation of harmful chemicals and provide significant health benefits for EU citizens while withdrawing harmful chemicals from the European market could have significant health impacts, including on reproductive health and particularly on maintaining fertility and preventing conditions such as endometriosis and reproductive cancers. Moreover, the reduction of the chemical burden has been estimated to provide considerable savings for healthcare systems, with savings of up to EUR 31 billion per year⁽²¹⁷⁾. In order for the regulations to be effective, there is a need for both better enforcement of existing regulations and the putting in place of sanction mechanisms followed by the extension of these mechanisms to online distribution in order to halt bypassing the existing safeguards⁽²¹⁸⁾. The available research on reproductive toxicants in the EU has nevertheless found that existing regulations are correctly but

²¹⁴ Mandard S., Foucart S. and Hore S., 'The chemical industry lobbies have won: European plan to ban toxic substances buried', Le Monde, 20 October 2022 https://www.lemonde.fr/en/environment/article/2022/10/20/the-chemical-industry-lobbies-have-won-european-commission-buries-plan-to-ban-toxic-substances_6001086_114.html

²¹⁵ European Consumer Organisation, 'Worrying number of dangerous products reaching consumers highlights need for greater action by authorities', BEUC, 2023 <https://www.beuc.eu/press-releases/worrying-number-dangerous-products-reaching-consumers-highlights-need-greater-action>

²¹⁶ Silva A. B. P., Carreiró F., Ramos F., Sanches Silva A., 'The role of endocrine disruptors in female infertility', Mol Biol Rep. Vol. 50(8), 2023, 7069–88 <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC10374778/>

²¹⁷ Foucart, S., 'Banning the most harmful chemicals could help Europe save up to €31 billion a year', Le Monde, 11 July 2023 https://www.lemonde.fr/en/environment/article/2023/07/11/banning-the-most-harmful-chemicals-could-help-europe-save-up-to-31-billion-a-year_6049498_114.html

²¹⁸ Ruohonen J., 'A review of product safety regulations in the European Union', Int Cybersecur Law Rev. Vol. 3(2), 2022, pp. 345–366 <https://link.springer.com/article/10.1365/s43439-022-00057-8>

almost uniquely focused on chemical toxicants, with little attention paid to other environmentally harmful factors related to physical, biological or psychological risks. It is also likely that the exposure of workers is likely to increase over time because of changes in the workplace and an increasingly complex number of toxicants in different industrial and domestic products. Better and more equitable regulatory environments are needed to protect women in all workplaces, particularly in those that are more 'stereotypically' male ⁽²¹⁹⁾.

The present focus of studies on chemicals that negatively impact reproductive health should also be extended to cover additional environmental factors such as viruses, pharmaceuticals, metals and air pollution. Moreover, while inter-institutional collaboration for research is already strong, the magnitude of the problem caused by harmful chemical use calls for more research on all aspects of environmental health impacts and particularly the impact on the reproductive care of both women and men.

²¹⁹ European Agency for Safety and Health at Work, *'State of the art report on reproductive toxicants, Literature Review'*, Publications Office 2016 <https://data.europa.eu/doi/10.2802/87916>

7. COST OF COMPROMISED FERTILITY: QUALITY OF LIFE AND SOCIOECONOMIC FACTORS

KEY FINDINGS

- Female poverty is tightly linked to experience of health, including reproductive health, and is among the key factors affecting access to treatment.
- Understanding of the comprehensive experience of female poverty is increasing, but there is a considerable lack of data on the specific dimensions and inter-relation of poverty and reproductive health in the European context. More research is needed on the socio-economic dimensions that are potentially leading to a lack of access to both diagnosis and care for women. Special attention should be paid to adolescents, women of lower socio-economic status or with lower levels of education, minority women and post-menopausal women.
- Whether economically or physically, women are disproportionately affected by infertility and fertility treatment compared to men.
- A growing body of evidence shows the widening gap in access to affordable and quality fertility treatment for a variety of reasons in the EU, which poses a risk of moving further away from the targets instead of achieving universal access to quality health care and sexual and reproductive healthcare services.
- Variation exists in the provision of paid reproduction- and parenting-related leave across the Member States relating to the number of weeks of paid leave, financial provision for paid leave, and limitations on access to adoption leave.
- In addition to the need to continue to invest in public healthcare systems, common regulation that would protect workers during their fertility journeys could mitigate the financial impact of fertility treatment significantly.

This chapter briefly discusses the gendered socioeconomic and cultural factors, impacts of infertility and the complexity of the questions they bring to policymaking. Infertility is central, as it is also often a consequence of the diseases that have been the focus of this study: endometriosis and reproductive cancers. Fertility and infertility are highly politicized questions and governed through national family policy and other related policies, which also reflect the underlying societal, cultural and, often enough, religious norms.

Increasing involuntary childlessness connects to wider concerns about the European population that is both ageing and decreasing, and to the short- and long-term effects in the societies arising from reproductive diseases ⁽²²⁰⁾. While not attempting to discuss the motives or ethical dimensions of pro-natalist policies here, it is worth noting that the decline in birth rates accelerated during the global economic recession in 2008, which was followed by a series of cuts in family benefits as part of the austerity measures in the EU Member States. In the past decade or so, for varied reasons, several EU Member States including **Finland**, **Hungary** and **Poland** have introduced pro-birth policies or

²²⁰ European Commission, 'The impact of demographic change in the changing environment', 2023 https://commission.europa.eu/system/files/2023-01/Demography_report_2022_0.pdf

experimented with different instruments including direct and additional cash transfers to boost birth rates ⁽²²¹⁾, ⁽²²²⁾, ⁽²²³⁾. When it comes to fertility treatment, national laws and policies approach infertility primarily from a socio-medical perspective which may discard the socio-cultural factors that contribute to involuntary childlessness (for example, lack of a partner, concerns about the future or not considering parenthood a priority). While fertility politics is driven by demographic, nationalistic and/or economic factors, at the individual level infertility is addressed in concrete cases only where a person considers him/herself to be infertile, finds that problematic and seeks to take steps to address it ⁽²²⁴⁾. The medical definition of infertility – failure to conceive after 12 months of unprotected sex – in other words, has significance only when help is sought for infertility, and those who do not seek such help, while possibly infertile according to the definition, are most often left outside of statistics. It is also difficult to distinguish the consequences of infertility on the one hand and fertility treatments on the other, nor is it easy to disaggregate the emotional and psychological costs of each of them ⁽²²⁵⁾. Such factors make it challenging to analyse the impact of fertility treatments as part of public health policies and services, though the understanding of the experience of infertility is also increasing steadily through ethnographic and sociological literature.

7.1. Gendered fertility treatments – socio-cultural and economic factors

Reproductive health and particularly fertility (maintaining and restoring it), entails considerations of a complex set of social causes and effects. Even if the development of fertility treatments has mostly happened in the realm of medical sciences, it has been subject to legal, ethical, moral, socio-cultural, and religious considerations since the first recorded successful IVF in 1978. As the continuous development of technologies allows us to overcome more and more severe infertility conditions, more scientific fields, including ethnology and anthropology, are increasingly interested in the relationship between demography, perceptions of family and the role of biomedical technologies in building them ⁽²²⁶⁾.

Practically all existing research on the topic confirms the high levels of psychological stress associated with the experience of infertility and during fertility treatments for women, and it is notable that usually women, knowing about the physical and mental risks that fertility treatments entail, initiate the idea of trying to conceive through medically assisted reproduction ⁽²²⁷⁾. This, in turn, is linked to anxiety and depression, and one's ability to work and to perform at work. Infertility causes both physical and psychological pain for many people, and a significant number of persons undergoing ART stop treatments because of the psychological pressure they bring ⁽²²⁸⁾. There are also indications that

²²¹ Financial Times, 'Ageing Europe is trying to boost birth rates', 7 October 2023 <https://www.ft.com/content/c11ef0af-717b-4266-817d-533426363aa7>

²²² Keski-Petäjä, M., 'Lapsia yhteiskunnan talkoisiin – syntyvyyden ja syntyvyysluolen historiaa Suomessa', Statistics Finland, 9 June 2022 https://www2.stat.fi/index_en.html

²²³ Politico, 'The populist right wants you to make more babies. The question is how', 11 September 2023 <https://www.politico.eu/article/eu-populist-right-want-you-make-more-babies-viktor-orban/>

²²⁴ White, L., McQuillan, J., Greil, A.L., and Johnson, D.R., 'Infertility: Testing a helpseeking model', Social Science & Medicine, Vol. 62(4), 2006, pp. 1031-1041 <https://doi.org/10.1016/j.socscimed.2005.11.012>

²²⁵ Greil A., Slauson-Blevins K., and McQuillan J. 'The experience of infertility: a review of recent literature'. Sociology of Health & Illness 32(1), 2010 pp. 140–162 <https://onlinelibrary.wiley.com/doi/epdf/10.1111/j.1467-9566.2009.01213.x>

²²⁶ Inhorn, M.C., 'Where has the quest for conception taken us? Lessons from anthropology and Sociology'. Reproductive Biomedicine & Society Online 10, 2020, pp. 46–57 <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7393315/pdf/main.pdf>

²²⁷ Daniluk, K., 'Reconstructing Their Lives: A Longitudinal, Qualitative Analysis of the Transition to Biological Childlessness for Infertile Couples', Journal of Counseling and Development, 79(4), 2001, pp. 439-449. <https://doi.org/10.1002/j.1556-6676.2001.tb01991.x>

²²⁸ Olivius, C., Friden, B., Borg, G., and Bergh, C., 'Why do couples discontinue in vitro fertilization treatment? A cohort study', Fertility and Sterility, 81(2), 2004, pp. 258-261 DOI: <https://doi.org/10.1016/j.fertnstert.2003.06.029>

pregnancies are more stressful for those who have undergone ART and, given the high risk of miscarriages, for endometriosis patients (²²⁹), (²³⁰). In addition, the socio-cultural expectations around starting families and having children cause many negative emotions ranging from unworthiness, negative self-identity, jealousy, failure of responsibility and duty, to a feeling of injustice in some people who do not conform to these expectations, and particularly in those who are involuntarily childless (²³¹). The existing fertility treatment options are substantially more invasive for women than for men, and the physical consequences of them for women are significant. Women's fertility is also limited by age while men's window to establish a family is longer, and late decisions to have children considerably reduce women's chances of having children and lowers the success rate of ART.

Deriving from the traditional premises that infertility is chiefly a woman's problem and with high levels of medicalization of infertility, research and discussions in family and public spheres thus far have largely focused either on women's reproductive biology and infertility, or the psychological and economic effects of infertility and fertility treatments. With increasing levels of male infertility – it is estimated that today over half the cases of involuntary childlessness are because of male infertility – research and the development of new reproductive technologies have contributed significantly also to the advancements in addressing male infertility. Similarly, an understanding of male infertility and the stigma around it is also growing, but the secrecy and stigma around male infertility created by socio-cultural perceptions of masculinity and virility could still be a significant barrier for men to seek help for infertility or the emotional stress and grief it causes (²³²). While the socio-emotional effects of male infertility continue to be a hugely under-researched area in the field of gender and reproduction, pioneering studies suggest that creating awareness and the medicalization of reproduction has helped men to speak up, through considering infertility as a medical problem among others, and thus to seek help more easily (²³³). It is notable, though, that during the data search and assessment of EU financing for reproductive health carried out for this study, practically no initiatives – medical or social research, or advocacy projects – that would focus on psycho-social effects of male infertility, were found (²³⁴).

7.2. Reproductive stratification, female poverty and reproductive causes and effects

Unequal access to fertility treatment and support, known as reproductive stratification, can further fuel gender inequities and hamper the achievement of universal access to healthcare (²³⁵). Infertility and whether an individual seek help, are causally inter-linked to a series of financial and socio-cultural considerations. At their best, fertility treatments – often also as part of the endometriosis treatment

²²⁹ Bevilacqua, K., Barad, D., Youchah, J. and Witt, B., 'Is affect associated with infertility treatment outcome?' *Fertility and Sterility*, 73, 3, 2000, pp. 648–9. DOI: [https://doi.org/10.1016/S0015-0282\(99\)00589-0](https://doi.org/10.1016/S0015-0282(99)00589-0)

²³⁰ Petresin, J., Wolf, J., Emir, S., Müller, A., and Boosz, A.S., 'Endometriosis-associated Maternal Pregnancy Complications – Case Report and Literature Review', *Geburtshilfe und Frauenheilkunde*, 76(8), 2016, pp. 902–905 DOI: <https://doi.org/10.1055%2Fs-0042-101026>

²³¹ Greil A., Slauson-Blevins K., and McQuillan J., 'The experience of infertility: a review of recent literature'. *Sociology of Health & Illness* Vol. 32(1), 2010, pp. 140–162 <https://onlinelibrary.wiley.com/doi/epdf/10.1111/j.1467-9566.2009.01213.x>

²³² Inhorn, M., and Patrizio, P., 'Infertility around the globe: new thinking on gender, reproductive technologies and global movements in the 21st century'. *Human Reproduction Update*, Vol.21(4), 2015, pp. 411–426 <https://academic.oup.com/humupd/article/21/4/411/683746>

²³³ Inhorn, M., 'Where has the quest for conception taken us? Lessons from anthropology and Sociology'. *Reproductive Biomedicine & Society Online* 10, 2020, pp. 46–57 <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7393315/pdf/main.pdf>

²³⁴ Data collection was limited to specific instruments and research financed by the EU since 2019. These are described in Chapter 2.

²³⁵ The concept "stratified reproduction" was first introduced by Ginsburg and Rapp in 1996. Ginsburg F. and Rapp, R. (Ed.), 'Conceiving the new world order', 1996, Berkeley: University of California Press.

package – and fast developing technologies offer affordable quality support to those who are otherwise unable to conceive. At their worst, fertility treatment can fuel social, reproductive and occupational segregation⁽²³⁶⁾.

As discussed in chapters 2 and 3, the available means to address infertility in the EU Member States vary by law, and currently there is unequal access to both publicly and privately funded fertility treatments in the EU. Socio-economic factors that fuel reproductive stratification are many and include inequality in access to affordable and quality treatment, social class and inequality in income, employment situation as well as the lack of rules among employers, who often determine whether or how much leave is provided for fertility treatment based on their own policies⁽²³⁷⁾. Other factors that impact the availability of treatment for those who wish to have it include place of residence vis-à-vis the national coverage of fertility treatments, age, ethnicity, sexual orientation, gender, and personal health⁽²³⁸⁾,⁽²³⁹⁾.

With developing fertility technologies that generally widen the choice of treatment options for individuals and improve the service infrastructure around them, the choice of available treatments through public and private sectors differs between lower earning parts of the population and higher earning groups. By turning to private services, people with greater economic resources have more variety in their treatment options and the possibility of speeding up personal fertility journeys by bypassing queues for ART in the public sector, whether in their home countries or abroad. Women who undergo treatments typically also experience economic instability or decline in their personal financial situation, and as evidence from **France** and **Spain** shows, women with lower socioeconomic statuses are overrepresented in ART provided by the public sector, indicating that those who can afford it opt for private sector services while those who cannot utilize publicly offered ART⁽²⁴⁰⁾,⁽²⁴¹⁾. Evidence from **Netherlands** shows that ART, whether offered in the private or public sector, is less accessible to minority women than to the majority population⁽²⁴²⁾. Alongside the wide access gap that already exists, utilization of reproductive services abroad, known as cross-border reproductive care or “repro-travel”, is both an opportunity and a threat⁽²⁴³⁾. From a consumer’s point of view, commercialization of fertility treatments poses a set of normative questions including pricing, the quality of treatments offered and medicine, types of services that are offered privately, donation ethics and the treatment of donors, whether of eggs or sperm, who the service providers are accountable to, and the quality of

²³⁶ Wilkinson, K., Mumford, C., and Carroll, M., ‘Assisted Reproductive Technologies and Work, Employment and Society: Extending the Debate on Organisational Involvement in/Responsibilities around Fertility and Reproduction’ *Work, Employment and Society*, 37(5), 2023, pp.1419-1433 <https://doi.org/10.1177/09500170231155752>

²³⁷ Wilkinson, K., Mumford, C., and Carroll, M., ‘Assisted Reproductive Technologies and Work, Employment and Society: Extending the Debate on Organisational Involvement in/Responsibilities around Fertility and Reproduction’ *Work, Employment and Society*, 37(5), 2023, pp.1419-1433 <https://doi.org/10.1177/09500170231155752>

²³⁸ Inhorn, M.C., ‘Where has the quest for conception taken us? Lessons from anthropology and Sociology’. *Reproductive Biomedicine & Society Online* 10, 2020, pp. 46–57 <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7393315/pdf/main.pdf>

²³⁹ Wilkinson, K., Mumford, C., and Carroll, M., ‘Assisted Reproductive Technologies and Work, Employment and Society: Extending the Debate on Organisational Involvement in/Responsibilities around Fertility and Reproduction’ *Work, Employment and Society*, 37(5), 2023, pp.1419-1433 <https://doi.org/10.1177/09500170231155752>

²⁴⁰ Tain, L., ‘Health inequality and users’ risk taking: a longitudinal analysis in a French reproductive technology centre’, *Social Science and Medicine*, 57(11), 2003, 2115–25. [https://doi.org/10.1016/S0277-9536\(03\)00079-0](https://doi.org/10.1016/S0277-9536(03)00079-0)

²⁴¹ Alon I., and Pinilla J., ‘Assisted reproduction in Spain, outcome and socioeconomic determinants of access’, *Int J Equity Health*. 2021 <https://equityhealth.biomedcentral.com/articles/10.1186/s12939-021-01438-x>

²⁴² Yebei, V., ‘Unmet needs, beliefs and treatment-seeking for infertility among migrant Ghanaian women in the Netherlands’, *Reproductive Health Matters* 8(16), 2000, pp. DOI: [https://doi.org/10.1016/S0968-8080\(00\)90195-2](https://doi.org/10.1016/S0968-8080(00)90195-2)

²⁴³ Inhorn M. ‘Cosmopolitan Conceptions: IVF Sojourns in Global Dubai’ 2015, Durham, NC: Duke University Press

information about treatment packages and how the information enables users to make informed choices between them.

In the realm of family law and policies, the EU Member States have thus far chiefly focused on regulating maternity, paternity and parental leave, and on building structures for childcare with a view of boosting employment, increasing equality of opportunity and ensuring that societies contribute to enabling families. As discussed in Chapter 2, all Member States have maternity, paternity and/or parental leave set by law. The instruments to implement family benefits are similar across the EU; cash transfers, tax benefits and in-kind contributions, but the combinations and emphasis of them vary. Measured as a share of expenditure of the Gross Domestic Product, **Denmark, France, Finland and Sweden** have been among the top OECD countries to provide family benefit packages, and the levels of family benefits in **Belgium, Czechia, Germany, and Ireland** are above the OECD average ⁽²⁴⁴⁾. Where national expenditure continues to be lower, it is notable that the economic crisis around 2010 and the austerity measures that followed it had a severe impact on family benefits, leading to drops in birth rates in several EU Member States. A case in point is **Portugal**, where the most severe situation was experienced in 2012-13 ⁽²⁴⁵⁾.

Personal economic stability and the decision on whether, and if so when, to have children are causally linked. The existing research underscores the high financial costs of ART on women but has not been able to prove the significance of financial impacts of fertility treatment on men ⁽²⁴⁶⁾, ⁽²⁴⁷⁾. In most countries and labour markets in the world, women earn less than men, and having children has a demonstratively negative effect on women's income. Female poverty has also increased all over the world including in the EU and particularly as a result of the Covid-19 pandemic as demonstrated in chapter 2. There is unequal progress in the EU Member States' adoption of comprehensive enabling measures in the field of SRHR that would also help to tackle female poverty effectively from a point of view of reproductive health and rights. Period poverty could be considered to set one significant benchmark for reproductive health and well-being, considering that menstrual hygiene products constitute the very basic needs for every woman. While other reproductive aspects including the effects of menopause, are increasingly discussed and linked to debates on gender equality in labour markets, it is the recognition of period poverty globally that has been among the groundbreaking links between women's and girls' reproductive and socioeconomic rights and the issue that has contributed to breaking the silence around reproductive health and particularly its impact on women's ability to work. Importantly, period poverty is rarely experienced as the only form of poverty experienced by women and girls, rather it is among the many consequences of living on a tight budget. The impact of socio-economic position – particularly low income, or worse i.e. poverty – on women's health is negative, and while not being the case with all women in all settings in the EU, women with lower

²⁴⁴ Luci-Greulich A., and Thévenon, O. 'The Impact of Family Policies on Fertility Trends in Developed Countries'. *European Journal of Population*, Vol. 29(29), 2013

https://www.researchgate.net/publication/263722515_The_Impact_of_Family_Policies_on_Fertility_Trends_in_Developed_Countries L'influence des politiques familiales sur les tendances de la fécondité des pays développés

²⁴⁵ Rodrigues, C.F. 'Family policies and poverty in Portugal'. Conference paper presented in the conference A(s) Problemática(s) da Natalidade em Portugal, Uma Questão Social, Económica e Política. Universidade de Lisboa, 2016 https://repositorio.ul.pt/bitstream/10451/25303/1/ICS_VCunha_KWall_Problematicas_Outros.pdf#page=49

²⁴⁶ Lundborg, P., Plug, E. and Rasmussen, A. W. "Can women have children and a career? IV evidence from IVF treatments", *American Economic Review*, 107(6), 2017, pp. 1611-1637.

²⁴⁷ Bhalotrab, S., Clarke, D., Mühlradd, H., and Palme, M., "Arbetsmarknads- och hälsoeffekter av IVF: Lärdomar från ändrad medicinsk praxis i Sverige", IFAU, 2023 <https://www.ifau.se/globalassets/pdf/se/2023/2023-14-arbetsmarknads-och-halsoeffekter-av-ivf.pdf>

education and earnings rate their health generally poorer than their highly educated and better-off peers (²⁴⁸).

While data on period poverty in Europe is piecemeal and based on relatively small sample groups in some EU countries, it is notable that the studies available in EU Member States with highly developed social systems including **Germany, Finland, France** and **Sweden**, report significant levels of period poverty, as is demonstrated in Box 9. It may be therefore assumed that women subject to period poverty, presumably because of financial constraints more broadly, can be found across Europe. Where period poverty has been debated, it has been in connection with the demand to decrease or abolish taxes, most notably Value Added Tax for menstrual hygiene and the related reproductive health products to alleviate costs. Thus far only one Member State, **Spain**, has taken more comprehensive measures to alleviate the effects of reproductive health on women's socioeconomic situation, and has introduced the right to sick leave for painful periods (²⁴⁹). The links between period poverty and access to affordable, quality reproductive healthcare and fertility treatments have not been established through systematic research, but it is reasonable to assume that these links exist, also demonstrating the gap in access to ART.

Box 9: Period poverty in Europe

UNFPA defines period poverty as girls' and women's lack of financial means to purchase menstrual hygiene products and related commodities such as pain medication and underwear.

The cost of periods for a woman is difficult to estimate, and different calculations have been used: the Wallonian regional government in Belgium has estimated the monthly cost of period products at around EUR 10-12 per month, amounting to an annual financial burden of EUR 120-144, which should be considered as the minimum cost of approximately two to three packs of sanitary pads per month. In 2021, the European Parliament estimated that taking into account only menstrual hygiene products and not other related products such as medication, women on average spend a considerably higher amount, around EUR 675 on period products every year, amounting to total of EUR 27 000 in the lifetime of a European woman.

Consolidated data on the number of women who have experienced or are at risk of experiencing period poverty in Europe does not exist. Case studies have been carried out in different parts of Europe, and a grassroots group, Women for Independence, has estimated that one in five women in Europe experiences period poverty. In **France**, one in every three students has reported not being able to afford required menstrual hygiene products according to a survey with 6 500 respondents conducted in 2021, while in **Finland** an average of 14 % of the 15 – 65 age group reported being unable to afford period products with the figure being considerably higher, 22 %, in the 15-24 age group in 2023. In **Germany**, nearly a quarter of young women reported that they cannot afford period products as they would hope to be able to, while in **Sweden**, one in five women reported period poverty in 2021. In **Belgium**, Caritas International carried out a survey with approximately 2 000 respondents between 12 and 25 years old, and some 12 % of the girls and young women stated that they cannot afford period products as required.

²⁴⁸ O'Neil, A., Russella, J.D., Thompson, K., Martinson M.L., Peters, S.A.E, "The impact of socioeconomic position (SEP) on women's health over the lifetime", *Maturitas* 140, 2020, pp. 1–7 [https://www.maturitas.org/article/S0378-5122\(20\)30290-5/fulltext](https://www.maturitas.org/article/S0378-5122(20)30290-5/fulltext)

²⁴⁹ Euronews, 'Painful periods? Spain just passed Europe's first paid 'menstrual leave' law', 16 February 2023 <https://www.euronews.com/next/2023/02/16/spain-set-to-become-the-first-european-country-to-introduce-a-3-day-menstrual-leave-for-women>

Sources of data: <https://www.wallonie.be/fr/actualites/precarite-menstruelle-distribution-de-protections-hygiennes-grande-echelle>https://www.europarl.europa.eu/doceo/document/E-9-2021-003636_EN.html#:~:text=The%20VAT%20rate%20for%20sanitary,for%20certain%20specific%20product%20categories
<https://www.theguardian.com/society/2018/feb/05/period-poverty-scotland-poll-shows-women-go-to-desperate-lengths>
<https://www.dw.com/en/france-free-period-products-for-students/a-56666492>
<https://plan.fi/tiedotteet/tutkimus-kuukautiskohyys-koettelee-suomalaisia/>
https://www.plan.de/fileadmin/website/04_Aktuelles/Kampagnen_und_Aktionen/Menstruationsumfrage/Plan-Umfrage_Menstruation-A4-Juli2022-engl-final.pdf
<https://www.intimina.com/blog/period-poverty-in-sweden-1-out-of-5-cant-afford-menstrual-protection/#:~:text=Closing%20in%20on%20Menstrual%20Hygiene,the%20numbers%20are%20even%20higher>
<https://caritasvlaanderen.be/fr/services/precarite-menstruelle-en-flandre>
<https://www.politico.eu/article/europe-cities-period-poverty-free-menstrual-cycle-sanitary-product-vending-machine-belgium/>

It is also notable that specific female reproductive diseases increase costs considerably for both society and individuals. For example, endometriosis, whose diagnosis and treatment are discussed in chapter 5, has a significant socioeconomic impact affecting women and girls, families, communities, health services and society as a whole. The majority of women and girls with endometriosis will require lifelong healthcare, and although health professionals recognize endometriosis better than before, the diagnosis requires specialized knowledge, often leading women seeking a diagnosis at their own cost. The significant delays in diagnosis and the treatments associated with disease management result in important direct and indirect economic burdens as well as a direct impact on women's quality of life⁽²⁵⁰⁾,⁽²⁵¹⁾. While in-patient care is a major cost in public healthcare, the out-of-pocket cost of care for endometriosis patients is also significant. Accurate estimates are difficult to establish, but some research on the individual costs does exist. For example, a study conducted in **Austria** (2013) found that in-patient care was a major direct cost driver, while loss of productivity due to endometriosis was a major contributor to indirect costs. This study also identified that 13 % of patients paid for treatment and medication themselves⁽²⁵²⁾. Additional out-of-pocket payments by patients include fees for physiotherapists, mental health specialists and naturopaths, none of which are covered by public health systems. Evidence from **Spain** (2022) also shows that there is a notable difference in the number of health visits, particularly to general practitioners and gynecologists, by women with endometriosis compared to women who do not suffer from the disease and almost one third of women with endometriosis had been on sick leave for disease-related reasons. The study also found that the higher the socioeconomic status of the women, the more endometriosis diagnoses occurred, from which they concluded that more research was needed in order to understand how social inequities impact access to diagnosis and treatment of endometriosis⁽²⁵³⁾.

²⁵⁰ Medina-Perucha, L., Pistillo, A., Raventós, B., Jacques-Aviñó, C., Munrós-Feliu, J., Martínez-Bueno, C., Valls-Llobet, C. et al., 'Endometriosis Prevalence and Incidence Trends in a Large Population-Based Study in Catalonia (Spain) from 2009 to 2018', *Women's Health*, Vol. 18, 2022, <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC9608029>

²⁵¹ Zondervan, K.T., Becker, C.M., Koga, K., Missmer, S.A., Taylor, R.N., and Viganò, P. 'Endometriosis', *Nature Reviews Disease Primers*, Vol. 4(1), 2018, pp. 1–25 <https://www.nature.com/articles/s41572-018-0008-5>

²⁵² Prast, J., Oppelt, P., Shamiyeh, A., Shebl, O., Brandes, I., and Haas, D. 'Costs of Endometriosis in Austria: A Survey of Direct and Indirect Costs', *Archives of Gynecology and Obstetrics*, Vol. 288(3), 2013, pp. 569–576 <https://doi.org/10.1007/s00404-013-2793-0>

²⁵³ Medina-Perucha, L., Pistillo, A., Raventós, B., Jacques-Aviñó, C., Munrós-Feliu, J., Martínez-Bueno, C., Valls-Llobet, C. et al., 'Endometriosis Prevalence and Incidence Trends in a Large Population-Based Study in Catalonia (Spain) from 2009 to 2018', *Women's Health*, Vol. 18, 2022, <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC9608029>

7.3. Fertility journeys and employment

Debates in different Member States took place, particularly in the context of ART and during fertility treatment, while diseases such as endometriosis potentially cause economic losses throughout the lifecycle of a woman. However, potential advances in enabling labour laws or other supportive policies for couples who undergo fertility treatments or women whose reproductive care needs are higher than average are very recent and sporadic in Europe ⁽²⁵⁴⁾.

While the link between access to fertility treatments and their costs for individuals, and socio-economic inequalities in broader terms in societies has not yet been systematically researched, scattered information from surveys conducted by the media and by support groups and organizations does exist, and they establish that costs for fertility treatments come in many forms and often at the expense of women's jobs. They include taking time off work and thereby incurring a loss in income, use of out-of-pocket supplementary treatments and alternative, non-reimbursable therapies, potential use of psychological support that is not part of treatment packages in many Member States, increased transport costs and such like. In addition, different types of treatment and undergoing ART in the public system at home or opting for private services abroad lead to different needs for absence from work. The treatment cycles and their health effects also pose, at minimum, temporary declines in health and well-being with reported effects of the medication on immune systems and mental health, which may in turn lead to absence from work or, in the case of the self-employed, an inability to earn income. In **Sweden**, evidence points to an annual decrease of 40 % in sick allowance payable ⁽²⁵⁵⁾ in the long run among women who have undergone ART compared to women who have had children spontaneously, while ART has been found not to have an effect on partners' incomes ⁽²⁵⁶⁾. The effect of IVF treatment on labour markets has been studied also in **Denmark**, where it was concluded that in addition to successful IVF, after which women's earnings drop when having a child or children in any case, a deterioration health because of IVF is a statistically significant cause of a drop in earnings ⁽²⁵⁷⁾. Notably, though, these studies have focused on the post-treatment impact and not on loss of earnings during treatment.

Depending on the country, treatments are often provided only during office hours, which leads to time having to be taken off in form of leave days or unpaid leave. Special leave or sick leave for the purposes of undergoing ART is not allowed by law in most EU Member States (an overview of all Member States is provided in Annex VI). Countries that offer paid absence from work during treatments are few but include **France, Denmark, Greece, Italy, Malta, Portugal and Sweden**, and the role of employers or states in regulating workers' rights during fertility treatments is an evolving discussion in many countries ⁽²⁵⁸⁾. In most EU countries, sick leave because of health issues arising from ART is treated as any other sick leave, requiring certificates of illness in accordance with national laws. Owing to emotional sensitivities and a fear of negative reactions from employers and co-workers, undergoing ART is usually not disclosed to employers or colleagues. This adds to work-based stress, often leading

²⁵⁴ Koslowski, A., Blum, S., Dobrotić, I., Kaufman, G. and Moss, P., 'International Review of Leave Policies and Research 2021' 2021 http://www.leavenetwork.org/lp_and_r_reports/

²⁵⁵ Allowance is paid in the case sick leave exceeds two weeks and when monthly salary consequently drops, according to the law.

²⁵⁶ Bhalotrab, S., Clarke, D., Mühlradd, H., and Palme, M., "Arbetsmarknads- och hälsoeffekter av IVF: Lärdomar från ändrad medicinsk praxis i Sverige", IFAU, 2023 <https://www.ifau.se/globalassets/pdf/se/2023/2023-14-arbetsmarknads-och-halsoeffekter-av-ivf.pdf>

²⁵⁷ Lundborg, P., Plug, E. and Rasmussen, A. W. "Can women have children and a career? IV evidence from IVF treatments", American Economic Review, 107(6), 2017, pp. 1611-1637.

²⁵⁸ <https://arbetet.se/2016/09/28/nar-familj-och-arbetsliv-krockar/>

to working while not being in a fit condition to do so or visiting doctors in secret, and for requests for certificates for other conditions in order to cover the real reasons for an absence ⁽²⁵⁹⁾.

7.4. Research and evidence-based policy-making – future needs

The commitments to universal access to sexual and reproductive healthcare services and to universal health coverage have been outlined in sub-goals 3.7 and 3.8 of the SDG 3, and to achieve more equal health outcomes, the WHO has called for reducing the gap in out-of-pocket payments for fertility treatment between wealthier and poorer economies ⁽²⁶⁰⁾. To achieve this, it is important to increase understanding of the ways policies and regulations enable equal access to affordable ART and contribute to health equity, and establish, through in-depth research, what kind of policies are needed in different contexts within the EU. Scattered but significant evidence exists on the positive effects of free IVF on establishing a family and enabling women to invest in their careers ⁽²⁶¹⁾. Offering free MF could thus have the dual function of providing both an option when natural conception fails and an insurance for support even if more years are spent in education and career development, which are also found to correlate positively with the availability of ART ⁽²⁶²⁾. Importantly, though, this type of analysis would likely result in different outcomes in different socio-cultural environments, and considering the decline in female fertility by age, it does not necessarily lead to conclusions indicating a higher success rate for fertility treatments. However, it would be important to collect more data and conduct analysis of the inter-relation between employment conditions, societal norms, family policies and the underlying reasons for postponement of having children. Production of cross-country studies on the correlation between societal norms, voluntary and involuntary childlessness and family policies would be particularly important, considering that both voluntary and involuntary childlessness have been on the rise in Europe. While the problems around access to fertility treatment and why such treatments are or are not utilized have been recognized in many Member States, there continues to be a lack of data that would provide evidence, in particular for policy-making around fertility treatments.

As for employment and infertility, a growing number of analyses find the current national labour laws and their compatibility with an increasing utilization of ART to be unfitting or inadequate, leaving much to the judgement of employers. A few baseline-setting court cases regarding employment benefits and the treatment of employees during fertility treatments can be found in Europe (for example in **Austria** and **Croatia**) and in the UK. Nonetheless, evidence continues to be scattered and more research is needed to establish what the employers' roles could and should be, at whose cost and to what extent employers are expected to engage in supporting their employees' fertility treatments. It is also notable that reproductive technologies develop rapidly and different methods necessitate different levels of absence from work. Clinics play their part in accessibility of treatment and the user-friendliness of their services, for example through the convenience of their opening hours and by setting prices at an affordable level. How access is hampered or enabled by such choices, remains unstudied in Europe. Finally, more longitudinal studies on the relationship between free ART and an improved socio-economic situation from the perspectives of career development and an increase in earnings, would help to establish the cost-effectiveness of free ART and whether or not it would be particularly beneficial in improving women's socioeconomic situations in certain environments and social classes,

²⁵⁹ <https://simpukka.info/vaikuttamisty/tahattomasti-lapseton-tyoelamassa/>

²⁶⁰ <https://www.who.int/news/item/04-04-2023-1-in-6-people-globally-affected-by-infertility>

²⁶¹ Bhalotra, S. och Clarke, D. (2020) 'The twin instrument: Fertility and human capital investment', Journal of the European Economic Association, 18(6), pp. 3090-3139 <https://www.iza.org/publications/dp/11878/the-twin-instrument-fertility-and-human-capital-investment>

²⁶² Gershoni, N., and Low, C., "The power of time: The impact of free IVF on women's human capital investments". European Economic Review 133, 2021 <https://www.sciencedirect.com/science/article/abs/pii/S0014292120302750>

for example in countries or population groups where women's employment rates, financial literacy or autonomy, are low, or sizes of minority populations are high.

8. MENSTRUAL TOXIC SHOCK SYNDROME – AN UNDER-TREATED REPRODUCTIVE HEALTH THREAT

KEY FINDINGS

- Menstrual Toxic Shock Syndrome is a rare but life-threatening disease.
- Women, girls and people that menstruate and who use intra-vaginal menstrual products are at higher risk than those that do not.
- In the past ten years a larger body of evidence supports earlier clinical diagnosis and treatment.
- Prevention measures include manufacturers using less toxic materials in tampons and having clear and explicit instructions on appropriate use of products.
- Individual preventive measures include education on menstrual hygiene and awareness of mTSS, to ensure health care is sought in a timely manner.

Toxic shock syndrome is divided into two categories, non-menstrual TSS (TSS) and menstrual TSS (mTSS) ⁽²⁶³⁾. TSS has been reported in both men and women, including in infants and the elderly. Menstrual Toxic Shock Syndrome (mTSS) accounts for 50 % of all TSS cases ⁽²⁶⁴⁾, ⁽²⁶⁵⁾. MTSS is a rare but life-threatening condition that occurs in girls, women and people who menstruate and is caused by a toxin produced by some strains of the bacteria *Staphylococcus aureus* ⁽²⁶⁶⁾. It was first described between 1979 and 1980 in the United States of America in association with a brand of tampons that were later withdrawn from the market after public concern and public health investigations. ⁽²⁶⁷⁾

Symptoms include fever, rash, peeling of the skin, low blood pressure and multisystem involvement, including gastrointestinal, muscular, kidney, liver, blood and central nervous system symptoms. The original diagnostic criteria were proposed by the US Centers for Disease Control and coincided with the first outbreak of mTSS in 1980. The diagnostic criteria were updated in 2011. ⁽²⁶⁸⁾

In Europe, mTSS is a non-notifiable disease and therefore there is no definitive data on the exact number of people diagnosed with the syndrome over the past 10 years. Some estimations on the prevalence of mTSS do nevertheless exist, and mTSS has been studied for example in **France**. In 2019

²⁶³ Billon, Amaury, Gustin Marie-Paule, Tristan Anne, Bénet Thomas, Berthiller Julien, Gustave Claude Alexandre, Vanhems Philippe, and Lina Gerard, 'Association of Characteristics of Tampon Use with Menstrual Toxic Shock Syndrome in France', *eClinicalMedicine*, Vol. 21, 2020 [https://www.thelancet.com/journals/eclinm/article/PIIS2589-5370\(20\)30052-3/fulltext](https://www.thelancet.com/journals/eclinm/article/PIIS2589-5370(20)30052-3/fulltext)

²⁶⁴ Schlievert, Patrick M., and Davis, Catherine C., 'Device-Associated Menstrual Toxic Shock Syndrome', *Clinical Microbiology Reviews*, Vol. 33(3), 2020, pp. e00032-19 <https://journals.asm.org/doi/10.1128/CMR.00032-19>

²⁶⁵ Schlievert, Patrick M., 'Menstrual TSS Remains a Dangerous Threat', *EClinicalMedicine*, Vol. 21, 2020, p. 100316 <https://europepmc.org/articles/PMC7201014>.

²⁶⁶ Contou, D., Gwenhaël C., Travert B., Jochmans S., Conrad M., Lascarrou J.-B., Painvin B., et al., 'Menstrual Toxic Shock Syndrome: A French Nationwide Multicenter Retrospective Study', *Clinical Infectious Diseases*, Vol. 74(2) 2022, pp. 246–253 <https://academic.oup.com/cid/article/74/2/246/6255963>

²⁶⁷ Schlievert, P. M., and Davis, C.C., 'Device-Associated Menstrual Toxic Shock Syndrome', *Clinical Microbiology Reviews*, Vol. 33(3), 2020, pp. e00032-19 <https://journals.asm.org/doi/10.1128/CMR.00032-19>

²⁶⁸ Berger, S., Kunerl A., Wasmuth S., Tierno P., Wagner K., and Brügger J., 'Menstrual Toxic Shock Syndrome: Case Report and Systematic Review of the Literature', *The Lancet Infectious Diseases*, Vol. 19(9), 2019, pp. e313–e321, <https://evidence.nejm.org/doi/10.1056/EVIDo2200282>

in France, the incidence was estimated at 0.03 to 0.05 cases per 100 000 people, with overall mortality reported at 8 % in 2019, while estimations of incidence were upheld at 10 cases per 100 000 people or approximately 1 000 cases per year in 2020 ⁽²⁶⁹⁾, ⁽²⁷⁰⁾. The studies concur that mTSS is more likely in women who use intravaginal menstrual products than those who do not. Only a minor subset of women that fulfil three known risk factors were predisposed to developing mTSS ⁽²⁷¹⁾.

Treatment of mTSS depends on the severity of the disease. Severe cases with multisystem involvement require hospitalization. Treatments include antibiotics, rehydration, treatment of symptoms on presentation, and oxygen ⁽²⁷²⁾, ⁽²⁷³⁾. mTSS can be prevented through individual behaviour and through proper regulation of menstrual hygiene products to ensure that they do not contain elements that promote the growth of *Staphylococcus aureus*. In addition, accurate information from the manufacturers to the consumer on appropriate use and risks is key ⁽²⁷⁴⁾. It is also notable that while mTSS has been associated with the use of tampons in the past, awareness-raising and research on the occurrence of mTSS should be expanded to include new intravaginal products, particularly menstrual cups and their proper use on a more systematic basis.

Prevention measures for individuals include the importance of menstrual hygiene, the proper use of intra-vaginal devices and public education to raise awareness of the signs and symptoms of mTSS plus encouragement to seek medical attention on the presentation of symptoms ⁽²⁷⁵⁾. Since 2014, a Menstrual Health Day is held on May 28 every year. In 2023, WHO Europe called on schools to provide adequate sanitation and water facilities at school ⁽²⁷⁶⁾. Starting in 2021, it became mandatory in France to provide free menstrual products to students in high school and university, while certain areas of Germany also offer free products in libraries and educational institutions ⁽²⁷⁷⁾. In **Ireland**, Plan International has an ongoing campaign '[We need to talk. Period](#)', to address menstrual hygiene, stigma and period poverty, while in **Netherlands** and Slovenia, menstrual hygiene education sites specifically mention mTSS and the risks associated with inappropriate use of tampons and menstrual cups.

²⁶⁹ Billon, A., Gustin M.-P., Tristan A., Bénet T., Berthiller J., Gustave C.A., Vanhems P., and Lina G., 'Association of Characteristics of Tampon Use with Menstrual Toxic Shock Syndrome in France', *eClinicalMedicine*, Vol. 21, 2020, [https://www.thelancet.com/journals/eclinm/article/PIIS2589-5370\(20\)30052-3/fulltext](https://www.thelancet.com/journals/eclinm/article/PIIS2589-5370(20)30052-3/fulltext)

²⁷⁰ Schlievert, P.M., 'Menstrual TSS Remains a Dangerous Threat', *EClinicalMedicine*, Vol. 21, 2020, p. 100316, <https://europepmc.org/articles/PMC7201014>

²⁷¹ Billon, A., Gustin M.-P., Tristan A., Bénet T., Berthiller J., Gustave C.A., Vanhems P., and Gerard, L., 'Association of Characteristics of Tampon Use with Menstrual Toxic Shock Syndrome in France', *eClinicalMedicine*, Vol. 21, April 1, 2020, [https://www.thelancet.com/journals/eclinm/article/PIIS2589-5370\(20\)30052-3/fulltext](https://www.thelancet.com/journals/eclinm/article/PIIS2589-5370(20)30052-3/fulltext)

²⁷² Neumann, C., Kaiser R., and Bauer J., 'Menstrual Cup-Associated Toxic Shock Syndrome', *European Journal of Case Reports in Internal Medicine*, 2020 <https://www.ejcrim.com/index.php/EJCRIM/article/view/1825>

²⁷³ Ribberholt I., Barfod Toke S., Gani K., Haase N., and Dam Nielsen S., 'Toxic shock syndrome', *Ugeskrift for laeger*, Vol. 183(18), 2021 <https://pubmed.ncbi.nlm.nih.gov/33998442/>

²⁷⁴ Hennegan J., Brooks D.J., Schwab Kellogg J., Melendez-Torres G.J. 'Measurement in the study of menstrual health and hygiene: A systematic review and audit.' *PLOS ONE*. 2020 <https://pubmed.ncbi.nlm.nih.gov/32497117>

²⁷⁵ Hennegan J., Brooks D.J., Schwab Kellogg J., Melendez-Torres G. J. 'Measurement in the study of menstrual health and hygiene: A systematic review and audit.' *PLOS ONE*. 2020 <https://pubmed.ncbi.nlm.nih.gov/32497117>

²⁷⁶ WHO, Europe., Home, News. 'Schools ensuring education on menstrual health along with adequate hygiene facilities is key for health and equal learning opportunities' [Internet]. [cited 2023 Oct 11]. <https://www.who.int/europe/news/item/30-05-2023-schools-ensuring-education-on-menstrual-health-along-with-adequate-hygiene-facilities-is-key-for-health-and-equal-learning-opportunities>

²⁷⁷ Gouvernement Français cited 11 October 2023 'Gratuité des protections périodiques pour les étudiantes' <https://www.gouvernement.fr/actualite/gratuite-des-protections-periodiques-pour-les-etudiantes>

8.1. Recent studies on mTSS in Europe

While mTSS has not had much attention as a distinct reproductive health concern, studies from across the world continue to broaden understanding of the condition. Recent studies from Europe include:

- a case study from **Spain** in 2023, recommended more advanced laboratory diagnostics to improve accuracy and speed of diagnosis of mTSS (²⁷⁸);
- a retrospective study of patients with a clinical diagnosis of mTSS, admitted to intensive care units in 43 hospitals in **France** from 2022, aimed to improve diagnostic criteria and found that US CDC diagnostic criteria should not be used in intensive care settings.²⁷⁹ An additional study from France, 2022, aimed to provide evidence to improve the understanding of the pathophysiology of mTSS (²⁸⁰);
- a study from **France** in 2020 was the first epidemiological study on mTSS since 2011. This research provided a nationwide case study on tampon use and its impact on the occurrence of mTSS. The association of mTSS with tampon use for over six consecutive hours (overnight use) was confirmed, with a lack of education on tampon use identified as a key risk factor. The study supported improved prevention measures, recommending the use of sanitary pads or menstrual panties instead of tampons at night, accurate product labelling for tampon use and the need to promote the safe use of tampons (²⁸¹);
- in 2020, a study from **France** confirmed that a small number of healthy women may develop mTSS when using tampons, and that *Staphylococcus aureus* was detected more frequently in women who did not use tampons with an applicator for insertion and those who had an intra-uterine device (²⁸²);
- in 2018, a **French** study observed higher growth of *Staphylococcus aureus* in menstrual cups than tampons and recommended that both products should require similar precautions for use disseminated by manufacturers to consumers (²⁸³);

Building public awareness of menstrual hygiene and the proper use of menstrual products as well as formulating targeted education for health professionals around recognizing and diagnosing symptoms early enough both remain the main means of preventing mTSS. A vaccine against TSS has been under development since 2016 when the Medical University of Vienna's Department of Clinical Pharmacology in **Austria** ran a clinical trial to assess the safety of a vaccine against TSS (²⁸⁴). The study

²⁷⁸ Font-Font M., Bellés-Bellés A., Fernández-Fernández R., and Torres C., 'Molecular Characterization of *Staphylococcus Aureus* Causing Menstrual Toxic Shock Syndrome in a Young Woman', *Enfermedades Infecciosas y Microbiología Clínica* (English Ed.), Vol. 41(5), 2023, pp. 311–312, <https://linkinghub.elsevier.com/retrieve/pii/S2529993X23000254>

²⁷⁹ Contou., Colin G., Brendan T., Jochmans S., Conrad M., Lascarrou J.-B., Painvin B., et al., 'Menstrual Toxic Shock Syndrome: A French Nationwide Multicenter Retrospective Study', *Clinical Infectious Diseases*, Vol. 74(2), 2022, pp. 246–253, <https://academic.oup.com/cid/article/74/2/246/6255963>

²⁸⁰ Courçon M., Badiou C., Louwagie M., Etievant S., Jaquinod M., Lina G., and Brun V., 'Targeted Proteomics Analysis of *Staphylococcal* Superantigenic Toxins in Menstrual Fluid from Women with Menstrual Toxic Shock Syndrome (mTSS)', *Toxins*, Vol. 14(12), 2022, p. 886, <https://www.mdpi.com/2072-6651/14/12/886>

²⁸¹ Billon A., Gustin M.-P., Tristan A., Bénet T., Berthiller J., Gustave C.A., Vanhems P., and Lina G., 'Association of Characteristics of Tampon Use with Menstrual Toxic Shock Syndrome in France', *eClinicalMedicine*, Vol. 21, 2020, [https://www.thelancet.com/journals/eclinm/article/PIIS2589-5370\(20\)30052-3/fulltext](https://www.thelancet.com/journals/eclinm/article/PIIS2589-5370(20)30052-3/fulltext)

²⁸² Hennegan J., Brooks D.J., Schwab Kellogg J., Melendez-Torres G. J. 'Measurement in the study of menstrual health and hygiene: A systematic review and audit.' *PLOS ONE*. 2020 Jun 4, <https://pubmed.ncbi.nlm.nih.gov/32497117>

²⁸³ Nonfoux L., Chiaruzzi M., Badiou C., Baude J., Tristan A., Thioulouse J., Muller D., Prigent-Combaret C., and Lina G., 'Impact of Currently Marketed Tampons and Menstrual Cups on *Staphylococcus Aureus* Growth and Toxic Shock Syndrome Toxin 1 Production *In Vitro*', Edited by Donald W. Schaffner, *Applied and Environmental Microbiology*, Vol. 84(12), 2018, pp. e00351-18, <https://journals.asm.org/doi/10.1128/AEM.00351-18>

²⁸⁴ Schwameis M., Roppenser B., Firbas C., Gruener C.S., Model N., Stich N., Roetzer A., Buchtele N., Jilma B., and Eibl M. M., 'Safety, Tolerability, and Immunogenicity of a Recombinant Toxic Shock Syndrome Toxin (rTSS)-1 Variant Vaccine: A

was successful and phase two of the same vaccine was successfully concluded in collaboration with Biomedical Research & Bio-Products AG in 2023 ⁽²⁸⁵⁾. However, more research is needed across Europe to assess the benefits, including cost-benefits, of the vaccine if administered through national vaccine programmes to be compared against accurate data on the occurrence of mTSS, data which currently do not exist in the Member States.

Randomised, Double-Blind, Adjuvant-Controlled, Dose Escalation First-in-Man Trial, The Lancet Infectious Diseases, Vol. 16(9), 2016, pp. 1036–1044, [https://www.thelancet.com/journals/laninf/article/PIIS1473-3099\(16\)30115-3/fulltext](https://www.thelancet.com/journals/laninf/article/PIIS1473-3099(16)30115-3/fulltext)

²⁸⁵ Cornall, J., 'First Toxic Shock Syndrome Vaccine Phase 2 Study Completed', Labiotech.Eu, February 9, 2023, <https://www.labiotech.eu/trends-news/first-toxic-shock-syndrome-vaccine-phase-2-study-completed/>

9. CONCLUSIONS AND RECOMMENDATIONS

This study has assessed how enabling and protective the legal and policy environments of the EU and its Member States are from a sexual and reproductive health and rights perspective. In particular, the study has looked at statutory screenings for breast and cervical cancers, and the diagnosis and treatment of endometriosis and menstrual toxic shock syndrome in the EU Member States. It has also assessed the accessibility, through regulation, of fertility treatments in Europe. Several of the diseases that have been the focus of this study require both high levels of health literacy and multi-sectoral responses, whether in terms of prevention or treatment, and several of these diseases are linked to infertility. Hence, environmental and socio-economic factors have been briefly discussed as well.

A systematic review of the existing laws and policies at EU and national levels reveals great variation in sexual and reproductive health regulations and policies in general, and in the accessibility of fertility treatment in particular. In terms of regulations, the Member States are more aligned as regards breast and cervical cancer screening, although target age groups vary. Despite fairly inclusive screening programmes across the EU, significant variation is found in participation rates in these screening programmes.

Endometriosis being closely linked to infertility, there has been a rise in both infertility and cases of endometriosis in the EU, partly due to improved diagnostics. While there has been great progress in the knowledge, diagnosis and treatment of endometriosis and infertility both globally and in Europe over the past years, much remains to be researched, and early interventions are key. Great variations in access to care and diagnosis of endometriosis are found in Europe. Prevention and early diagnosis require investment and resources, and currently the costs and benefits of investment are poorly researched and comparable data is not available in the Member States. Similarly, while individual costs of both endometriosis and infertility are known, comparable, quantifiable data is not available in most countries, and the findings of this study point to very limited financial resources allocated to medical or socioeconomic research in these fields, whether at the macroeconomic, individual, EU institutional or Member State level. Almost no examples of financing targeted at sexual and reproductive health amongst the financial instruments contributing to the implementation of the Eu4Health Programme can be found at the institutional level or in the Member States. An exception is Horizon Europe (and the previous Horizon 2020 Programme), under which a limited number of on-going medical research projects on endometriosis and reproductive cancer research can be found.

The existing research results are clear: people from lower-income groups consider their health, including reproductive health, to be poorer than people from higher-income groups, and where public investments in healthcare are higher, access to affordable and quality reproductive health care including fertility treatment, is also higher. Research in Europe and elsewhere also shows that the costs of fertility treatment and endometriosis are significant and affect women disproportionately. To this end, an emerging discussion is the relation between reproductive health and employment policies, and what types of regulation should be introduced to protect the rights of employees in order to, in turn, mitigate the impacts of reproductive health episodes. Regulations have been introduced in only a few Member States to guarantee time off work during fertility treatment. Most Member States do not recognize fertility treatment as part of family benefit packages, and whether to grant employees time off or not continues to be a grey area across the EU. This, however, can be a decisive element in decision-making at a family level when it comes to determining whether or not to seek treatment, and there is some evidence of a positive correlation between enabling state policies, free IVF and improved career development among women. As for fertility treatment, the accessibility of it varies greatly across the EU and is influenced by non-medical issues such as legal, ethical, cultural, religious and economic factors. Some countries offer publicly funded programmes while others rely on private insurance and

out-of-pocket payments by patients. Inequalities also exist within countries, depending on where people live, their ethnic or minority status, and their medical insurance; and certain groups with lower access to treatment, such as lower earning populations and minorities, can be identified. In summary, the current regulations and availability of fertility treatments pose a risk of a significant increase in reproductive health inequality and inequity across the EU.

What is known about the effects of environmental factors on reproductive diseases and conditions has been mapped for this report. While the links between environmental toxicants and reproductive diseases, particularly cancers and endometriosis, have been clearly established, it appears that the links have not been made in national policies or at the EU level. Only a few exceptions exist, including **France**, where there are relatively progressive measures to address exposure to harmful chemicals and reproductive health. For policy formulation and most importantly for policy coherence on gender equality and reproductive rights, much more information is needed on both the costs of prevention and the costs of tackling the problems that environmental factors cause to reproductive health: existing analyses suggest considerable financial savings and health benefits could ensue if harmful chemicals were to be withdrawn through regulation.

Recommendations

Sexual and reproductive rights

- Most Member States directly or indirectly protect sexual and reproductive rights. The constitutions of all but nine Member States (**Austria, Croatia, Cyprus, Denmark, France, Ireland, Luxembourg, Malta, Netherlands**) expressly protect a right to dignity, while all but eight (**Cyprus, Denmark, France, Germany, Ireland, Malta, Sweden, Spain**) include express protection of the right to healthcare. Member States should adapt their legal frameworks and associated policies and their implementation to give full effect to individuals' sexual and reproductive rights and to the EU's policy commitments on sexual and reproductive health including those articulated in the EP Resolution on sexual and reproductive health and rights in the EU.
- 13 Member States (**Bulgaria, Croatia, Czechia, Cyprus, Denmark, Estonia, Finland, Hungary, Latvia, Lithuania, Malta, Portugal, and Slovakia**) allow forced sterilization of persons with disabilities. Member States should ensure that the right to free and informed consent is fully protected across Member States, including by expressly prohibiting forced and coerced sterilization, including of persons with disabilities, expressly ensuring sterilization is not a requirement of the legal recognition of gender identity, and expressly prohibiting unnecessary medical and surgical interventions on intersex infants and children.
- Emergency contraception is available without prescription in all but two Member States (**Hungary** and **Poland**), but it is not covered by health insurance in more than half of the Member States (**Austria, Bulgaria, Croatia, Cyprus, Czechia, Greece, Hungary, Italy, Malta, Netherlands, Poland, Romania, Slovakia** and **Spain**). Member States should remove barriers to accessing necessary goods and services for sexual and reproductive health including cost-related barriers to access to contraception and prescription requirements for emergency contraception. Barriers to accessing abortion, including non-evidence-based regulatory requirements, should be removed in line with the WHO's Abortion Care Guideline (2022).
- The available instruments and programmes under the EU4Health Strategy offer several opportunities from SRH promotion to SRH system-strengthening to joint procurement plans for essential medicine and affordable contraceptives. In order to ring-fence financing, SRHR should be considered a priority working area in the work programmes of the EC.

- Targeted calls for proposals (under appropriate financial instruments) for multisectoral collaboration on policy formulation and promotion would help to address the above-described legal and policy gaps and further promote gender equality in the Member States.

Fertility treatment

- Legal barriers to accessing fertility treatment exist in all Member States. Clear legal frameworks for fertility-related treatment ensuring access for single people and same-sex couples while also addressing cost-related barriers to accessing treatment, should be introduced. The harmonization of regulatory environments combined with investments in publicly available fertility treatment would reduce the harmful effects of the massive online commercialization of ART treatment and cross-border reproductive care, and the health effects of low-quality treatment.
- Currently, seven Member States (**Denmark, France, Greece, Italy, Malta, Portugal and Sweden**) guarantee statutory leave during fertility treatment, while in **Hungary** and **Spain**, related protection exists. Provision for paid reproduction-related leave, including for access to fertility treatment, should be introduced in those Member States where it does not yet exist.
- Where public healthcare systems generally are accessible through the comprehensive regulation of services and insurances for citizens, ART is also typically regulated: ART and donor registers exist and affordable, and high-quality fertility treatment is available. Currently, insurance coverage as regards the number of cycles of fertility treatment covered varies from unlimited coverage until 43 years of age in **Luxembourg** to none in **Ireland**. In most Member States, health insurance partially covers three to six cycles of IVF while IUI is often not covered by state insurance. Further financial investment in healthcare systems and targeted financing for ART is needed in those Member States in which it continues to be relatively low (for example **Bulgaria, Greece, Ireland** and **Portugal**). This would increase access to ART.
- Insurance coverage of IUI in Member States in which it is not covered would enable more citizens to benefit from ART, which would in turn contribute to meeting the demand for both fertility treatment and health equity in Europe. Where IUI is currently not covered by national health insurance (**Bulgaria, Cyprus, Czechia, Estonia, Greece, Latvia, Lithuania, Malta, Poland, Romania** and **Slovakia**), insurance coverage of IUI should be introduced.
- National ART registers do not yet exist in **Cyprus, Estonia, Ireland, Latvia, Poland** and **Slovenia**. In **Bulgaria** and **Romania**, registers exist, but laws to regulate them do not exist. 12 Member States (**Belgium, Croatia, Cyprus, Czechia, Denmark, Estonia, Hungary, Ireland, Italy, Latvia, Malta** and **Romania**) have no donor register in place. Where donor registers exist, practices vary in terms of donor anonymity. There is a need to harmonize obligatory data collection, through national ART registers and donor registry practices across the EU-27. More aligned practices across the EU would allow for more accurate data to identify gaps and understand the challenges facing women and men seeking fertility treatment, to improve quality of ART and reduce the risk of misconduct.
- Only a few Member States including **Belgium** and **Germany** offer limited psychosocial support as part of the treatment packages. The psychological wellbeing of patients with infertility should be routinely included in medically assisted fertility treatment.
- Evidence from **France, Netherlands** and **Spain** show differences based on wealth and ethnicity between patient profiles in public and private sector services, but the existing studies as regards access to fertility treatments do not yet allow solid conclusions on potentially discriminated groups within the EU to be drawn, nor do they elucidate the reasons for opting for treatments abroad. National surveys across the EU would help to understand patient

movement patterns, which in turn would help to target resources more efficiently i.e. where they are needed most.

- Data and research on the economic impact of fertility treatments and reproductive health and diseases is lacking at all levels across the EU. National longitudinal studies are needed to understand the costs to healthcare systems of declining fertility vis-à-vis the costs of an increasing need for treatment of reproductive diseases and fertility. More data is also needed on requirements for out-of-pocket payments by patients, and the gendered cost impacts arising from medicine, psycho-social support and supplementary non-medical treatments. Such data would also help to regulate and resource publicly funded ART.
- The reasons for non-medical childlessness are still under-explored areas that potentially lead to discriminatory practices and unequal access to ART. Studying the psycho-social and cultural reasons for childlessness and their impact on individuals is a prerequisite to ensuring that fertility treatment is non-discriminatory.

Breast and cervical cancer screenings

- Population-based breast cancer screening programmes are not yet in place in **Bulgaria, Czechia, Greece and Slovakia**. Considering the positive impact of screening programmes on early interventions and in the prevention of breast cancer, these Member States should adopt accessible breast cancer screening programmes as a matter of urgency.
- The participation rate in breast cancer screening continues to be low in **Romania** and in countries where population screening programmes do not exist, and in **Romania and Poland** for cervical cancers. Additionally, HPV vaccination, a major preventive measure against cervical cancer, is low in **Luxembourg, France and Germany**. The low levels of participation in statutory cancer screening programmes and HPV vaccination programmes highlight the need to increase the knowledge of citizens as regards the benefits of screening. Particularly at the EU level, more resources could be allocated to multi-sectoral partnerships, campaigning and knowledge-building. At the national level, additional financing should be allocated to making screening programmes more accessible to all.
- All Member States have adopted HPV vaccination programmes for girls and most Member States target both girls and boys. HPV vaccination programmes should be extended to boys in **Bulgaria, Cyprus, Czechia, Greece, Lithuania and Malta**.
- Participation rates in HPV vaccination programmes are found to be high in countries in which HPV vaccination programmes have been carried out in schools. To increase the participation rate in **France and Germany**, school-based HPV vaccination programmes could be promoted.

Diagnosis and treatment of endometriosis

- All EU Member States should invest more in raising awareness of endometriosis amongst the general public and healthcare professionals so that both groups acknowledge the condition as a benign, inflammatory, lifelong, chronic disease which requires proactive diagnosis as early as possible, and lifelong treatment.
- Further efforts are also required in the form of educational campaigns aimed at de-stigmatizing women who suffer from dysmenorrhea and chronic pain. Women should be encouraged to seek healthcare earlier, and healthcare professionals should be encouraged to make a proper diagnosis in all cases where they suspect endometriosis is present.
- Targeted education for healthcare professionals on non-invasive diagnosis criteria for women presenting with chronic pain, particularly in primary healthcare settings, could be beneficial in

that it could lead to earlier diagnosis and relevant treatment, and should therefore be developed in the Member States.

- Studies and guidelines concur that more research is necessary to improve understanding of all elements of endometriosis, to improve diagnosis and treatment, preserve fertility and improve the quality of life and well-being of women with the condition. Special attention should be paid to adolescents, women of lower socio-economic status or with lower levels of education, and post-menopausal women.
- New non-invasive biomarker diagnostic tools show effective results according to preliminary testing. One, recently commercialized by a French company, is already available in **Italy** and **Germany**, and will be available in **Luxembourg, Belgium** and **Hungary** by the end of 2023. These tools should be monitored closely and if indeed these diagnostic tools prove to be efficient at detecting 80 % of endometriosis cases as preliminary study results indicate, then the EU should introduce an endometriosis screening programme for adolescents and young adults in order to create a culture of diagnosis, treatment and follow-up for this chronic disease that affects one in every ten women. This screening could be piloted at the same time as the HPV vaccine is given to teenage girls or those assigned female at birth, as a means of promoting early diagnosis and adequate life treatment and care, avoiding the costly (but largely invisible costs) of endometriosis to women across all Member States.

Impact of environmental factors on reproductive health

- Better enforcement of existing regulations including REACH regulation and the introduction of EU-wide sanction mechanisms could reduce exposure to environmental toxicants. Such mechanisms should be extended to online distribution, which would halt the bypassing of existing safeguards.
- Moving forward with EU-wide regulation to reduce the use of harmful chemicals would in turn reduce the circulation of such chemicals and provide significant health benefits for EU citizens. Withdrawing harmful chemicals from the European market could have significant reproductive health impacts, particularly in maintaining fertility and preventing conditions such as endometriosis and reproductive cancers.
- Currently research is largely focused on harmful chemicals and environmental toxicants and their harmful effects on reproductive health. More research is also needed on chemical compounds to counter the effects of exposure to environmental toxicants.
- Research on environmental impacts on reproductive health should be extended to additional environmental factors such as viruses, pharmaceuticals, metals and air pollution.

SRHR, gender equality and socio-economic rights

- A prerequisite of improved SRHR services is working towards gender equality in a broader framework. Several factors including growing inequalities at the societal level and between social groups, and discrimination and hostility towards fundamental civil rights and equality values among populist movements underscore the need to intensify EU-level support and policymaking for gender equality. Taking forward the EU Horizontal Anti-Discrimination Directive would be a significant step towards democracy and the realization of fundamental rights and equality regardless of religion or belief, sex, age, ethnicity, disability or sexual orientation.
- The lack of employer protection when undergoing fertility treatment in the EU fuels inequality in access to fertility treatment, which may also further contribute to social stratification in Europe. Women's employment and income generation opportunities are found to be

disproportionately affected in **Denmark** and **Sweden** owing to the costs of fertility treatments and the loss of working time during reproductive health episodes. There is a striking lack of similar evidence across the EU. Institutional support for building more robust, research-based evidence on the type of cost burdens on individuals and particularly on small-to-medium size enterprises during reproductive health episodes would help to harmonize regulations and employment policies at a national level and within companies.

- Some reproductive health diseases, such as endometriosis require life-long care and the costs for individuals are found to be significant. Currently the needs continue to be poorly understood and more research is needed on the specific costs that are incurred and how to alleviate the cost burden for women. Policies that promote flexible working arrangements and support non-medical treatment could significantly reduce sick leaves.
- The existing research points to a positive correlation between introducing and disclosing company sustainability and inclusion policies and more efficient financial performance. More comparable national and EU-wide research and evidence on the links between cost of equity and gender-inclusive employment policies would support the promotion of, and create incentives for, the adoption of more inclusive employment policies at a national level.
- Targeted calls for proposals under appropriate instruments, such as the CERV programme and ESF+, could include calls for research and knowledge building, the strengthening of cross-sectoral partnerships for reproductive health in healthcare systems, and awareness-raising on the social and financial impacts of reproductive diseases. Such research and knowledge building would help to improve the accessibility of services, including through the development of digital services.

Menstrual toxic shock syndrome

- With relatively few studies available in the Member States, very little is known about the occurrence of menstrual toxic shock syndrome in the EU or about health care professionals' knowledge of it. As reusable menstrual hygiene products gain more popularity, more research is needed on the related risks of toxic shock syndrome and awareness of their proper usage.
- A large share of the information available is produced by menstrual hygiene product manufacturers. It would be beneficial to form private-public partnerships and with civil society for more efficient public awareness campaigning on menstrual toxic shock syndrome.

REFERENCES

- Adamson, G. D., Dyer, S., Chambers, G., Ishihara, O., De Mouzon, J., Kupka, M., Banker, M., and Zegers-Hochschild, F., 'ICMART Preliminary World Report 2018', ESHRE, Milan, Italy, 2022 <https://www.icmartivf.org/wp-content/uploads/ICMART-ESHRE-WR2018-Preliminary-Report.pdf>.
- Alon, I., and Pinilla, J., 'Assisted reproduction in Spain, outcome and socioeconomic determinants of access', *Int J Equity Health*, 2021 <https://equityhealth.biomedcentral.com/articles/10.1186/s12939-021-01438-x>
- Anđelković, K., 'Croatia to Import Donor Sex Cells from Other EU Countries', *Total Croatia*, 2023 <https://total-croatia-news.com/news/sex-cells/>
- Anifandis, G., Tempest, H. G., Oliva, R., Swanson, G. M., Simopoulou, M., Easley C. A., et al. 'COVID-19 and human reproduction: A pandemic that packs a serious punch', *Syst Biol Reprod Med*. 2021 <https://pubmed.ncbi.nlm.nih.gov/33719829/>
- Association of Women with Disabilities ONE.pl and Women Enabled International Submission to the CRPD Committee for its Review of Poland, 2018 <https://womenenabled.org/wp-content/uploads/ONEpl%20and%20WEI%20Submission%20to%20CRPD%20Committee%20Review%20of%20Poland%20July%2031,%202018%20FINAL.pdf>
- Ayako Muraoka, et al., 'Fusobacterium Infection Facilitates the Development of Endometriosis through the Phenotypic Transition of Endometrial Fibroblasts', *Science Translational Medicine*, Vol. 15(700), 2023 <https://www.science.org/doi/10.1126/scitranslmed.add1531>
- Bafort, C., Beebejaun, Y., Tomassetti, C., Bosteels, J. and Duffy, J., 'Laparoscopic Surgery for Endometriosis', *The Cochrane Database of Systematic Reviews*, Vol. 10(10), 2020, <https://pubmed.ncbi.nlm.nih.gov/33095458/>
- Becker, C. M., Bokor, A., Heikinheimo, O., Horne, A., Jansen, F., Kiesel, L., et al., 'ESHRE guideline: endometriosis'. *Hum Reprod Open*, 2022(2) <https://pubmed.ncbi.nlm.nih.gov/35350465/>
- Belga, A. F., 'Suite aux abus d'un donneur néerlandais, Frank Vandenbroucke promet un registre des donneurs de sperme d'ici fin 2023' <https://www.vrt.be/vrtnws/fr/2023/04/28/suite-aux-abus-dun-donneur-neerlandais-frank-vandenbroucke-prom/>
- Bendifallah, S., Dabi, Y., Suisse, S., Delbos, L., Spiers, A., Poilblanc, M., Golfier, F., et al., 'Validation of a Salivary miRNA Signature of Endometriosis — Interim Data', *NEJM Evidence*, Vol. 2(7), 2023 <https://evidence.nejm.org/doi/abs/10.1056/EVIDoa2200282>
- Berger, S., Kunerl, A., Wasmuth, S., Tierno, P., Wagner, K., and Brügger, J., 'Menstrual Toxic Shock Syndrome: Case Report and Systematic Review of the Literature', *The Lancet Infectious Diseases*, Vol. 19(9), 2019, pp. e313–e321 <https://evidence.nejm.org/doi/10.1056/EVIDoa2200282>
- Bevilacqua, K., Barad, D., Youchah, J. and Witt, B., 'Is affect associated with infertility treatment outcome?' *Fertility and Sterility*, 73, 3, 2000, pp. 648–9. DOI [https://doi.org/10.1016/S0015-0282\(99\)00589-0](https://doi.org/10.1016/S0015-0282(99)00589-0)
- Bhalotrab, S., Clarke, D., Mühlradd, H. and Palme, M., 'Arbetsmarknads- och hälsoeffekter av IVF: Lärdomar från ändrad medicinsk praxis i Sverige', IFAU, 2023 <https://www.ifau.se/globalassets/pdf/se/2023/2023-14-arbetsmarknads-och-halsoeffekter-av-ivf.pdf>
- Billon, A., Gustin, M. P., Tristan, A., Bénet, T., Berthiller, J., Gustave, C. A., Vanhems P. and Gerard, L., 'Association of Characteristics of Tampon Use with Menstrual Toxic Shock Syndrome in France', *eClinicalMedicine*, Vol. 21, 2020 [https://www.thelancet.com/journals/eclinm/article/PIIS2589-5370\(20\)30052-3/fulltext](https://www.thelancet.com/journals/eclinm/article/PIIS2589-5370(20)30052-3/fulltext)

- Buswell, G., 'Sexual and reproductive health in Luxembourg', EXPATICA, 2023 <https://www.expatica.com/lu/healthcare/healthcare-services/sexual-health-luxembourg-88159/#pregnancy>
- Ceccaroni, M., Bounous, V. E., Clarizia, R., Mautone, R. and Mabrouk, M., 'Recurrent Endometriosis: A Battle against an Unknown Enemy', The Official Journal of the European Society of Contraception, Vol. 24(6), 2019, pp. 464–474 <https://pubmed.ncbi.nlm.nih.gov/31550940/>
- Coccia, M. E., Nardone, L., and Rizzello, F., 'Endometriosis and Infertility: A Long-Life Approach to Preserve Reproductive Integrity', Int J Environ Res Public Health, 2022 <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC9141878/>
- Contou, D., Gwenhaël, C., Travert, B., Jochmans, S., Conrad, M., Lascarrou, J-B., Painvin, B., et al., 'Menstrual Toxic Shock Syndrome: A French Nationwide Multicenter Retrospective Study', Clinical Infectious Diseases, Vol. 74(2), 2022, pp. 246–253 <https://academic.oup.com/cid/article/74/2/246/6255963>.
- Cornall, J., 'First Toxic Shock Syndrome Vaccine Phase 2 Study Completed', Labiotech.Eu, 2023 <https://www.labiotech.eu/trends-news/first-toxic-shock-syndrome-vaccine-phase-2-study-completed/>
- Courçon, M., Badiou, C., Louwagie, M., Etievant, S., Jaquinod, M., Gérard, L. and Brun V., 'Targeted Proteomics Analysis of Staphylococcal Superantigenic Toxins in Menstrual Fluid from Women with Menstrual Toxic Shock Syndrome (mTSS)', Toxins, Vol. 14(12), 2022, p. 886 <https://www.mdpi.com/2072-6651/14/12/886>
- Daniluk, K., 'Reconstructing Their Lives: A Longitudinal, Qualitative Analysis of the Transition to Biological Childlessness for Infertile Couples', Journal of Counseling and Development, 79(4), 2001, pp. 439–449 <https://doi.org/10.1002/j.1556-6676.2001.tb01991.x>
- Darbà, J., and Marsà, A., 'Economic Implications of Endometriosis: A Review', Pharmacoeconomics, Vol. 40(12), 2022, pp. 1143–1158 <https://doi.org/10.1007/s40273-022-01211-0>
- de Kok, L., van Hanegem, N., van Kesteren, P., Klinkert, E., Maas, J., Mijatovic, V., Rhemrev, J., Verhoeve, H., and Nap, A., 'Endometriosis Centers of Expertise in the Netherlands: Development toward Regional Networks of Multidisciplinary Care', Health Science Reports, Vol. 5(1), 2022 <https://pubmed.ncbi.nlm.nih.gov/35024453/>
- El Soufi, H., El Soufi, Y., Al-Nuaimi, S., Bagheri, F., 'Toxic Shock Syndrome Associated with Menstrual Cup Use', IDCases, Vol. 25, 2021 <https://www.sciencedirect.com/science/article/pii/S221425092100127X>
- Endocrine Society, 'Common EDCs and Where They Are Found', Endocrine Society, 2019 <https://www.endocrine.org/topics/edc/what-edcs-are/common-edcs>
- Enzelsberger, S.-H., Oppelt, P., Nirgianakis, K., Seeber, B., Drahoňovský, J., Wanderer, L., Krämer, B., et al., 'Preoperative Application of the Enzian Classification for Endometriosis (The #Enzian Study): A Prospective International Multicenter Study', BJOG: International Journal of Obstetrics and Gynaecology, Vol. 129(12), 2022, pp. 2052–2061 <https://pubmed.ncbi.nlm.nih.gov/35596694/>
- Euronews, 'Painful periods? Spain just passed Europe's first paid 'menstrual leave' law', 2023 <https://www.euronews.com/next/2023/02/16/spain-set-to-become-the-first-european-country-to-introduce-a-3-day-menstrual-leave-for-wo>
- European Agency for Safety and Health at Work, 'State of the Art Report on Reproductive Toxicants: Summary', Publications Office, LU, 2016 <https://data.europa.eu/doi/10.2802/87916>.
- European Commission, 'Proposal for a REGULATION OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL on the establishment of a Programme for the Union's action in the field of health –for the

period 2021-2027 and repealing Regulation (EU) No 282/2014 ('EU4Health Programme') <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A52020PC0405>

- European Commission, "A Union of Equality: Gender Equality Strategy 2020-2025". https://commission.europa.eu/strategy-and-policy/policies/justice-and-fundamental-rights/gender-equality/gender-equality-strategy_en
- European Commission, 'EU Global Health Strategy: Better Health for All in a Changing World', 2022 https://health.ec.europa.eu/publications/eu-global-health-strategy-better-health-all-changing-world_en
- European Commission, 'The impact of demographic change in the changing environment', 2023 https://commission.europa.eu/system/files/2023-01/Demography_report_2022_0.pdf
- European Commission, '2023 report on gender equality in the EU', 2023 https://commission.europa.eu/system/files/2023-04/annual_report_GE_2023_web_EN.pdf
- European Consumer Organisation, 'Worrying number of dangerous products reaching consumers highlights need for greater action by authorities', BEUC, 2023 <https://www.beuc.eu/press-releases/worrying-number-dangerous-products-reaching-consumers-highlights-need-greater-action>
- European Disability Forum, 'Forced Sterilisation of Persons with Disabilities in the European Union', 2022 <https://docs.google.com/document/d/1m3h1qdzVgjFNxVGEIuf8v8Gf4zPDsCpl/edit>
- European Parliament, 'Gender-responsive budgeting. Innovative approaches to budgeting', 2015 [https://www.europarl.europa.eu/RegData/etudes/BRIE/2015/559503/EPRS_BRI\(2015\)559503_EN.pdf](https://www.europarl.europa.eu/RegData/etudes/BRIE/2015/559503/EPRS_BRI(2015)559503_EN.pdf)
- European Parliament, 'Backlash in Gender Equality and Women's and Girls' Rights', 2018 [https://www.europarl.europa.eu/RegData/etudes/STUD/2018/604955/IPOL_STU\(2018\)604955_EN.pdf](https://www.europarl.europa.eu/RegData/etudes/STUD/2018/604955/IPOL_STU(2018)604955_EN.pdf)
- European Parliament, 'Gender Budgeting: State of Play and way forward', Hearing 20.6.2018 <https://www.europarl.europa.eu/committees/en/product/product-details/20180604CHE04161>
- European Parliament, 'Achieving gender equality in the face of the pandemic and existing challenges', 2021 [https://www.europarl.europa.eu/RegData/etudes/ATAG/2021/659440/EPRS_ATA\(2021\)659440_EN.pdf](https://www.europarl.europa.eu/RegData/etudes/ATAG/2021/659440/EPRS_ATA(2021)659440_EN.pdf)
- European Parliament, 'COVID-19 and its economic impact on women and women's poverty. Insights from 5 European Countries' 2021 [https://www.europarl.europa.eu/RegData/etudes/STUD/2021/693183/IPOL_STU\(2021\)693183\(SUM01\)_EN.pdf](https://www.europarl.europa.eu/RegData/etudes/STUD/2021/693183/IPOL_STU(2021)693183(SUM01)_EN.pdf)
- European Parliamentary Research Service, 'Promoting equality between women and men', 2019 https://what-europe-does-for-me.eu/data/pdf/focus/focus10_en.pdf.
- European Parliamentary Research Service, 'Exploring gender equality across policy areas', 2021 <https://epthinktank.eu/2021/10/21/exploring-gender-equality-across-policy-areas/>
- European Society of Human and Reproduction and Embryology, 'ESHRE Guideline Endometriosis', 2022 <https://www.eshre.eu/Guideline/Endometriosis>
- European Society of Human Reproduction and Embryology, 'Factsheet on Infertility – Prevalence, Treatment and Fertility Decline in Europe', European Society of Human Reproduction and Embryology, 2021 https://www.eshre.eu/-/media/sitecore-files/ESHRE-internal/EU-Affairs/ESHRE_InfertilityFactsheet_v9.pdf

- European Society of Human Reproduction and Embryology, 'Environmental Seminar', 2023 <https://www.eshre.eu/Education/Environmental-Seminar>
- European Society of Human Reproduction and Embryology, 'ICMART Preliminary World Report 2018', 2022 <https://www.icmartivf.org/wp-content/uploads/ICMART-ESHRE-WR2018-Preliminary-Report.pdf>
- European Society of Human Reproduction and Embryology PGT Consortium Steering Committee, Carvalho, F., Coonen, E., Goossens, V., Kokkali, G., Rubio, C., et al., 'ESHRE PGT Consortium good practice recommendations for the organisation of PGT'. Hum Reprod Open, Vol. 2020(3) <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7257038/>
- Fertility Europe, European Parliamentary Forum, 2023, 'The imperative of equal access to fertility treatments across Europe [White Paper]' https://fertilityeurope.eu/wp-content/uploads/2023/06/FE_WhitePaper_2023-WEB.pdf
- Financial Times, 'Ageing Europe is trying to boost birth rates', 2023 <https://www.ft.com/content/c11ef0af-717b-4266-817d-533426363aa7>
- Fincham, A., 'European Atlas of Fertility Treatment Policies', Fertility Europe, 2021 <https://fertilityeurope.eu/european-atlas-of-fertility-treatment-policies/>
- Font-Font, M., Bellés-Bellés, A., Fernández-Fernández, R. and Torres C., 'Molecular Characterization of Staphylococcus Aureus Causing Menstrual Toxic Shock Syndrome in a Young Woman', Enfermedades Infecciosas y Microbiología Clínica (English Ed.), Vol. 41(5) 2023, pp. 311–312 <https://linkinghub.elsevier.com/retrieve/pii/S2529993X23000254>.
- Foucart, S., 'Banning the Most Harmful Chemicals Could Help Europe Save up to €31 Billion a Year', Le Monde.Fr, July 11, 2023 https://www.lemonde.fr/en/environment/article/2023/07/11/banning-the-most-harmful-chemicals-could-help-europe-save-up-to-31-billion-a-year_6049498_114.html
- French Government, *Stratégie nationale de santé sexuelle Agenda 2017 - 2030* https://sante.gouv.fr/IMG/pdf/strategie_nationale_sante_sexuelle.pdf
- Gameiro, S., Sousa-Leite, M., and Vermeulen, N., 'Dissemination, Implementation and Impact of the ESHRE Evidence-Based Guidelines', Human Reproduction Open, Vol. 2019(3), 2019 <https://doi.org/10.1093/hropen/hoz011>
- Gershoni, N., and Low, C., 'The power of time: The impact of free IVF on women's human capital investments', European Economic Review 133, 2021 <https://www.sciencedirect.com/science/article/abs/pii/S0014292120302750>
- Ginsburg, F., and Rapp, R. (Ed.), 'Conceiving the new world order', 1996, Berkeley: University of California Press.
- French Government: 'Gratuité des protections périodiques pour les étudiantes' <https://www.gouvernement.fr/actualite/gratuite-des-protections-periodiques-pour-les-etudiantes>
- Greil, A., Slauson-Blevins, K., and McQuillan, J., 'The experience of infertility: a review of recent literature', Sociology of Health & Illness 32(1), 2010 pp. 140–162 <https://onlinelibrary.wiley.com/doi/epdf/10.1111/j.1467-9566.2009.01213.x>
- Grundström, H., Hammar Spagnoli, G., Löfqvist, L., and Olovsson, M., 'Healthcare Consumption and Cost Estimates Concerning Swedish Women with Endometriosis', Gynecologic and Obstetric Investigation, Vol. 85(3), 2020, pp. 237–244 <https://karger.com/goi/article/85/3/237/153807/Healthcare-Consumption-and-Cost-Estimates>
- Guerriero, S. G., Condous, T., van den Bosch, L., Valentin, F. P. G., Leone, D., Van Schoubroeck, C., Exacoustos, et al., 'Systematic Approach to Sonographic Evaluation of the Pelvis in Women with Suspected Endometriosis, Including Terms, Definitions and Measurements: A Consensus Opinion from

- the International Deep Endometriosis Analysis (IDEA) Group*, *Ultrasound in Obstetrics & Gynecology: The Official Journal of the International Society of Ultrasound in Obstetrics and Gynecology*, Vol. 48(3), 2016, pp. 318–332 <https://pubmed.ncbi.nlm.nih.gov/27349699/>
- Hamamah, S. and Berlioux, S., 'Rapport sur les causes d'infertilité Vers une stratégie nationale de lutte contre l'infertilité', Service-Public.FR, 2022 https://sante.gouv.fr/IMG/pdf/rapport_sur_les_causes_d_infertilite.pdf
 - Harper, J.C., Hammarberg, K., Simopoulou, M., Koert, E., Pedro, J., Massin, N., et al. 'The International Fertility Education Initiative: research and action to improve fertility awareness', *Hum Reprod Open*. 2021 <https://pubmed.ncbi.nlm.nih.gov/34532596/>
 - Hennegan, J., Brooks, D. J., Schwab, K. J., Melendez-Torres, G. J., 'Measurement in the study of menstrual health and hygiene: A systematic review and audit', *PLOS ONE* 2020 <https://pubmed.ncbi.nlm.nih.gov/32497117>
 - Hansen, H. M. V., Dalsgaard, T., Hartwell, D., Skovlund, C. V. and Lidegaard, Ø. 'Reproductive Prognosis in Endometriosis. A National Cohort Study', *Acta Obstetrica et Gynecologica Scandinavica*, Vol. 93(5), 2014, pp. 483–489 <https://obgyn.onlinelibrary.wiley.com/doi/10.1111/aogs.12373>
 - Horne, A. W. and Missmer, S.A., 'Pathophysiology, Diagnosis, and Management of Endometriosis', *BMJ*, 2022 <https://www.bmj.com/lookup/doi/10.1136/bmj-2022-070750>
 - Indrielle-Kelly, T., Frühauf, F., Fanta, M., Burgetova, A., Lavu, D., Dundr, P., Cibula, D. and Fischerova, D., 'Application of International Deep Endometriosis Analysis (IDEA) Group Consensus in Preoperative Ultrasound and Magnetic Resonance Imaging of Deep Pelvic Endometriosis', *Ultrasound in Obstetrics & Gynecology*, Vol. 56(1) 2020, pp. 115–116 <https://onlinelibrary.wiley.com/doi/abs/10.1002/uog.21960>
 - Inhorn M., 'Cosmopolitan Conceptions: IVF Sojourns in Global Dubai' 2015, Durham, NC: Duke University Press
 - Inhorn, M., 'Where has the quest for conception taken us? Lessons from anthropology and Sociology'. *Reproductive Biomedicine & Society Online* 10, 2020, pp. 46–57 <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7393315/pdf/main.pdf>
 - Inhorn, M., and Patrizio, P., 'Infertility around the globe: new thinking on gender, reproductive technologies and global movements in the 21st century', *Human Reproduction Update*, Vol.21(4), 2015, pp. 411–426 <https://academic.oup.com/humupd/article/21/4/411/683746>
 - International Commission of Jurists, 'Maastricht guidelines on violations of economic, social and cultural rights', 1997 [Maastricht Guidelines.pdf \(hlrn.org\)](https://www.hlrn.org/Maastricht-Guidelines.pdf)
 - Iraola, M., 'The Environmental Impacts on Reproductive Health', *Euractiv*, 2023 <https://www.euractiv.com/section/health-consumers/news/the-environmental-impacts-on-reproductive-health/>
 - Irion, A., 'Family First: Exclusionary Social Policy in Orban's Hungary', <https://www.illiberalism.org/family-first-exclusionary-social-policy-in-orbans-hungary/>
 - Jackson, G., 'It's Really Only the Beginning': Are We on the Cusp of a Breakthrough in Endometriosis?', *The Guardian*, 2023 <https://www.theguardian.com/society/2023/aug/10/its-really-only-the-beginning-are-we-on-the-cusp-of-a-breakthrough-in-endometriosis>
 - Jacquot, S., 'European Union gender equality policies since 1957', *Digital Encyclopaedia of European History* <https://ehne.fr/en/encyclopedia/themes/gender-and-europe/gender-citizenship-in-europe/european-union-gender-equality-policies-1957>

- Karandi, A., 'All You Need to Know about the Latest in Hungary's pro-Family Policy', Fidesz - Magyar Polgári Szövetség, 2019 <https://fidesz-eu.hu/en/all-you-need-to-know-about-the-latest-in-hungarys-pro-family-policy/>
- Keckstein, J., Saridogan, E., Ulrich, U. A., Sillem, M., Oppelt, P., Schweppe, K. W., Krentel, H. et al., 'The #Enzian Classification: A Comprehensive Non-Invasive and Surgical Description System for Endometriosis', Acta Obstetrica Et Gynecologica Scandinavica, Vol. 100(7), 2021, pp. 1165–1175 <https://obgyn.onlinelibrary.wiley.com/doi/full/10.1111/aogs.14099>
- Keckstein, J., Noé, G. K., Djokovic, D., van Herendael, B. J. and Hudelist, G., 'Enzian Classification, a New Description of Endometriosis for Invasive and Noninvasive Diagnosis. Background and Description of a New Approach to a Complex Disease', The Trocar, Vol. 3(1) 2022, pp. 1–13 <https://doi.org/10.36205/trocar.1.2022001>
- Keski-Petäjä, M., 'Lapsia yhteiskunnan talkoisiin – syntävyyden ja syntävyyshuolen historiaa Suomessa', Statistics Finland, 2022 https://www2.stat.fi/index_en.html
- Klein, S., D'Hooghe, T., Meuleman, C., Dirksen, C., Dunselman, G. and Simoens, S., 'What Is the Societal Burden of Endometriosis-Associated Symptoms? A Prospective Belgian Study', Reproductive Biomedicine Online, Vol. 28(1), 2014, pp. 116–124 <https://www.semanticscholar.org/paper/What-is-the-societal-burden-of-symptoms-a-Belgian-Klein-D%E2%80%99Hooghe/92a0f58291c5f7c6198eef26ec01c7e05a7b0f00>
- Kocas Deniz, H., Rubin, L. R. and Lobel, M., 'Stigma and Mental Health in Endometriosis', European Journal of Obstetrics & Gynaecology and Reproductive Biology: X, Vol. 19, 2023, p. 100228 <https://www.sciencedirect.com/science/article/pii/S2590161323000534>
- Koslowski, A., Blum, S., Dobrotić, I., Kaufman, G. and Moss, P. (2021), International Review of Leave Policies and Research 2021 http://www.leavenetwork.org/lp_and_r_reports/
- Krol, M., Nap, A., Michels, R., Veraart C. and Goossens L., 'Health state utilities for infertility and subfertility', Reprod Health, 2019 <https://reproductive-health-journal.biomedcentral.com/articles/10.1186/s12978-019-0706-9>
- Kvaskoff, M., Mahamat-Saleh, Y., Farland, L., Shiges, N., Terry, K.L., Harris, K.L. Roman, H., et al., 'Endometriosis and Cancer: A Systematic Review and Meta-Analysis', Human Reproduction Update, Vol. 27(2), 2021, pp. 393–420 <https://academic.oup.com/humupd/article/27/2/393/5986656>
- Leonardi, M., Uzuner, C., Mestdag, W., Lu, C., Guerriero, S., Zajicek, M., Dueckelmann, A. et al., 'Diagnostic Accuracy of Transvaginal Ultrasound for Detection of Endometriosis Using International Deep Endometriosis Analysis (IDEA) Approach: Prospective International Pilot Study', Ultrasound in Obstetrics & Gynaecology: The Official Journal of the International Society of Ultrasound in Obstetrics and Gynaecology, Vol. 60(3), 2022, pp. 404–413 <https://obgyn.onlinelibrary.wiley.com/doi/full/10.1002/uog.24936>
- Leonardi, M., Gibbons, T., Armour, M., Wang, R., Glanville, E., Hodgson, R., Cave, A. E. et al., 'When to Do Surgery and When Not to Do Surgery for Endometriosis: A Systematic Review and Meta-Analysis', Journal of Minimally Invasive Gynaecology, Vol. 27(2), 2020, pp. 390–407. <https://www.sciencedirect.com/science/article/abs/pii/S1553465019312762>
- Limburg principles on the implementation of the ICCPR, 1987 [Limburg Principles.pdf \(hlrn.org\)](https://www.hlrn.org/LimburgPrinciples.pdf)
- Lindbohm, M.-L. and Sallmén, M. 'Reproductive Effects Caused by Chemical and Biological Agents', European Agency for Safety and Health at Work, OSHwiki, 2022 <https://oshwiki.osha.europa.eu/en/themes/reproductive-effects-caused-chemical-and-biological-agents>
- Lundborg, P., Plug, E. and Wurtz Rasmussen, A. 'Can women have children and a career? IV evidence from IVF treatments', American Economic Review, 107(6), 2017, pp. 1611–1637 [Can Women Have](https://www.aeaweb.org/conference/papers/17/1611)

Children and a Career? IV Evidence from IVF Treatments - American Economic Association (aeaweb.org)

- Luci-Greulich A. and Thévenon, O. 'The Impact of Family Policies on Fertility Trends in Developed Countries'. European Journal of Population, Vol. 29(29), 2013 https://www.researchgate.net/publication/263722515_The_Impact_of_Family_Policies_on_Fertility_Trends_in_Developed_Countries_L'influence_des_politiques_familiales_sur_les_tendances_de_la_fecondite_des_pays_developpes
- Luxembourg Government, Ministère de la Santé, Ministère de la Sécurité Sociale 'Plan National Santé' 2023 https://www.gesondheetsdesch.lu/files/ugd/b6de21_c05646a1c66e4e44a5a4e31c5838fa41.pdf
- Mandard, S., Foucart S. and Horel, S., 'The Chemical Industry Lobbies Have Won': European Plan to Ban Toxic Substances Buried', Le Monde.Fr, 2022 https://www.lemonde.fr/en/environment/article/2022/10/20/the-chemical-industry-lobbies-have-won-european-commission-buries-plan-to-ban-toxic-substances_6001086_114.html
- Manganaro, L., Celli, V., Dolciemi, M., Ninkova, R., Ercolani, G., Ciulla, S., De Vito, C., Rizzo, S.M., Porpora, M.G. and Catalano, C., 'Can New ENZIAN Score 2020 Represent a Staging System Improving MRI Structured Report?', International Journal of Environmental Research and Public Health, Vol. 18(19), 2021, p. 9949 <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8508493/>
- McDermott O., Lauraine, R. and Butler M., 'A comparison of assisted human reproduction (AHR) regulation in Ireland with other developed countries', Reprod Health, 2022 <https://reproductive-health-journal.biomedcentral.com/articles/10.1186/s12978-022-01359-0>
- McGrath, Isabelle M., International Endometriosis Genetics Consortium, Montgomery, G. W. and Mortlock, S., 'Genomic Characterisation of the Overlap of Endometriosis with 76 Comorbidities Identifies Pleiotropic and Causal Mechanisms Underlying Disease Risk', Human Genetics, Vol. 142(9), 2023, pp. 1345–1360 <https://pubmed.ncbi.nlm.nih.gov/37410157/>
- Medina-Perucha, L., Pistillo, A., Raventós, B., Jacques-Aviñó, C., Munrós-Feliu, J., Martínez-Bueno, C., Valls-Llobet, C. et al., 'Endometriosis Prevalence and Incidence Trends in a Large Population-Based Study in Catalonia (Spain) from 2009 to 2018', Women's Health, Vol. 18, 2022 <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC9608029>
- National Women's Council of Ireland, Shadow Report in advance of the examination of Ireland's combined sixth and seventh periodic reports under the UN Convention on the Elimination of All Forms of Discrimination against Women (CEDAW) 2017 https://www.nwci.ie/images/uploads/NWCI_CEDAW_SHADOW_REPORT_2017.pdf
- Neumann, C., Kaiser R. and Bauer J., 'Menstrual Cup-Associated Toxic Shock Syndrome', European Journal of Case Reports in Internal Medicine, 2020 <https://www.ejcrim.com/index.php/EJCRIM/article/view/1825>
- Nirgianakis, K., Ma, L., McKinnon, B. and Mueller, M. D., 'Recurrence Patterns after Surgery in Patients with Different Endometriosis Subtypes: A Long-Term Hospital-Based Cohort Study', Journal of Clinical Medicine, Vol. 9(2), 2020, p. 496 <https://www.mdpi.com/2077-0383/9/2/496>
- Nonfoux L., Chiaruzzi, M., Badiou, C., Baude, J., Tristan, A., Thioulouse, J., Muller, D., Prigent-Combaret, C. and Gérard, L., 'Impact of Currently Marketed Tampons and Menstrual Cups on Staphylococcus Aureus Growth and Toxic Shock Syndrome Toxin 1 Production In Vitro', edited by Donald W. Schaffner, Applied and Environmental Microbiology, Vol. 84(12) 2018 <https://journals.asm.org/doi/10.1128/AEM.00351-18>
- O'Neil, A., Russella, J., Thompson, K., Martinson, M. and Peters, S., 'The impact of socioeconomic position (SEP) on women's health over the lifetime', 2020 <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7273147/pdf/main.pdf>

- OECD, 'Over the Rainbow? The Road to LGBTI Inclusion. Chapter 3, OECD, 2020' <https://www.oecd.org/luxembourg/OECD-LGBTI-2020-Over-The-Rainbow-LUXEMBOURG.pdf>
- Houses of the Oireachtas, Ireland, 'Health (Assisted Human Reproduction) Bill 2022 – No. 29 of 2022 – Houses of the Oireachtas', currently before the Dáil Éireann, 3rd stage <https://www.oireachtas.ie/en/bills/bill/2022/29>
- Olivius, C., Friden, B., Borg, G. and Bergh, C., 'Why do couples discontinue in vitro fertilization treatment? A cohort study', Fertility and Sterility, 81(2), 2004, pp. 258-261 DOI <https://doi.org/10.1016/j.fertnstert.2003.06.029>
- O'Neil, A., Russella, J. D., Thompson, K., Martinson M. L., Peters, S. A. E, 'The impact of socioeconomic position (SEP) on women's health over the lifetime', Maturitas 140, 2020, pp. 1–7 [https://www.maturitas.org/article/S0378-5122\(20\)30290-5/fulltext](https://www.maturitas.org/article/S0378-5122(20)30290-5/fulltext)
- Peter, R. M., 'Ten years to ten days: French startup revolutionizes early diagnosis of endometriosis with a saliva test', LABIOTECH, 2023 <https://www.labiotech.eu/in-depth/ziwig-revolutionizes-early-diagnosis-of-endometriosis/>
- Petresin, J. Wolf, J., Emir, S. Müller, A., and Boosz A.S., 'Endometriosis-associated Maternal Pregnancy Complications – Case Report and Literature Review', Geburtshilfe und Frauenheilkunde, 76(8), 2016, pp. 902–905 DOI <https://doi.org/10.1055%2Fs-0042-101026>
- Philip, C-A., Sandré, A., de Saint-Hilaire, P., Cortet, M. and Dubernard, G., 'Learning Curve for the Detection of Deep Infiltrating Endometriosis and Adenomyosis with 3-D Transvaginal Water Contrast Sonography', Ultrasound in Medicine & Biology, Vol. 48(7), J2022, pp. 1328–1335 <https://pubmed.ncbi.nlm.nih.gov/35469632/>
- Prast, J., Oppelt, P., Shamiyeh, A., Shebl, O., Brandes, I., and Haas, D. 'Costs of Endometriosis in Austria: A Survey of Direct and Indirect Costs', Archives of Gynaecology and Obstetrics, Vol. 288(3), 2013, pp. 569–576 <https://doi.org/10.1007/s00404-013-2793-0>
- Politico, 'The populist right wants you to make more babies. The question is how', 2023 <https://www.politico.eu/article/eu-populist-right-want-you-make-more-babies-viktor-orban/>
- Portuguese Government, President of the Council of Ministers 'Estratégia Nacional para a Igualdade e a Não Discriminação 2018-2030 – Portugal + Igual' <https://www.portugal.gov.pt/download-ficheiros/ficheiro.aspx?v=%3d%3dBAAAAB%2bLCAAAAAAABAAzMTA2AQD%2fxLmvBAAAAA%3d%3d>
- Raadina Health Editorial Team, 'Where is the Cheapest Country for IVF Treatment?' Raadina, 2023 <https://raadinahealth.com/en/blog/ivf-cost-by-country>
- Rahmioglu, N., Mortlock, S., Ghiasi, M., Møller, P. L., Stefansdottir, L., Galarneau, G., Turman, C. et al, 'The Genetic Basis of Endometriosis and Comorbidity with Other Pain and Inflammatory Conditions', Nature Genetics, Vol. 55(3), pp. 423–436 <https://www.research.ed.ac.uk/en/publications/the-genetic-basis-of-endometriosis-and-comorbidity-with-other-pai-2>
- Ribberholt, I., Barfod Toke, S., Gani, K., Haase, N. and Dam Nielsen S., 'Toxic shock syndrome', Ugeskrift for læger, Vol. 183(18), 2021 <https://pubmed.ncbi.nlm.nih.gov/33998442/>
- Rodrigo, A. and Fernandez, S., 'Egg Donation in Denmark', inviTRA, 2016 <https://www.invitro.com/en/egg-donation-in-denmark/>
- Rodrigues, C. F., 'Family policies and poverty in Portugal'. Conference paper presented in the conference A(s) Problemática(s) da Natalidade em Portugal, Uma Questão Social, Económica e Política. Universidade de Lisboa, 2016 https://repositorio.ul.pt/bitstream/10451/25303/1/ICS_VCunha_KWall_Problematicas_Outros.pdf#page=49

- Rutten, L., 'Worrying Number of Dangerous Products Reaching Consumers Highlights Need for Greater Action by Authorities', Bureau Européen Des Unions de Consommateurs, n.d. <https://www.beuc.eu/press-releases/worrying-number-dangerous-products-reaching-consumers-highlights-need-greater-action>
- Schlievert, P. M., 'Menstrual TSS Remains a Dangerous Threat', EClinicalMedicine, Vol. 21, 2020 <https://europepmc.org/articles/PMC7201014>
- Schlievert, P. M. and Davis, C. C., 'Device-Associated Menstrual Toxic Shock Syndrome', Clinical Microbiology Reviews, Vol. 33(3), 2020, pp. e00032-19 <https://journals.asm.org/doi/10.1128/CMR.00032-19>
- Schwameis, M., Roppenser, B., Firbas, C., Gruener, C. S., Model, N., Stich, N., Roetzer, A., Buchtele, N., Jilma, B. and Eibl, M. M., 'Safety, Tolerability, and Immunogenicity of a Recombinant Toxic Shock Syndrome Toxin (rTSS)-1 Variant Vaccine: A Randomised, Double-Blind, Adjuvant-Controlled, Dose Escalation First-in-Man Trial', The Lancet Infectious Diseases, Vol. 16(9), 2016, pp. 1036–1044 [https://www.thelancet.com/journals/laninf/article/PIIS1473-3099\(16\)30115-3/fulltext](https://www.thelancet.com/journals/laninf/article/PIIS1473-3099(16)30115-3/fulltext)
- Segal, T. R., Giudice, L. C., 'Systematic review of climate change effects on reproductive health', Fertil Steril, Vol.118(2), 2022, pp. 215-23 [https://www.fertstert.org/article/S0015-0282\(22\)00383-1/fulltext](https://www.fertstert.org/article/S0015-0282(22)00383-1/fulltext)
- Seiz, M., Eremenko, T. and Salazar L., 'Socioeconomic differences in access to and use of Medically Assisted Reproduction (MAR) in a context of increasing childlessness', EU Science Hub, 2023 https://joint-research-centre.ec.europa.eu/publications/socioeconomic-differences-access-and-use-medically-assisted-reproduction-mar-context-increasing_en
- Sims, O.T., Jhumka, G., Missmer, S. A. and Aninye, I. O., 'Stigma and Endometriosis: A Brief Overview and Recommendations to Improve Psychosocial Well-Being and Diagnostic Delay', International Journal of Environmental Research and Public Health, Vol. 18(15), 2021, p. 8210 <https://pubmed.ncbi.nlm.nih.gov/34360501/>
- Siermann, M., Claesen, Z., Pasquier, L., Raivio, T., Tšuiiko O., Vermeesch, J. R. et al. 'A systematic review of the views of healthcare professionals on the scope of preimplantation genetic testing', J Community Genet. 2022 <https://pubmed.ncbi.nlm.nih.gov/35028914/>
- Simopoulou M., Sfakianoudis K., Giannelou P., Pierouli A., Rapani A., Maziotis E., et al. 'Treating Infertility: Current Affairs of Cross-border Reproductive Care', Open Med. 2019 <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6434662/>
- Simopoulou, M., Sfakianoudis, K., Maziotis Simopoulou, M., Tsioulou, P., Grigoriadis, S., Rapani, A. et al., 'PGT-A: who and when? A systematic review and network meta-analysis of RCTs' J Assist Reprod Genet. 2021 <https://pubmed.ncbi.nlm.nih.gov/34036455/>
- Smolarz, B., Krzysztof, S. and Romanowicz, H., 'Endometriosis: Epidemiology, Classification, Pathogenesis, Treatment and Genetics (Review of Literature)', International Journal of Molecular Sciences, Vol.22(19), 2021 <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8508982/>
- Sørig Hougaard, K., 'Reproduktionsskade kemiske stoffer i det danske arbejdsmiljø', Det Nationale Forskningscenter for Arbejdsmiljø (NFA), 2023 <https://nfa.dk/da/Forskning/Udgivelse?journalid=b452a7dd-4a90-4f24-9da7-f75eb3d4f>
- Tain, L., 'Health inequality and users' risk taking: a longitudinal analysis in a French reproductive technology centre', Social Science and Medicine, 57(11), 2003, 2115–25 [Health inequality and users' risk-taking: a longitudinal analysis in a French reproductive technology centre - ScienceDirect](https://www.sciencedirect.com/science/article/pii/S0966782903001115)
- Tuominen, A., Saavalainen, L., Niinimäki, M., Gissler, M., But, A., Härkki, P. and Heikinheimo, O. 'First Live Birth before Surgical Verification of Endometriosis—a Nationwide Register Study of 18 324 Women', Human Reproduction, Vol. 38(8), 2023, pp. 1520–1528 <https://doi.org/10.1093/humrep/dead120>

- Walker, M., 'Irish Teenagers Are Leaving School with Little Understanding of How Their Bodies Work', IMAGE.ie, 2022 <https://www.image.ie/self/irish-teenagers-are-leaving-school-with-little-understanding-of-how-their-bodies-work-403943>
- White, L., McQuillan, J., Greil, A. L. and Johnson, D.R., 'Infertility: Testing a help-seeking model', Social Science & Medicine, Vol.62, (4), 2006, pp. 1031-1041 <https://doi.org/10.1016/j.socscimed.2005.11.012>
- WHO, 'Estonia: Country Health Profile 2021', European Observatory on Health Systems and Policies, 2021 <https://eurohealthobservatory.who.int/publications/m/estonia-country-health-profile-2021>
- WHO, Europe 'Schools ensuring education on menstrual health along with adequate hygiene facilities is key for health and equal learning opportunities' 2023 <https://www.who.int/europe/news/item/30-05-2023-schools-ensuring-education-on-menstrual-health-along-with-adequate-hygiene-facilities-is-key-for-health-and-equal-learning-opportunities>
- Wilkinson, K., Mumford, C. and Carroll, M., 'Assisted Reproductive Technologies and Work, Employment and Society: Extending the Debate on Organisational Involvement in/Responsibilities around Fertility and Reproduction' Work, Employment and Society, 37(5), 2023, pp.1419-1433 <https://doi.org/10.1177/09500170231155752>
- Wyns, C., De Geyter, C., Calhaz-Jorge, C., Kupka, M. S., Motrenko, T., Smeenk, J. et al. 'ART in Europe, 2018: results generated from European registries by ESHRE'. Hum Reprod Open. 2022(3) <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8342033/>
- Ye, J., Peng, H., Xia, H., and Qi, X., 'The Association between Endometriosis and Risk of Endometrial Cancer and Breast Cancer: A Meta-Analysis', BMC Women's Health, Vol. 22(1), 2022, p. 455 <https://bmcwomenshealth.biomedcentral.com/articles/10.1186/s12905-022-02028-x>
- Yebei, V., 'Unmet needs, beliefs and treatment-seeking for infertility among migrant Ghanaian women in the Netherlands', Reproductive Health Matters 8(16), 2000, pp. DOI [https://doi.org/10.1016/S0968-8080\(00\)90195-2](https://doi.org/10.1016/S0968-8080(00)90195-2)
- Yu, E. H. and Joo, J. K., 'Commentary on the New 2022 European Society of Human Reproduction and Embryology (ESHRE) Endometriosis Guidelines', Clinical and Experimental Reproductive Medicine, Vol. 49(4), 2022, pp. 219–224 <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC9732073/>
- Zondervan, K. T., Becker, C. M., Koga, K., Missmer, S. A., Taylor, R. N. and Viganò, P., 'Endometriosis', Nature Reviews Disease Primers, Vol. 4(1), 2018, pp. 1–25 <https://www.nature.com/articles/s41572-018-0008-5>

International treaty reporting sources (cited)

Committee on Committee on the Elimination of Discrimination against Women (CEDAW Committee)

- CEDAW Committee, 'Concluding Observations on the Sixth Periodic Report of the Czech Republic' (CEDAW/C/CZE/CO/6, 14 March 2016) at 29
- CEDAW Committee, 'Concluding Observations on the Combined Seventh and Eighth Periodic Reports of France' (CEDAW/C/FRA/CO/7-8, 25 July 2016) at 19 (f)
- CEDAW Committee, 'Concluding Observations on the Seventh Periodic Report of Italy' (CEDAW/C/ITA/CO/7, 21 July 2017) at 42 (e);
- CEDAW Committee, Concluding observations on the sixth periodic report of Lithuania, UN Doc CEDAW/C/LTU/CO.6
- CEDAW Committee, Concluding observations on the combined sixth and seventh periodic reports of Luxembourg, UN Doc. CEDAW/C/LUX/CO/6-7

- CEDAW Committee on the Elimination of Discrimination against Women, 'Concluding Observations on the Sixth Periodic Report of the Netherlands' (CEDAW/C/ NLD/CO/6, 24 November 2016) at 22 (f);
- CEDAW Committee on the Elimination of Discrimination against Women, 'Concluding Observations on the Combined Fifth and Sixth Periodic Reports of Slovakia' (CEDAW/C/ SVK/CO/5-6, 25 November 2015) at 37

Committee of Economic, Social and Cultural Rights (CESR Committee)

- CESR Committee 'Concluding Observations on the Fifth Periodic Report of Germany' (E/C.12/DEU/CO/5, 20 May 2011) at 26
- CESCR, General Comment No. 3 (1990) on The Nature of States Parties' Obligations (Art. 2, Para. 1, of the Covenant), contained in UN Doc. E/1991/23
- CESCR General Comment No. 14 (2000) on The Right to the Highest Attainable Standard of Health (Art. 12), contained in UN Doc. E/C.12/2000/4
- CESCR General Comment No. 22 (2016) on the right to sexual and reproductive health (article 12 of the International Covenant on Economic, Social and Cultural Rights), UN Doc. E/C.12/GC/22.

Committee on the Rights of the Child (CRC Committee)

- CRC Committee, General Comment No. 4 (2003), Adolescent Health and Development in the Context of the Convention on the Rights of the Child, UN Doc. CRC/GC/2003/4
- CRC Committee, General comment No. 20 (2016) on the implementation of the rights of the child during adolescence, UN Doc. CRC/C/GC/20*
- CRPD Committee Guidelines on Article 14: The right to liberty and security of persons with disabilities (2015) contained in Annex to UN Doc. A/72/55.

Committee on the Rights of Persons with Disabilities (CRPD Committee)

- CRPD Committee, Concluding observations on the initial report of Lithuania, UN Doc. CRPD/C/LTU/CO/1*
- CRPD Committee, Concluding observations on the initial report of Portugal, UN Doc. CRPD/C/PRT/CO/1

ANNEX I: PUBLIC AWARENESS CAMPAIGNS IN THE MEMBER STATES

Member state	Type of campaign*	Topic	Purpose	Target group	Implementation	Duration
Austria	<i>Health programme</i>	Breast cancer screening	Provide information on screening, prevention	Women (from 18 years old)	Government	Ongoing in 2023
		Cervical cancer screening	Provide information on screening, prevention	Women (from 50 years old)	Government	Ongoing in 2023
Belgium	<i>Health programme</i>	Breast cancer screening	Provide information on screening, prevention	Women (50 – 69 years old)	Civil society (Bruprev)	Ongoing in 2023
		Cervical cancer	Stimulation of self-screening	Women (25-64 years old)	Civil Society (University of Antwerp)	2023 (1 year)
	<i>Public Educational</i>	Endometriosis	Create awareness	Patients, partners of patients	Civil Society	N/A
Bulgaria	<i>Health programme</i>	Endometriosis	Free screening for diagnosis	Women	Civil society (Endometriosis and Reproductive Health Foundation)	2023 (2 months)

Member state	Type of campaign*	Topic	Purpose	Target group	Implementation	Duration
	<i>Public Educational</i>	Endometriosis	Prevention, awareness raising	Women	Civil society (Endometriosis and Reproductive Health Foundation)	2019 (1 month)
Croatia	<i>Health programme</i>	Breast cancer	Prevention, screening	Women (50 - 69 years old)	Government	N/A
	<i>Health programme</i>	Cervical cancer	Prevention, screening	Women	Government	N/A
Czechia	<i>Health programme</i>	Breast cancer	Prevention, screening for early detection	Women (45-69 years old)	Government	Ongoing in 2023 (since 2002)
		Cervical cancer	Prevention HPV vaccination	Women and men (13-14 years old)	Government	Ongoing 2023 (Since 2012 for girls, 2017 boys included)
	<i>Public Educational</i>	Endometriosis	Awareness raising	Everyone	Civil Society (ENDOtalks)	Ongoing in 2023 (since 2022)
Denmark		Breast cancer	Screening programme	Women (50 – 69 years old)	Government	Ongoing in 2023

Member state	Type of campaign*	Topic	Purpose	Target group	Implementation	Duration
	<i>Health programme</i>	Cervical Cancer	Screening programme	Women	Government	Ongoing in 2023
	<i>Public educational</i>	Endometriosis	Awareness	Everyone	Civil Society (ENDOMETRIOSE FÆLLESSKABET)	2023
Estonia	<i>Health programme</i>	Breast Cancer	Prevention, screening for early detection	Women (50-68 years old)	Government	Ongoing in 2023
		Cervical cancer	Prevention, screening for early detection	Women (35 – 65 years old)	Government	Ongoing in 2023
Finland	<i>Health Programme</i>	Breast cancer	Prevention, screening for early detection	Women (50-69 years old)	Civil Society (Cancer Society of Finland)	Ongoing in 2023
		Cervical Cancer	Prevention, screening for early detection	Women (30-65 years old)	(Cancer Society of Finland)	Ongoing in 2023
	<i>Public educational</i>	Contraception	sexual health, protective sex for prevention of cancer & STI	Youth	Civil Society	Ongoing in 2023 (since 1996)
France	<i>Health programme</i>	Breast cancer	Prevention, screening for early detection	Women (50-74 years old)	Government	2021-2030

Member state	Type of campaign*	Topic	Purpose	Target group	Implementation	Duration
		Cervical Cancer	Prevention, screening for early detection HPV vaccine campaign	Women (25-65 years old) Parents, youth (12-13 years old)	Government	Ongoing in 2023
	Public educational	Endometriosis	Awareness of impact of endometriosis on professional life	Everyone	Civil society (Endo France)	2023 (1 week)
Germany	Health programme	Breast cancer	Prevention, screening for early detection	Women (50-69 years old)	Government	Ongoing in 2023
		Cervical Cancer	Prevention, screening for early detection	Women	Government	Ongoing in 2023
	Public Educational	Endometriosis	Awareness-raising with documentary	Women and girls	Civil Society (Endometriose Vereinigung)	2022-2023
Hungary	Health programme	Breast cancer	Prevention, screening for early detection	Women (50-69 years old)	Government	Ongoing in 2023

Member state	Type of campaign*	Topic	Purpose	Target group	Implementation	Duration
	<i>Public educational</i>	Endometriosis	Awareness and information on diagnosis (Endomarch)	Everyone	Civil Society (Women's health Foundation)	2022 (1 week)
Ireland	<i>Public educational</i>	Bodily autonomy	We-Consent campaign, awareness and informational	Everyone	Civil Society (Dublin Rape Crisis Centre)	Ongoing in 2023 (since 2021)
		Menstrual health	Awareness creation: period poverty and menstrual health	Girls (12 – 19 years old)	Civil Society (Plan International)	Ongoing in 2023 (since 2018; re-launch in 2021)
Italy	<i>Health programme</i>	Breast cancer	Prevention, screening for early detection	Women (50-69 years old)	Government	Ongoing in 2023
		Cervical Cancer	Prevention, screening for early detection	Women (25-64 years old)	Government	Ongoing in 2023
Latvia	<i>Health programme</i>	Breast cancer	Prevention, screening for early detection	Women (50 – 68 years old)	Government	Ongoing in 2023
		Cervical Cancer	Prevention, screening for early detection	Women (25 – 67 years old)	Government	Ongoing in 2023
	<i>Public Educational</i>	Endometriosis	Information and solidarity for endometriosis	Everyone	Civil Society	2019 & 2023 (1 day)

Member state	Type of campaign*	Topic	Purpose	Target group	Implementation	Duration
Lithuania	<i>Health programme</i>	Breast cancer	Prevention, screening for early detection	Women (50-69 years old)	Government	Ongoing in 2023
		Cervical Cancer	Prevention, screening for early detection	Women (25 -64 years old)	Government	Ongoing in 2023
Luxembourg	<i>Health programme</i>	Breast Cancer	Prevention, screening for early detection	Women (50 - 70 years old)	Government	Ongoing in 2023 (since 1992)
	<i>Public educational</i>	Endometriosis	Awareness creation and sharing experiences	People affected by endometriosis	Local Government (City of Luxembourg)	2022 (three months)
Malta	<i>Health programme</i>	Breast cancer	Prevention, screening for early detection	Women (50 – 69 years old)	Government	Ongoing in 2023
		Cervical cancer	Prevention, screening for early detection	Women (from 25 years old)	Government	Ongoing in 2023
Netherlands	<i>Health programme</i>	Breast cancer	Prevention, screening for early detection	Women (50- 75 years old)	Government	Ongoing in 2023 (since 1990)
		Cervical cancer	Information on HPV vaccination	Children (9-18 years old) and parents	Government	Ongoing in 2023 (since 2022)

Member state	Type of campaign*	Topic	Purpose	Target group	Implementation	Duration
			Prevention, screening for early detection	Women (30-60 years old)	Government	Ongoing in 2023 (since 1996)
					Civil Society (KWF)	2021
	<i>Public educational</i>	Menstrual Health	Information on daily products chemical substances, including in menstrual products and TSS	People affected by endometriosis	Government	Ongoing in 2023 (since 2019)
		Menstrual Health	Awareness on heavy menstrual bleeding and treatments	Everyone	Civil Society	2019 - 2022 (each November)
		Fertility	Awareness about IVF, miscarriage, link between endometriosis and pregnancy, unwanted childlessness	People affected by endometriosis	Civil Society partnership (Stichting Freya)	Ongoing in 2023 (since 1985)
		Bodily autonomy	Awareness on topics related to sex, including consent, porn.	Youth (12-24 years old)	Civil society	Ongoing in 2023

Member state	Type of campaign*	Topic	Purpose	Target group	Implementation	Duration
Poland	<i>Health programme</i>	Breast cancer	Prevention, screening for early detection	Women	Government	Ongoing in 2023
		Cervical cancer	Prevention, screening for early detection	Women	Government	Ongoing in 2023
Portugal	<i>Health programme</i>	Breast cancer	Prevention, screening for early detection	Women (50-69 years old)	Government Institute	Ongoing in 2023
		Cervical cancer	Prevention, screening for early detection	Women (20-60 years old)	Government Institute	Ongoing in 2023
	<i>Public Educational</i>	Endometriosis	Awareness, information, support	People affect by	Civil Society	Ongoing in 2023 (since 2013)
Republic of Cyprus	<i>Health programme</i>	Breast cancer	Prevention, screening for early detection	Women (45 – 74 years old)	Government	Ongoing in 2023
Romania	<i>Health programme</i>	Cervical cancer	Free HPV vaccination	Women (25-64 years old)	Government	Ongoing in 2023 (since 2012)
Slovakia	<i>Health programme</i>	Breast cancer	Prevention, screening for early detection	Women (50-69 years old)	Government	Ongoing in 2023
		Cervical cancer	Prevention, screening for early detection	Women (from 23 years old)	Government	Ongoing in 2023

Member state	Type of campaign*	Topic	Purpose	Target group	Implementation	Duration
	<i>Public Educational</i>	Menstrual Health	Awareness on menstrual poverty	People who menstruate	Civil Society (inTYMYta)	2023 (June)
		SRHR	comprehensive sexuality, relationship and SRHR education	Youth, teachers, doctors and the general public	Civil Society partnership (inTYMYta)	2021 - 2023
Slovenia	<i>Health programme</i>	Breast cancer	Prevention, screening for early detection	Women (50-69 years old)	Civil Society (Oncology Institute Ljubana)	Ongoing in 2023
		Cervical cancer	Prevention, screening for early detection	Women (20-64 years old)	Civil Society (Oncology Institute Ljubana)	Ongoing in 2023
Spain	<i>Health programme</i>	Breast cancer	Prevention, screening for early detection	Women (from 50 -69 years old)	Government	Ongoing in 2023
		Cervical cancer	Prevention, screening for early detection	Women (25-65 years old)	Government	Ongoing in 2023
Sweden	<i>Health Programme</i>	Breast cancer	Prevention, screening for early detection	Women (40 – 74 years old)	Government	Ongoing in 2023
		Cervical cancer	Prevention, screening for early detection	Women (23 – 70 years old)	Government	Ongoing in 2023

Member state	Type of campaign*	Topic	Purpose	Target group	Implementation	Duration
	<i>Public Educational</i>	Endometriosis	Awareness	People affected by endometriosis	Civil Society	2023 (1 week march)

**Campaigns are divided into two types: 1) Health programme, which refers to mass invitations to statutory and free screenings for prevention or early detection of cancer, or vaccination programmes; and 2) "Public educational", which refers to non-governmental initiatives. These are mainly public awareness campaigns and educational programmes, aimed at the general public, or parts of it.*

The table includes initiatives that can be considered as organized action or programmes, which consist of various communication channels over a period of time, and/or have been specifically framed as campaigns by the implementing organization.

ANNEX II: HEALTH PROJECTS UNDER THE EC FINANCIAL INSTRUMENTS IN THE MFF 2021-2027, SELECTED EXAMPLES

Field	Country	Area of implementation	Implementing sector	Financial instrument / funding programme
SRHR research: diagnostics and treatment of endometriosis; breast and cervical cancer research	Finland	Breast cancer, treatment	Private sector	Horizon Europe: EIC, ERC, EIE
	France	Endometriosis, diagnostics	University	
	Ireland	Endometriosis, diagnostics	Private sector	
	Italy	Breast cancer, treatment	Private sector	
	Lithuania	Menstrual health, diagnostics	Private sector	
	Netherlands	STIs, diagnostics	Private sector	
Health systems capacity strengthening	Greece	Health systems (general), capacity strengthening, mental healthcare	Public sector	ESF+
	Lithuania	Building of support mechanisms in healthcare to respond to GBV experienced by women with disabilities	Civil society	CERV Programme

Field	Country	Area of implementation	Implementing sector	Financial instrument / funding programme
	Malta	Capacity strengthening, mental health care, youth healthcare	Civil society	ESF+
	Slovakia	Partnerships for healthcare	Public sector	ESF+
Health systems outreach: special groups, rural outreach	Malta	Strengthening of home-based care (mental health)	Public sector	ESF+
	Spain	Strengthening of home-based care in rural areas		
Digital health systems building: telemedicine, robotics, digital health ecosystems, Internet of Things, Artificial Intelligence in healthcare, cyber security in healthcare	France	Cyber security in healthcare systems, curriculum development for advanced digital skills in AI and health	University	Digital Europe Programme
	Germany	Solutions development for scaling up digital health services, developing testing facilities for AI in health, developing a master's programme in digital health	Private sector, university	

Field	Country	Area of implementation	Implementing sector	Financial instrument / funding programme
	Italy	Developing digital solutions for a digital healthcare ecosystem.	Public-private partnership	Digital Europe Programme
	Portugal	Developing a master's programme in managing the digital transformation of healthcare, developing a shared Information Security and Cybersecurity Framework for the healthcare sector.	University, private sector, public sector	
	Slovakia	Accelerate digitalization and innovation in Slovakia through establishing a Centre for Innovative Healthcare (EDIH).	Civil society	
Health data: systems /database building	Austria (Pan-European)	Building of Pan-European cancer image repositories to strengthen clinical decision-making systems supporting diagnosis, treatment, and predictive medicine	Private sector/Private-public-civil society network	Digital Europe Programme

Field	Country	Area of implementation	Implementing sector	Financial instrument / funding programme
	Portugal	Development of biometric identification and authentication solutions for safe access to integrated health data system	Private sector	Digital Europe Programme
	Sweden	Building of digital health data hub	University	
Awareness creation, enhancement of collaboration of national authorities, protection of reproductive health and rights	Italy	Increase the cooperation of key stakeholders including municipalities, healthcare services, social workers, law enforcement and judicial professionals, CSOs, schools and entrepreneurs to respond to violence against children.	Civil society	CERV Programme
	Netherlands	Enhance the access of migrant communities to services including healthcare.	Civil society	CERV Programme
	Poland	"Using Human Rights to Change Abortion Law: Involvement Patterns and Argumentative Architectures"	University	ERC

Source: Cordis.europa.eu

ANNEX III: AVAILABILITY OF CONTRACEPTION ACROSS MEMBER STATES

Country	Access to Supplies				Availability of Information Online		
	Level of coverage in the national health system	Special coverage for young people (until 19 or 25)	Special coverage for vulnerable groups (unemployed, low-income)	At least one LARC is covered by the national health system	Number of contraceptives listed	Info on costs of contraceptives	Info on where to get contraceptives
Austria	No coverage	No	No	No	Superior	Exceptional	Exceptional
Belgium	Similar to other	Yes (25)	Yes	Yes	Superior	Exceptional	Exceptional
Bulgaria	No coverage	No	No	No	Standard	Insufficient	Insufficient
Croatia	Less than other	No	No	No	Weak	Not available	Not available
Cyprus	No coverage	No	No	No	Insufficient	Not available	Not available
Czechia	No coverage	No	No	No	Superior	Not available	Good
Denmark	No coverage	No	Yes	Yes	Superior	Insufficient	Good
Estonia	Similar to other	Yes (25)	Yes	Yes	Superior	Insufficient	Exceptional
Finland	No coverage	Yes (25)	No	Yes	Superior	Insufficient	Good

Country	Level of coverage in the national health system*	Special coverage for young people (until 19 or 25)	Special coverage for vulnerable groups (unemployed, low-income)	At least one LARC is covered by the national health system	Number of contraceptives listed	Info on costs of contraceptives	Info where to get contraceptives
France	Superior	Yes (25)	Yes	Yes	Superior	Exceptional	Exceptional
Germany	No coverage	Yes (19)	No	Yes	Superior	Exceptional	Exceptional
Greece	No coverage	No	No	No	Standard	Not available	Insufficient
Hungary	No coverage	No	No	No	Superior	Not available	Insufficient
Ireland	Less than other	Yes (25)	Yes	Yes	Superior	Exceptional	Exceptional
Italy	No coverage	No	No	No	Superior	Not available	Not available
Latvia	Less than other	No	No	Yes	Superior	Insufficient	Not available
Lithuania	No coverage	Yes (19)	No	Yes	Standard	Insufficient	Insufficient
Luxembourg	No coverage	Yes (25)	Yes	Yes	Superior	Exceptional	Exceptional
Malta	No coverage	No	No	No	Superior	Not available	Insufficient
Netherlands	Similar to other	Yes (19)	Yes	No	Standard	Exceptional	Exceptional
Poland	Less than other	No	No	No	Superior	Not available	Good
Portugal	Superior	Yes (25)	Yes	Yes	Superior	Not available	Insufficient
Romania	No coverage	No	No	No	Superior	Not available	Exceptional

Country	Level of coverage in the national health system	Special coverage for young people (until 19 or 25)	Special coverage for vulnerable groups (unemployed, low-income)	At least one LARC is covered by the national health system	Number of contraceptives listed	Info on costs of contraceptives	Info where to get contraceptives
Slovakia	No coverage	No	No	No	Superior	Good	Insufficient
Slovenia	Superior	Yes (25)	Yes	Yes	Standard	Insufficient	Exceptional
Spain	Similar to other	No	Yes	No	Superior	Good	Exceptional
Sweden	Similar to other	Yes	No	Yes	Superior	Exceptional	Good

This table is an adaptation based on the [European Contraception Atlas](#).

KEY: The classifications in this table are based on a multifactorial ranking system called the [Analytic Hierarchy Process](#), which is a method of organising and analysing complex decisions based on quantitative data and qualitative analysis from subject matter experts. The results are weighed to a 0-100 scale and grouped into the categories below. Categories for each ranking are summarized as follows:

*Level of coverage in the national health system

"Superior to Other": "Superior to Other" indicates that the Member State excels in coverage compared to the other Member States.

"Similar to Other": This ranking signifies that the Member State is on par with the other Member States in terms of coverage. It is at an equal level and meets basic requirements without significant differences.

"Less Than Other": "Less Than Other" suggests that the Member State provides inferior coverage or provides fewer services or benefits than the others being considered. It is not competitive and is notably weaker.

"No Coverage": Indicates the Member State has no coverage or provides absolutely no service or benefit in comparison to others. It falls significantly short of meeting requirements or expectations.

LARC: LARC stands for Long-Acting Reversible Contraception. It is an important option due to its effectiveness relative to other forms of contraception such as the contraceptive pill or condoms as well as its longevity and convenience as it requires little or no effort in comparison to other methods of contraception.

Number of contraceptives listed:

"Exceptional" signifies the highest level of access to contraception services and resources. Member States categorised as "Exceptional" are exemplary in providing comprehensive access, exceeding expectations, and demonstrating a commitment to ensuring a wide range of contraception options for their population.

"Good" indicates a solid level of access to contraception services and resources. Member States classified as "Good" offer access that is above the average and meets the basic requirements effectively.

"Insufficient" represents a lower level of access to contraception services and resources. These Member States do not meet the required standards for access and may need improvements in order to offer better contraception services to their population.

"Not Available" indicates the complete absence of access to contraception services and resources. These areas provide no access to contraception options, resulting in unmet needs and a

lack of contraceptive services.

Information on costs of contraceptives, and Information on where to get contraceptives:

"Superior" indicates the highest level of access to contraception services and resources. Member States in this category excel in providing comprehensive information, meeting or exceeding all requirements and offer the best possible access to contraception.

"Standard" signifies a moderate level of access to contraception services and resources, providing information that is adequate but not exceptional. They meet the basic requirements but may have room for improvement.

"Weak" offers a lower level of access to contraception information, falling notably short of expectations and may require significant improvements if they are to meet the needs of the population effectively.

"Insufficient" represents the lowest level of access to contraception services and resources, the Member State does not meet essential requirements for information, and the available services are far from satisfactory.

ANNEX IV: FERTILITY TREATMENT REGULATIONS IN THE EU-27

Country	Is there a law on access to medically assisted reproduction?	Who is excluded?*	Costs covered or reimbursed by the Health System (number of cycles covered or reimbursed by health insurance)
Austria	Yes	<ul style="list-style-type: none"> Single women do not have access to artificial insemination by donor, nor IVF/Intracytoplasmic sperm injection (ICSI) with sperm donation No IVF/ICSI with egg donation for same sex couples 	Reimbursement of 70% of the costs of in vitro fertilisation ²⁸⁶ Intrauterine insemination (IUI): No IVF/ICSI: partial (26)
Belgium	Yes	No exclusions	IUI: full (6) IVF/ICSI: partial (32)
Bulgaria	No	<ul style="list-style-type: none"> No IVF/ICSI with egg donation for male couples 	IUI: no IVF/ICSI partial (31):
Croatia	Yes	<ul style="list-style-type: none"> No insemination with donor sperm, IVF/ICSI with sperm, no egg donation for female couples No IVF/ICSI with egg donation for male couples No IVF/ICSI with egg donation for single women 	IUI: full (6) IVF/ICSI: partial (31)
Cyprus	Yes	<ul style="list-style-type: none"> No insemination with donor sperm, IVF/ICSI with sperm, nor egg donation for female couples No IVF/ICSI with egg donation for male couples 	IUI: no IVF/ICSI: partial (28)

²⁸⁶ <https://ec.europa.eu/social/main.jsp?catId=1101&langId=en&intPagId=4402>

Country	Is there a law on access to medically assisted reproduction?	Who is excluded?*	Costs covered or reimbursed by the Health System (number of cycles covered or reimbursed by health insurance)
Czechia	Yes	<ul style="list-style-type: none"> No insemination with donor sperm, IVF/ICSI with sperm, nor egg donation for female couples No insemination with donor sperm, IVF/ICSI with sperm, nor egg donation for single women. No IVF/ICSI with egg donation for male couples 	IUI: no IVF/ICSI: partial (21)
Denmark	Yes	No IVF/ICSI with egg donation for male couples	IUI: full (6) IVF/ICSI: partial (30)
Estonia	Yes	No IVF/ICSI with egg donation for male couples	IUI: no IVF/ICSI: partial (22)
Finland	Yes	No IVF/ICSI with egg donation for male couples	IUI: partial (4) in public clinics IVF/ICSI: partial (25)
France	Yes	No IVF/ICSI with egg donation for male couples	IUI: full (6) IVF/ICSI: partial (34)
Germany	Yes	No IVF/ICSI with egg donation allowed	IUI: full (6) IVF/ICSI: partial (24)
Greece	Yes	<ul style="list-style-type: none"> No insemination with donor sperm, IVF/ICSI with sperm, nor egg donation for female 	IUI: no IVF/ICSI: full (35)

Country	Is there a law on access to medically assisted reproduction?	Who is excluded?*	Costs covered or reimbursed by the Health System (number of cycles covered or reimbursed by health insurance)
		couples <ul style="list-style-type: none"> • No IVF/ICSI with egg donation for male couples 	
Hungary	Yes	<ul style="list-style-type: none"> • No insemination with donor sperm, IVF/ICSI with sperm, nor egg donation for female couples • No IVF/ICSI with egg donation for male couples 	IUI: full (6) IVF/ICSI: partial (32)
Ireland	No	No IVF/ICSI with egg donation for male couples	IUI: no IVF/ICSI: no
Italy	Yes	<ul style="list-style-type: none"> • No insemination with donor sperm, IVF/ICSI with sperm, nor egg donation female couples • No insemination with donor sperm, IVF/ICSI with sperm, nor egg donation for single women • No IVF/ICSI with egg donation for male couples 	IUI: partial (4) IVF/ICSI: partial (31)
Latvia	Yes	<ul style="list-style-type: none"> • No insemination with donor sperm for female couples • No insemination with donor sperm for single women • No IVF/ICSI with egg donation for male couples 	IUI: no IVF/ICSI: partial (29)
Lithuania	Yes	<ul style="list-style-type: none"> • No insemination with donor sperm, IVF/ICSI with sperm, nor egg donation for female couples • No insemination with donor sperm, IVF/ICSI with sperm, nor egg donation for single women 	IUI: no IVF/ICSI: partial (23)

Country	Is there a law on access to medically assisted reproduction?	Who is excluded?*	Costs covered or reimbursed by the Health System (number of cycles covered or reimbursed by health insurance)
		<ul style="list-style-type: none"> No IVF/ICSI with egg donation for male couples 	
Luxembourg	Yes	No IVF/ICSI with egg donation for male couples	n/a
Malta	Yes	No exclusions	IUI: no IVF/ICSI: partial (25)
Poland	Yes	<ul style="list-style-type: none"> No insemination with donor sperm, IVF/ICSI with sperm, nor egg donation for female couples No insemination with donor sperm, IVF/ICSI with sperm, nor egg donation for single women. No IVF/ICSI with egg donation for male couples 	IUI: no IVF/ICSI: partial (3)
Portugal	Yes	No IVF/ICSI with egg donation for male couples	IUI: partial (4) IVF/ICSI: partial (29)
Romania	No	No exclusions	IUI: no IVF/ICSI: partial (17)
Slovakia	Yes	<ul style="list-style-type: none"> No insemination with donor sperm, IVF/ICSI with sperm, nor egg donation for female couples No insemination with donor sperm, IVF/ICSI with sperm, nor egg donation for single women No IVF/ICSI with egg donation for male couples 	IUI: no IVF/ICSI: partial (23)

Country	Is there a law on access to medically assisted reproduction?	Who is excluded?*	Costs covered or reimbursed by the Health System (number of cycles covered or reimbursed by health insurance)
Slovenia	Yes	<ul style="list-style-type: none"> • No insemination with donor sperm, IVF/ICSI with sperm, nor egg donation for female couples • No insemination with donor sperm, IVF/ICSI with sperm, nor egg donation for single women • No IVF/ICSI with egg donation for male couples 	IUI: full (6) IVF/ICSI: full (35)
Spain	Yes	No IVF/ICSI with egg donation for male couples	IUI: partial (5) IVF/ICSI: partial (29)
Sweden	Yes	<ul style="list-style-type: none"> • No IVF/ICSI with egg donation for female couples • No IVF/ICSI with egg donation for single women • No IVF/ICSI with egg donation for male couples 	IUI: partial (3) IVF/ICSI: partial (28)

*Access of male couples to fertility treatment is limited in all EU Member States except in Belgium, Malta and Romania, where there are no exceptions in ART legislation

TABLE: Age limits of fertility treatment

Member State	Age limits for women		Age limits for men	
	Lower limit	Upper limit	Lower limit	Upper limit
Austria	18	*	18	-
Belgium	18	45 - 47	-	
Bulgaria	18	51	18	-
Croatia	18	42	18	-
Cyprus	18	50	18	-
Czechia	18	49	18	-
Denmark	-	45	-	-
Estonia	18	50	18	-
Finland	18 (in practice)	40-45 (in practice)	18 (in practice)	60 (clinic dependent)
France	*	*	*	*

Member State	Age limits for women		Age limits for men	
	Lower limit	Upper limit	Lower limit	Upper limit
Germany	25	40	25	50
Greece	18	50	18	-
Hungary	18	49	-	-
Ireland	-	-	-	-
Italy	-	50	-	-
Latvia	18	37	18	-
Lithuania	18	-	18	-
Luxembourg	-	43	-	-
Malta	25	48	-	-
Netherlands	-	42	-	-
Poland	-	*	-	-

Member State	Age limits for women		Age limits for men	
	Lower limit	Upper limit	Lower limit	Upper limit
Portugal	18	50	18	60
Romania	18	48-50	18	
Slovakia	18	50	18	-
Slovenia	18	*	18	-
Spain	18	50-52 or *	18	-
Sweden	18	40	18	-

*Minimum and maximum age determined by reproductive age. In the case of France, it is the reproductive age, decided by the multidisciplinary staff of the center and consent of both members of the couple.

Table based on the information from the European Society of Human Reproduction and Embryology . (n.d.). <https://cm.eshre.eu/cmCountryMap/home/index/2020>

Information on Germany: <https://www.kinderwunschteam.berlin/en/our-spectrum/infertility/costs/patients-with-german-statutory-health-insurance>

Information on Luxembourg: <https://cns.public.lu/en/assure/vie-privee/sante-prevention/fiv-pma.html>

Information on Poland: <https://www.eggdonationfriends.com/gyncentrum-exclusive-clinic-interview/>

ANNEX V: PAID PARENTING LEAVE IN THE EU MEMBER STATES

Member State	Maternal pre-natal and % salary	Maternal post-natal and % salary	Paternal (weeks) and % of salary	Leave for adoptive parents? Permitted for other carers?	Leave for both same-sex couples in case of adoption
Austria	8 weeks, 100%	8 weeks, 100%	4 weeks, flat rate	Yes	Yes
Belgium	6 weeks, 82%	9 weeks, 82%	4 weeks, variable	Yes.	Yes
Bulgaria	6 weeks, 90%	52 weeks, 90%	2 weeks, 90%	Yes	Yes
Croatia	4 weeks, 100%	26 weeks, 100%	2 weeks, 100%	Yes.*	Yes
Cyprus	9 weeks, 100%	16 weeks, variable	2 weeks, 72%	Yes*	No
Czechia	8 weeks, 70%	20 weeks, 70%	2 weeks, 70%	Yes	Yes
Denmark	4 weeks, variable	14 weeks, variable	2 weeks, variable	Yes*	Yes
Estonia	4 weeks, 100%	16 weeks, 100%	4 weeks, 100%	Yes.	Yes
Finland	10 weeks, variable	11 weeks, 100%	19 weeks, variable	Yes	Yes
France	2 weeks, 100%	16 weeks, 100%	4 weeks, 100%	Yes	Yes

Member State	Maternal pre-natal and % salary	Maternal post-natal and % salary	Paternal (weeks) and % of salary	Leave for adoptive parents? Permitted for other carers?	Leave for both same-sex couples in case of adoption
Germany	6 weeks, 100%	8 weeks, 100%	2 weeks ²⁸⁷	Yes	Yes
Greece	8 weeks, 100%	9 weeks, 100%	2 weeks, 100%	Yes*	No
Hungary	4 weeks, 70%	20 weeks, 70%	2 weeks, 100%	Yes	No
Ireland	2 weeks, variable	40 weeks, variable	2 weeks, flat rate	Yes	Yes*
Italy	4 weeks, 80%	16 weeks, 100%	2 weeks, 100%	Yes	No*
Latvia	8 weeks, 80%	8 weeks, 80%	2 weeks, 80%	Yes.	No
Lithuania	10 weeks, 78%	8 weeks, 78%	4 weeks, 78%	Yes	No
Luxembourg	8 weeks, 100%	12 weeks, 100%	2 weeks, variable	Yes	Yes
Malta	8 weeks, 100%	10 weeks, 100%	2 weeks, 100%	Yes*	Yes*
Netherlands	6 weeks, 100%	10 weeks, 100%	7 weeks, 100%	Yes.	Yes*
Poland	6 weeks, variable	14 weeks, variable	2 weeks, 100%	Yes	No.

Member State	Maternal pre-natal and % salary	Maternal post-natal and % salary	Paternal (weeks) and % of salary	Leave for adoptive parents? Permitted for other carers?	Leave for both same-sex couples in case of adoption
Portugal	4 weeks, 100%	6 weeks, 100%	9 weeks, 100%	Yes	No
Romania	9 weeks, 85%	9 weeks, 85%	2 weeks, 100%	Yes	No
Slovakia	8 weeks, 75%	26 weeks, 75%	2 weeks, flat rate	Yes	No
Slovenia	4 weeks, 100%	11 weeks, 100%	4 weeks, 100%	Yes	No*
Spain	10 weeks, 100%	6 weeks, 100%	16 weeks, 100%	Yes	Yes
Sweden	12 weeks, variable	2 weeks, variable ²⁸⁸	2 weeks, 78%	Yes	Yes

**Conditions apply. If labelled "yes" adoption leave is permitted but may include restrictions according to the age of the adoptive child, leave limited to one parent, legislation restricting same-sex adoption, or a requirement for specific civil status.*

If labelled "no" adoption leave is not permitted but may be permissible under certain conditions. For example, leave may be permitted for fostering children, or if the parent is adopting a stepchild.

¹ This benefit commences in 2024.² Additionally, up 480 days available between parents or one parent if parent has sole custody.

ANNEX VI: EMPLOYMENT LAWS AND FERTILITY TREATMENT IN THE EU

Member State	Statutory Leave during Fertility Treatments	Remarks (if applicable)
Austria	N/A	No information indicating "yes"
Belgium	N/A	No information indicating "yes"
Bulgaria	No	
Croatia	N/A	Not in the protected list of grounds for dismissal
Cyprus	No	As of 2021
Czechia	No	
Denmark	Yes	
Estonia	N/A	No information indicating "yes"
Finland	No	
France	Yes	
Germany	N/A	No information indicating "yes" <i>"In Germany, employees are generally very privacy-conscious and fertility issues are regarded as particularly personal, meaning that employers could offer benefits but find that employees are reluctant to apply for them until their privacy concerns are addressed."</i>
Greece	Yes	Employees who undergo artificial insemination are entitled to 7 working days of paid leave, on presentation of a certificate issued by the attending doctor.
Hungary	No, but related protection	Prohibition of Redundancy

Member State	Statutory Leave during Fertility Treatments	Remarks (if applicable)
		<i>"the protection only applies for 6 months from the commencement of the treatment"</i>
Ireland	No Under consideration	The current legal proposal provides for State paid leave for the purposes of availing of reproductive healthcare such as IVF.
Italy	Yes	
Latvia	N/A	No information indicating "yes"
Lithuania	N/A	No information indicating "yes"
Luxembourg	N/A	No information indicating "yes"
Malta	Yes	60 hours for women undergoing IVF, 40 hours of paid leave for their partner.
Netherlands	N/A	No information indicating "yes"
Poland	No / N/A	Very limited or non-existent state support for assisted reproduction
Portugal	Yes	
Romania	N/A	No information indicating "yes"
Slovakia	N/A	No information indicating "yes"
Slovenia	N/A	No information indicating "yes"
Spain	No, but related protection	The courts have ruled that employers cannot dismiss employees for repeated absences due to fertility treatments.
Sweden	Yes	

This study, commissioned by the European Parliament's Policy Department for Citizens' Rights and Constitutional Affairs at the request of the Committee on Women's Rights and Gender Equality (FEMM), contributes to assessing the state of sexual and reproductive healthcare and rights in the EU. It assesses the regulatory and policy frameworks that ensure access to affordable and quality reproductive care services in the Member States and the support provided by the EU.
