All Wales Guideline for Pregnancy, Contraception and Cancer

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Date: 13 June 2025	**Date of Review:** June 2027	**Version:** 1.0

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1 Foreword

Recent UK data show that pregnant women have a 48% higher age-standardised incidence rate of cancer in comparison to non-pregnant women of reproductive age (National Cancer Registration and Analysis Service, 2018). A possible explanation for this observation is related to more frequent examination and therefore an increased chance of detection, however, the frequently reported lack of recognition of concerning symptoms in pregnancy argues that this may not be the case. As emphasised in the MMBRACE Report, the age at which women enter pregnancy is increasing, thus cancer, with its age-association, is likely to be seen more frequently among pregnant or postpartum women in the future (MBRRACE-UK, 2021). Learning lessons to improve diagnosis and management of malignancy in association with pregnancy will therefore become even more important.

2 Scope

The scope of this article is to provide recommendations on advice around contraception for women who have had a diagnosis of cancer and services provided for women who have had cancer or who are diagnosed with cancer during pregnancy.

3 Contacts

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4 Background

The MBRRACE-UK report provides statistics on pregnancy and cancer (MBRRACE-UK, 2021):

- 89 women died during or up to one year after pregnancy from malignant disease during 2017-19 in the UK and Ireland.

- 14 women died during or up to six weeks after the end of pregnancy, a mortality rate of 0.60 per 100,000 maternities (95% CI 0.33-1.00). Of these 14 women, 5 died from breast cancer, 3 from brain or central nervous system (CNS) tumours, 3 from gastrointestinal tumours, 1 from a haematological tumour and 1 from a lung cancer. One woman died with an unidentified primary tumour. Only five of these 14 women (36%) had an autopsy, 3 of which were coronial or fiscal and the other 2 hospital initiated.

- 75 women died from cancer between six weeks and one year after the end of pregnancy. Of these 75 women, 18 died from gastrointestinal tumours, 15 from breast cancer, 7 from brain or CNS tumours, 7 from lung cancer, 6 from skin cancer, 6 from haematological tumours, 4 from soft tissue tumours, 3 from cancer of the cervix, 2 from ovarian cancer and 1 from choriocarcinoma. Four women died from tumours in other sites and 2 women died with an unidentified primary. Detailed records were available for review in 66 out of 80 women.

- Two women with a cancer diagnosis who conceived by IVF overseas, died following their pregnancies. It is unclear what counselling they received. They recommended that nuanced individual counselling is particularly important for older women undergoing assisted reproduction, as they are more likely to have co-morbidities including cancer. The needs of the child must be considered in such discussions.

- Several women became unwell in the first trimester of pregnancy and were cared for in acute medical or ambulatory care units. There was confusion over who to call for advice, and as a result women's cancer diagnoses were missed and therapy delayed. This included some particularly chemo-sensitive cancers where earlier diagnosis may have made a difference to the outcome. The 2021 rapid report on COVID-related maternal deaths emphasised the role of the maternal medicine team – this applies equally to women with other medical conditions in early pregnancy.

- Several women were not seen until mid-late second trimester by which time discussions about continuing the pregnancy could not be undertaken.

Welsh Data: Currently no Welsh data are collected locally by Cancer Services on how many patients with cancer died during or up to 12 months after delivery.

5 Status across Wales of contraceptive advice related to tumour sites

MBRRACE-UK. (2021). *Saving Lives, Improving Mothers' Care.*

There is no national tumour site specific advice for contraception for women who have been diagnosed with breast, colorectal, central nervous system, cervical, endometrial, or ovarian, lung and dermatological cancers.

5.1 Contraceptive advice for women who have been diagnosed with cancer

There is no national guidance advising on contraception for women of childbearing age who have been diagnosed with cancer. Verbal and written information is given about the risks of pregnancy during and after their cancer treatment. Written information can take the form of local information leaflets or leaflets provided by national charities. Standardised consent forms are increasingly used such as those provided by Cancer Research UK and The Royal College of Radiologists, and these typically advise against becoming pregnant during treatment and up to two years after treatment, although there is some variation among written information on the length of time to wait after treatment before getting pregnant.

Women of childbearing age who are diagnosed with cancer and who receive chemotherapy are advised on pregnancy. For example, the Cancer Research UK consent forms advise that some anti-cancer medicines may damage the development of a baby in the womb and that it is important not to become pregnant during treatment and for 6-12 months afterwards, depending on the treatment regimen.

Women are also advised on the importance of contraception, including that the effectiveness of the contraceptive pill can be reduced in people having chemotherapy and so should not be relied upon as the only method of contraception.

Women of childbearing age who undergo radiotherapy are advised not to become pregnant during treatment.

Advice on contraception after cancer treatment varies depending on the tumour site and patients will be advised individually by their clinical teams. Some patients will become infertile because of cancer treatment. For patients with breast cancer and melanoma, the Macmillan leaflets state that women may be advised not to become pregnant for two years after initial treatment, and those with breast cancer are advised to avoid getting pregnant if taking tamoxifen as adjuvant treatment.

5.1.1 Breast cancer

Women are advised not to get pregnant whilst undergoing treatment for breast cancer. They can consider all non-hormonal methods such as barrier methods and non-hormonal (copper) intra uterine device. Hormonal methods are not advised as the hormones can stimulate remaining breast cells. Emergency hormonal contraception can be used in emergency as a one-off dose is unlikely to increase risk.

5.1.2 Brain and central nervous system

No definite link but some studies have shown that there might be a link between use of progesterone only pill and increased risk of brain cancer (doubles the recurrence risk). Non hormonal methods are recommended.

5.1.3 Cervical cancer

In women who have had conservative or fertility sparing treatment, non-hormonal methods are recommended.

5.1.4 Endometrial cancer

In women who have had conservative or fertility sparing treatment, high dose progesterone/ Mirena IUS could be considered for contraception and to reduce risk of recurrence. Non hormonal methods can also be used.

5.1.5 Ovarian cancer

In women who have had conservative or fertility sparing treatment, combined oral contraception should be considered as it appears to have a protective effect. Progesterone only and non-hormonal methods can also be used.

5.1.6 Colorectal cancer

Combined hormonal contraception reduces the risk of colorectal cancers so can be used safely. Progesterone only and non-hormonal methods can also be used.

5.1.7 Lung cancer

Hormonal contraceptive use is unlikely to be associated with lung cancer. Non hormonal methods can be used.

5.1.8 Skin cancer

Risk of melanoma may be higher in combined oral contraceptive users. Progesterone only and non hormonal methods can be used.

6 Recommendations

6.1 Recommendations for women who have a history of cancer and who might become pregnant

6.1.1 Pre-pregnancy counselling – general

Ensure that postgraduate medical and surgical curricula include training in the need for contraceptive advice to women of reproductive age and how to ensure that it is provided.

Women should receive specialist advice regarding the gap after treatment before becoming pregnant – a space of two years is recommended for most cancers where guidance exists.

Guidance is needed on maternal medical assessment and screening prior to assisted reproduction, particularly for older women who are at higher risk of co-morbidities such as cardiac disease and cancer. Saving Lives, Improving Mothers' Care 2019 (Knight et al. 2019)

Guidance is needed on how quickly women should be seen in an obstetric consultant clinic after pregnancy is diagnosed following a previous cancer diagnosis.

6.1.2 Recommendations on methods of contraception for women who have had a diagnosis of cancer

All women of childbearing age with a cancer diagnosis must have the opportunity to discuss pregnancy planning and contraception so that they make informed decisions. Usually, it is preferable to delay pregnancy until the period with greatest likelihood of recurrence, generally 2 years, has passed, and women should be actively offered and supported to access reliable contraception during that time.

Relevant factors: combination of the cancer itself and potential side effects from treatment.

- Type of cancer – is it hormone driven?
- History of VTE
- Recent surgery
- Immobility
- Cardiac function

Table 1 highlights the medical eligibility recommendations for combined hormonal contraceptives (COC, CIC, patch [P] and vaginal ring [CVR]), progestogen-only contraceptives (POP, DMPA/NET-EN injectables, and LNG/ ETG implants) and intrauterine devices (Cu-IUD and LNG-IUD). (Faculty of Sexual and Reproductive Healthcare, 2019).

UKMEC SUMMARY TABLE HORMONAL AND INTRAUTERINE CONTRACEPTION												
CONDITION	Cu-IUD		LNG-IUS		IMP	DMPA	POP	CHC				
	I = Initiation, C = Continuation											
Cervical ectropion	1		1		1	1	1	1				
Cervical intraepithelial neoplasia (CIN)	1		2		1	2	1	2				
Cervical cancer												
a) Awaiting treatment	I	C	I	C	2	2	1	2				
	4	2	4	2								
b) Radical trachelectomy	3		3		2	2	1	2				
Breast conditions												
a) Undiagnosed mass/breast symptoms	1		2		2	2	2	I	C			
								3	2			
b) Benign breast conditions	1		1		1	1	1	1				
c) Family history of breast cancer	1		1		1	1	1	1				
d) Carriers of known gene mutations associated with breast cancer (e.g. BRCA1/BRCA2)	1		2		2	2	2	3				
e) Breast cancer												
(i) Current breast cancer	1		4		4	4	4	4				
(ii) Past breast cancer	1		3		3	3	3	3				
Endometrial cancer	I	C	I	C	1	1	1	1				
	4	2	4	2								
Ovarian cancer	1		1		1	1	1	1				

UKMEC	Definition of category
Category 1	A condition for which there is no restriction for the use of the method
Category 2	A condition where the advantages of using the method generally outweigh the theoretical or proven risks
Category 3	A condition where the theoretical or proven risks usually outweigh the advantages of using the method. The provision of a method requires expert clinical judgement and/or referral to a specialist contraceptive provider, since use of the method is not usually recommended unless other more appropriate methods are not available or not acceptable
Category 4	A condition which represents an unacceptable health risk if the method is used

6.1.2.1 Notes

6.1.2.1.1 Cancers and combined contraceptive methods

- CERVICAL CANCER (AWAITING TREATMENT): There is some theoretical concern that CHC use may affect prognosis of the existing disease. While awaiting treatment, women may use CHCs. In general, treatment of this condition renders a woman sterile.
- BREAST DISEASE: Breast cancer is a hormonally sensitive tumour, and the prognosis of women with current or recent breast cancer may worsen with CHC use.
- ENDOMETRIAL CANCER: COC use reduces the risk of developing endometrial cancer. Awaiting treatment: Women may use COCs, CICs, P or CVR. In general, treatment of this condition renders a woman sterile.

- OVARIAN CANCER: COC use reduces the risk of developing ovarian cancer. Awaiting treatment: Women may use COCs, CICs, P or CVR. In general, treatment of this condition renders a woman sterile.

6.1.2.1.2 Cancers and progesterone contraceptive methods

- CERVICAL CANCER (Awaiting treatment): There is some theoretical concern that POC use may affect prognosis of the existing disease. While awaiting treatment, women may use POCs. In general, treatment of this condition renders a woman sterile.
- BREAST DISEASE: Breast cancer is a hormonally sensitive tumour, and the prognosis of women with current or recent breast cancer may worsen with POC use.
- ENDOMETRIAL CANCER: While awaiting treatment, women may use POCs. In general, treatment of this condition renders a woman sterile.
- OVARIAN CANCER: While awaiting treatment, women may use POCs. In general, treatment of this condition renders a woman sterile.

6.1.2.1.3 Cancer and intrauterine contraceptive methods

- CERVICAL CANCER (awaiting treatment): There is concern about the increased risk of infection and bleeding at insertion. The IUD will likely need to be removed at the time of treatment but, until then, the woman is at risk of pregnancy.
- BREAST DISEASE: Breast cancer is a hormonally sensitive tumour. Concerns about progression of the disease may be less with LNG-IUS than with combined oral contraceptives (COCP) or higher-dose progestogen-only contraceptives (POPs).
- ENDOMETRIAL CANCER: There is concern about the increased risk of infection, perforation and bleeding at insertion. The IUCD will likely need to be removed at the time of treatment but, until then, the woman is at risk of pregnancy.
- OVARIAN CANCER: The IUD will likely need to be removed at the time of treatment but, until then, the woman is at risk of pregnancy.

6.2 Antenatal care

Women with a history of cancer who conceive unexpectedly should be seen by oncology and maternity services in the first trimester so that a full discussion about the individual risks and the options potentially including termination of pregnancy can be undertaken. Ensure that women with active or very recent cancer treatment are seen by an obstetric consultant in the first trimester to allow discussion of individual risks and choices.

Early advice from Maternal medicine specialist is recommended, especially for patients presenting with acute illness via A&E.

6.2.1 Lung cancer

Managing acute medical problems in pregnancy' highlights a range of red flags in pregnancy, including concerning chest pain, back pain, and breathlessness as well as headaches, and emphasises that early involvement of experienced decision makers should take place if red flags are present. All clinicians caring for pregnant and postpartum women, whatever the location of care, should be aware of this guidance. Ensure that all clinical staff caring for pregnant or postpartum women, whatever the location of care, are aware of the concerning

'red flag' symptoms described in the RCP Acute care toolkit 15 (Royal College of Physicians, 2019).

6.2.2 Breast cancer

All women are advised to be 'breast aware' and report to their GP (General Practitioner) if they notice any changes. This breast self-awareness is equally important during pregnancy, and women should be advised of this. Information for women is available at https://www.nhs.uk/common-health-questions/womens-health/how-should-i-check-my-breasts/. Maternity staff should be aware of non-specific presentations of breast cancer and should ask women with chest symptoms if they have noticed any breast or nipple changes. Women with persistent complaints of chest pain that does not have a clear cause, especially when strong analgesia is required, should have a face-to-face assessment including history and physical examination (if any suspicion of cancer symptoms.)

In general, for women with breast cancer, early delivery to avoid delays in chemotherapy should not be recommended. For women diagnosed with breast cancer in the third trimester, the risk-benefit is likely to favour both mother and baby if a woman can receive at least two cycles of chemotherapy prior to a term (39-40 week) birth (Knight et al., 2019). The birth of the baby should be timed after discussion with the woman and the multidisciplinary team. Most women can go to full term of pregnancy and have a normal or induced delivery Royal College of Obstetricians and Gynaecologists, 2015).

6.2.3 Cervical cancer

Previous cervical smear history may be useful to assess the possibility of a neoplastic lesion of the cervix as the cause of antepartum haemorrhage. A speculum examination can be useful to visualise a lower genital tract cause for the haemorrhage.

If the woman presents with a clinically suspicious cervix, she should be referred for colposcopic evaluation in line with guidelines from the British Society for Colposcopy and Cervical Pathology (Royal College of Obstetricians and Gynaecologists, 2011).

Consider a suspected cancer pathway referral (for an appointment within 2 weeks) for women if, on examination, the appearance of their cervix is consistent with cervical cancer. NICE NG12 Suspected cancer – recognition and referral (National Institute for Health and Care Excellence, 2015)

6.2.4 Care of pregnant women with cancer

Ensure early senior involvement of the maternal medicine team for any pregnant or postpartum woman admitted with [concerning symptoms of medical illness in pregnancy], whatever her gestation and wherever in the hospital she receives care. Saving Lives Improving Mothers' Care Rapid report 2021 (Knight et al. 2021)

6.2.4.1 Consultations

Face to face treatment is recommended when:

- The patient has complex clinical needs

• The patient requires an examination
• It is hard to ensure, by remote means, that patients have all the information they want and need about treatment options (General Medical Council, 2021)
Pan Wales services may work better with a virtual Consultant via Video Group Consultation, to allow patient better access to service at the same time allowing them to access it from their locality.

6.2.4.2 Continuity of care

Continuity of care should be seamless, with electronic records which can be accessed by all clinicians; keyworkers will play an important role in this.

6.2.4.3 Mental health and psychology

Mental Health Clinical Psychology support is variable, but ideally, patients should have access to this service. Partner and family support by Clinical Nurse Specialist.

6.2.4.4 Effective medical records

Medical records should be ideally electronic and accessible across Wales.

6.2.4.5 Point of care testing

Imaging during pregnancy: the general advice should be from an MDT Collaborative, including Obstetricians, Surgeons, Oncologists and Radiologists. Advice depends on gestational age, mother's wishes, treatment options and impact on time of delivery/ consideration of termination. The principle is to avoid/reduce exposure to ionising radiation if alternatives are available. If considering termination, then CT scan may be the right option if required. Patients have a right to change their mind however, and this has to be borne in mind.
Although use of PET/CT on pregnant patients is not encouraged, the data suggest that if a scan is needed to assess the health of the patient, the dose to the foetus is low (Burton et al., 2023). All efforts should be made to minimise foetal radiation exposure by modifying the protocol.

6.2.4.6 Follow up

Ensure symptoms of suspected cancer are followed up postnatally. If they do not resolve, they are unlikely to be due to pregnancy and need to be investigated as soon as possible on individual merit.

7 Abbreviations/Glossary

CHC	Combined Hormonal Contraceptive
CIC	Combined Injectable Contraceptive
CNS	Central Nervous System
COC	Combined Oral Contraception
COCP	Combined Oral contraceptive
Cu-IUD	Copper Intrauterine Device
CVR	Combined Vaginal Ring
DMPA	Depot Medroxyprogesterone Acetate
ETG	Etonogestrel
IMP	Implant
IUCD	Intrauterine Contraceptive Device
IUS	Intrauterine System
IVF	Invitro Fertilisation
LNG	Levonorgestrel
LNG-IUD	Levonorgestrel Device
MBRRACE	Mothers and Babies: Reducing Risk through Audits and Confidential Enquiries across the UK
NET-EN	Norethisterone Enanthate
P	Patch
POC	Progestin-only contraceptive
POP	Progesterone-Only Pill
VTE	Venous thromboembolism

8 Useful Resources

Macmillan Cancer Support:
Cancer information and support | Macmillan Cancer Support

Royal College of Radiologists national radiotherapy consent forms:
National radiotherapy consent forms

Cancer Research UK consent forms:
cruk consent forms - Search

Cancer Council Australia – Clinical Guidelines: During Treatment - Cancer Fertility Preservation
Contraception during cancer treatment | Cancer Council

Contraception and cancer: CNGOF Contraception Guidelines] - PubMed (nih.gov)

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National Cancer Registration and Analysis Service, 2018
Cancer registration statistics, England: final release, 2018 - GOV.UK (www.gov.uk)

SFP Clinical Guidelines – Cancer and Contraception; May 2012 (SFP Guidance #20121)
Cancer and contraception (contraceptionjournal.org)

Summary of UK/global guidance for contraception and cancer:
UKMEC (2016)(Amended September 2019)
fsrh-ukmec-full-book-2019.pdf
fsrh-ukmec-summary-september-2019.pdf

WHO Medical Eligibility Criteria for contraceptive Use (WHOMEC) Fifth edition 2015
Medical eligibility criteria for contraceptive use (who.int)

Foetal Dose from PET and CT in Pregnant Patients

Christiane Sarah Burton, Kirk Frey, Frederic Fahey, Mark S. Kaminski, Richard K.J. Brown, Judith M. Pohlen and Barry L. Shulkin
Journal of Nuclear Medicine February 2023, 64 (2) 312-319; DOI: https://doi.org/10.2967/jnumed.122.263959

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