Diagnosis and Treatment of Patients with early and advanced Breast Cancer

Guidelines Breast
Version 2024.1E

FORSCHEN
LEHREN
HEILEN

Early Detection and Diagnosis

Early Detection and Diagnosis

- **Versions 2005–2023:**
  Albert / Blohmer / Fallenberg / Fersis / Gerber / Junkermann / Kühn / Maass / Müller-Schimpfle / Scharl / Schreer / Wöckel
- **Version 2024:**
  Fallenberg / Heil

Screened data bases

Pubmed	2018 - 2023
Medline	2018 - 2023
Cochrane	2018 - 2023

Guidelines

S3 Diagnostik, Therapie und Nachsorge des Mammakarzinoms:

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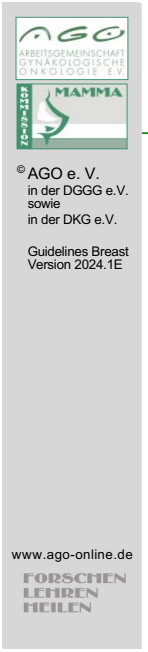
2. Wöckel A, Festl J, Stüber T et al.Interdisciplinary Screening, Diagnosis, Therapy and Follow-up of Breast Cancer. Guideline of the DGGG and the DKG (S3-Level, AWMF Registry Number 032/045OL, December 2017) - Part 2 with Recommendations for the Therapy of Primary, Recurrent and Advanced Breast Cancer. Geburtshilfe Frauenheilkd. 2018 Nov;78(11):1056-1088. doi: 10.1055/a-0646-4630. Epub 2018 Nov 26.

European Commission Initiative on Breast Cancer (ECIBC)

European guidelines on breast cancer screening and diagnosis
https://healthcare-quality.jrc.ec.europa.eu/european-breast-cancer-guidelines
2015 ACS Update Breast Cancer Screening for women at average risk
IARC Handbook 2016
European Commission 2016
(http://ecibc.jrc.ec.europa.eu/recommendations/list/3;Update 24.11.2016, Abruf 20122016)
Screened: Metaanalyses/ Systematic reviews / RCT / Cohort studies



Early Detection with Mammography

Age	Interval	Oxford LOE	Oxford GR	AGO
< 40	na	-	-	--
40-44	na	1b	B	-
45–49	24-36	1a	A	+#
50–75*	24	1a	A	++
> 75**	24	4	C	+/-#

* National Mammography-Screening-Program
** health status + life expectancy more than 10 years
# clear indication necessary, or indicated if screening age is adapted

1. European Commission Initiative on Breast Cancer (ECIBC): European guidelines on breast cancer screeningand diagnosis (https://healthcare-quality.jrc.ec.europa.eu/sites/default/files/Guidelines/EtDs/ECIBC_GLs_EtD_screening_40-44.pdf)
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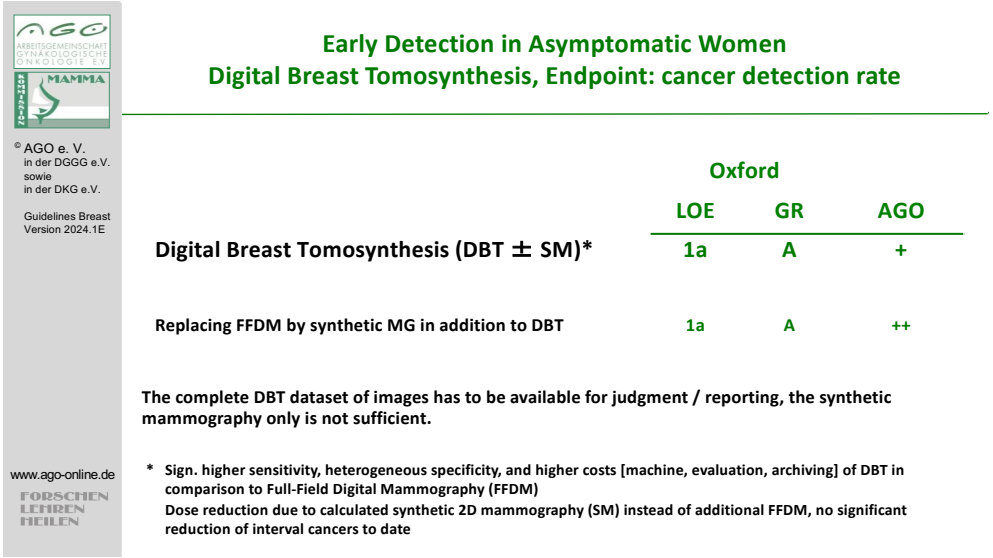

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AI for cancer detection

	Oxford		
	LOE	GR	AGO
AI in screening			
Second reader of mammography	1b	B	+/-
To reduce workload (AI only)	2b	B	-
Tomosynthesis: stand alone or second reader	2a	B	-

1. Dembrower, K., A. Crippa, E. Colón, et al(2023). Artificial intelligence for breast cancer detection in screening mammography in Sweden: a prospective, population-based, paired-reader, non-inferiority study. Range of Radiologist Performance in a Population-based Screening Cohort of 1 Million Digital Mammography Examinations. Effect of artificial intelligence-based triaging of breast cancer screening mammograms on cancer detection and radiologist workload: a retrospective simulation study. Lancet Digit Health. England
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Workload-Reduktion:

1. Raya-Povedano, J. L., S. Romero-Martín, E. Elías-Cabot, et al (2021). "AI-based Strategies to Reduce Workload in Breast Cancer Screening with Mammography and Tomosynthesis: A Retrospective Evaluation." Radiology 300(1): 57-65.

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Breastcancer: incidence and mortality risk

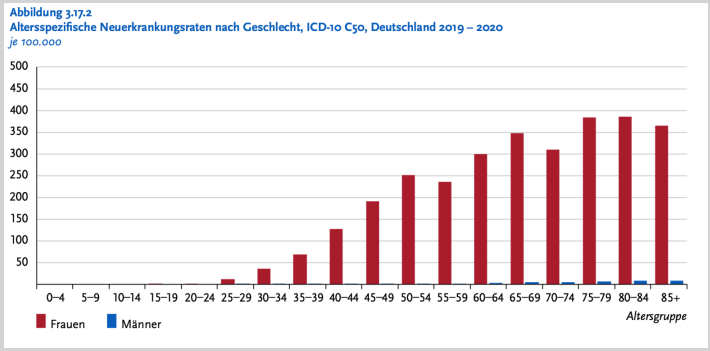
Tabelle 3.17.2
Erkrankungs- und Sterberisiko in Deutschland nach Alter und Geschlecht, ICD-10 C50, Datenbasis 2019

	Erkrankungsrisiko				Sterberisiko			
Frauen im Alter von	**in den nächsten 10 Jahren**		**jemals**		**in den nächsten 10 Jahren**		**jemals**	
35 Jahren	1,0 %	(1 von 99)	13,1 %	(1 von 8)	0,1 %	(1 von 1.000)	3,5 %	(1 von 28)
45 Jahren	2,2 %	(1 von 45)	12,3 %	(1 von 8)	0,2 %	(1 von 410)	3,5 %	(1 von 29)
55 Jahren	2,8 %	(1 von 35)	10,4 %	(1 von 10)	0,4 %	(1 von 230)	3,3 %	(1 von 31)
65 Jahren	3,4 %	(1 von 29)	8,2 %	(1 von 12)	0,8 %	(1 von 130)	3,0 %	(1 von 34)
75 Jahren	3,6 %	(1 von 28)	5,6 %	(1 von 18)	1,3 %	(1 von 77)	2,5 %	(1 von 40)
Lebenszeitrisiko			13,2 %	(1 von 8)			3,5 %	(1 von 28)
Männer im Alter von	**in den nächsten 10 Jahren**		**jemals**		**in den nächsten 10 Jahren**		**jemals**	
35 Jahren	< 0,1 %	(1 von 29.250)	0,1 %	(1 von 750)	< 0,1 %	(1 von 319.800)	< 0,1 %	(1 von 2.500)
45 Jahren	< 0,1 %	(1 von 11.400)	0,1 %	(1 von 760)	< 0,1 %	(1 von 44.700)	< 0,1 %	(1 von 2.500)
55 Jahren	< 0,1 %	(1 von 4.000)	0,1 %	(1 von 790)	< 0,1 %	(1 von 24.400)	< 0,1 %	(1 von 2.600)
65 Jahren	< 0,1 %	(1 von 2.300)	0,1 %	(1 von 890)	< 0,1 %	(1 von 8.400)	< 0,1 %	(1 von 2.600)
75 Jahren	0,1 %	(1 von 1.700)	0,1 %	(1 von 1.100)	< 0,1 %	(1 von 5.650)	< 0,1 %	(1 von 3.000)
Lebenszeitrisiko			0,1 %	(1 von 750)			< 0,1 %	(1 von 2.500)

From:https://www.krebsdaten.de/Krebs/DE/Content/Publikationen/Krebs_in_Deutschland/kid_2023/kid_2023_c50_brust.pdf?__blob=publicationFile

Guidelines Breast
Version 2024.1E

Breastcancer: Age specific new Cancer cases



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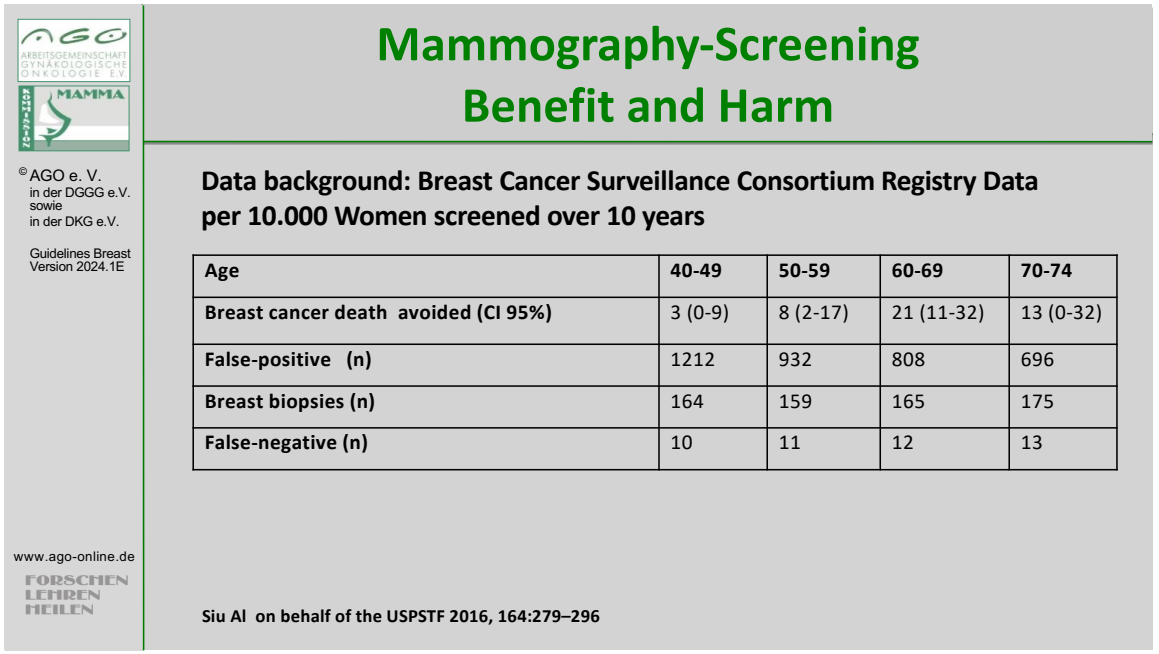

Siu AL, on behalf of the U.S. Preventive Services Task Force
Screening for Breast Cancer: U.S. Preventive Services Task Force
Recommendation Statement. Ann Internal Med 2016 vol 164: 279-296

Early Detection (normal risk)
Sonography / MRI

	Oxford		
	LoE	GR	AGO
▪ Screening-Breast sonography allone	5	D	--
▪ Automated 3D-sonography	3a	C	-
▪ Breast sonography as an adjunct:			
▪ Dense mammogram (heterogeneously dense, extremely dense)	2a	B	++
▪ Elevated risk	1b	C	++
▪ Mammographic lesion	2b	B	++
▪ Second-look US (MRI-only detected lesions)	2b	C	++
▪ MRI if screening MG is negative and breast composition: extremely dense* 45–75 LJ	1b	B	+

* Definition of extremely dense corresponds to BIRADS-density category D, heterogeneously dense to BIRADS-category C according to ACR BI-RADS-Atlas 5th ed. 2013

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Recommendations International

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MRI-Screening:

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Early Detection (normal risk)
Clinical Breast Examination (CBE)

	Oxford LoE	Oxford GR	AGO
As stand alone procedure			
▪ Self-examination	1a	A	-*
▪ Clinical breast examination (CBE) by health professionals outside checkup for cancer	1a	C	-*
▪ Clinical breast examination (CBE) by health professionals during checkup for cancer	1a	B	++
▪ Medical palpation by blind / visually impaired persons	3b	C	-
CBE because of mammographic / sonographic lesion	5	D	++
CBE in combination with imaging	1a	A	++

* May increase breast awareness

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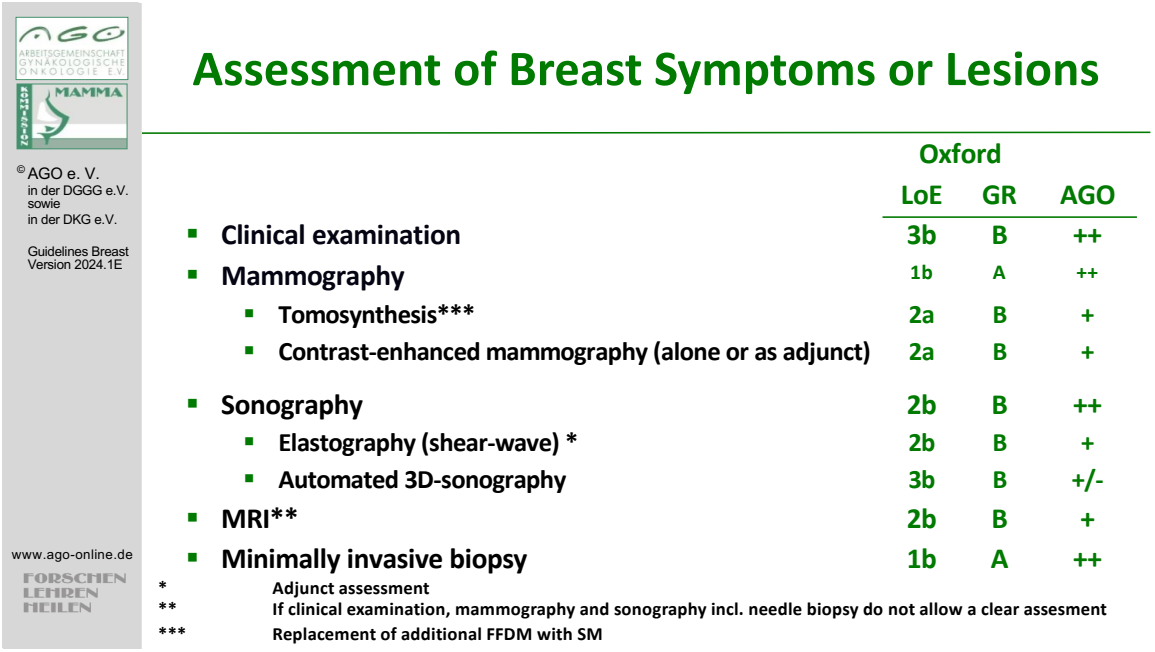

Assessment of Breast Symptoms or Lesions

	Oxford		
	LoE	GR	AGO
▪ Clinical examination	3b	B	++
▪ Mammography	1b	A	++
▪ Tomosynthesis***	2a	B	+
▪ Contrast-enhanced mammography (alone or as adjunct)	2a	B	+
▪ Sonography	2b	B	++
▪ Elastography (shear-wave) *	2b	B	+
▪ Automated 3D-sonography	3b	B	+/-
▪ MRI**	2b	B	+
▪ Minimally invasive biopsy	1b	A	++

* Adjunct assessment
** If clinical examination, mammography and sonography incl. needle biopsy do not allow a clear assesment
*** Replacement of additional FFDM with SM

Combined DM + DBT + US + MRI

1. Mariscotti G, Houssami N, Durando M, et al. Accuracy of mammography, digital breast tomosynthesis, ultrasound and MR imaging in preoperative assessment of breast cancer. Anticancer Res. 2014 Mar;34(3):1219-25.

US-Axilla +FNA/CNB

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1. Dromain, C., N. Vietti-Violi, and J.Y. Meuwly, Angiomammography: A review of current evidences. Diagn Interv Imaging, 2019.
2. Patel, B.K., M.B.I. Lobbes, and J. Lewin, Contrast Enhanced Spectral Mammography: A Review. Semin Ultrasound CT MR, 2018. 39(1): p. 70-79.
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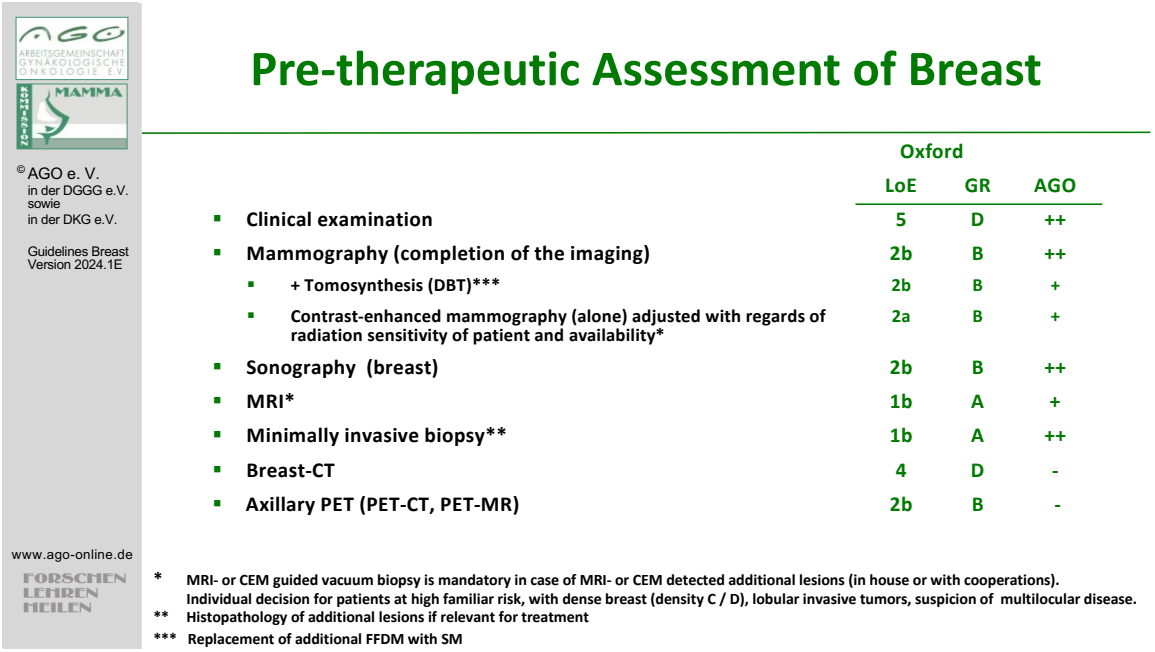

Pre-therapeutic Assessment of Breast

	Oxford LoE	Oxford GR	AGO
▪ Clinical examination	5	D	++
▪ Mammography (completion of the imaging)	2b	B	++
▪ + Tomosynthesis (DBT)***	2b	B	+
▪ Contrast-enhanced mammography (alone) adjusted with regards of radiation sensitivity of patient and availability*	2a	B	+
▪ Sonography (breast)	2b	B	++
▪ MRI*	1b	A	+
▪ Minimally invasive biopsy**	1b	A	++
▪ Breast-CT	4	D	-
▪ Axillary PET (PET-CT, PET-MR)	2b	B	-

* MRI- or CEM guided vacuum biopsy is mandatory in case of MRI- or CEM detected additional lesions (in house or with cooperations). Individual decision for patients at high familiar risk, with dense breast (density C / D), lobular invasive tumors, suspicion of multilocular disease.
** Histopathology of additional lesions if relevant for treatment
*** Replacement of additional FFDM with SM

Combined DM + DBT + US + MRI

1. Mariscotti G, Houssami N, Durando M, et al. Accuracy of mammography, digital breast tomosynthesis, ultrasound and MR imaging in preoperative assessment of breast cancer. Anticancer Res. 2014 Mar;34(3):1219-25.
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1. Dromain, C., N. Vietti-Violi, and J.Y. Meuwly, Angiomammography: A review of current evidences. Diagn Interv Imaging, 2019.
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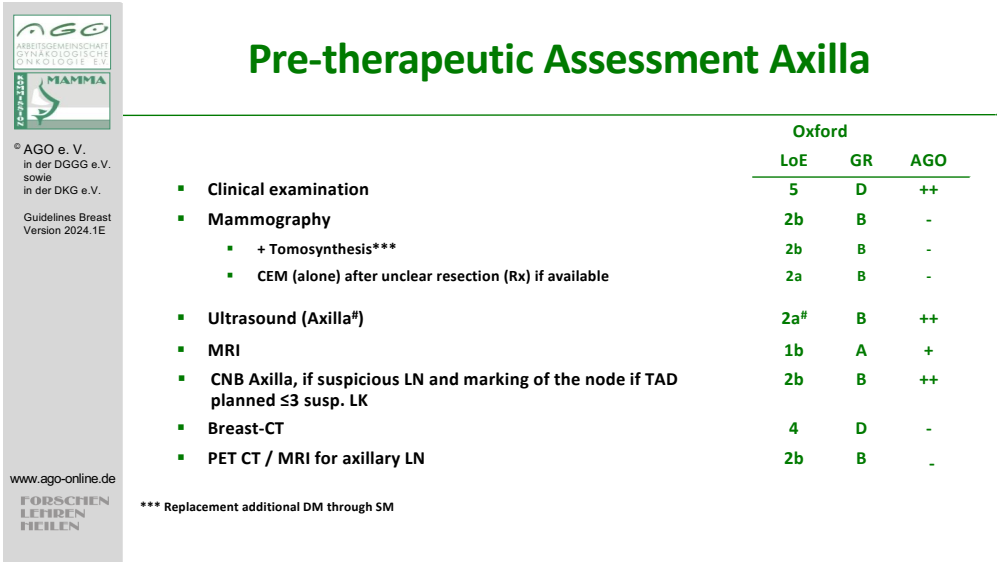

Pre-therapeutic Assessment Axilla

	Oxford LoE	Oxford GR	AGO
▪ Clinical examination	5	D	++
▪ Mammography	2b	B	-
▪ + Tomosynthesis***	2b	B	-
▪ CEM (alone) after unclear resection (Rx) if available	2a	B	-
▪ Ultrasound (Axilla#)	2a#	B	++
▪ MRI	1b	A	+
▪ CNB Axilla, if suspicious LN and marking of the node if TAD planned ≤3 susp. LK	2b	B	++
▪ Breast-CT	4	D	-
▪ PET CT / MRI for axillary LN	2b	B	-

*** Replacement additional DM through SM

US-Axilla +FNA/CNB

1. Diepstraten SC, Sever AR, Buckens CFM, et al. Value of preoperative ultrasound guided lymphnode biopsy for preventing completion axillary lymphnode dissection in breast cancer: a systematic review and meta-analysis. Ann Surg Oncol 2014;21:51-59
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Pre-therapeutic Staging

	Oxford LoE	Oxford GR	AGO
▪ History and clinical examination	5	D	++
Only in case of high metastatic potential and/or symptoms and/or indication for (neo-) adjuvant chemotherapy and/or antibody-therapy:			
▪ CT scan of thorax / abdomen / pelvis	2a	B	+
▪ Bone scan	2b	B	+
▪ Chest X-ray	5	C	+/-
▪ Liver ultrasound	5	D	+/-
▪ Further investigation in case of additonal suspicious lesions (e.g. liver-MRI, CEUS*, biopsy etc.)	2a	B	+
▪ FDG-PET or FDG-PET-CT** FDG-PET-MRI**	2b	B	+/-
▪ Whole body MRI	4	C	+/-

* Contrast enhanced ultrasound
** especially in patients with high tumor stage (III) if available

Statement: history and physical examination
1. GCP

Statement: high metastatic potential / symptoms

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