



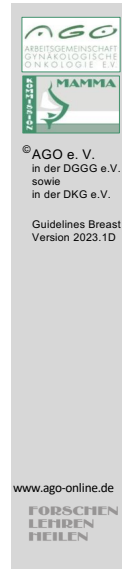
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Guidelines Breast
Version 2023.1D

FORSCHEN
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Diagnostik und Therapie früher und fortgeschrittener Mammakarzinome

Früherkennung und Diagnostik



Früherkennung und Diagnostik

- **Versionen 2005–2022:**
Albert / Blohmer / Fallenberg / Fersis / Gerber / Junkermann /
Maass / Müller-Schimpfle / Scharl / Schreer / Wöckel
- **Version 2023:**
Fallenberg / Kühn

Screened data bases

Pubmed	2018 - 2022
Medline	2018 - 2022
Cochrane	2018 - 2022

Guidelines

S3 Diagnostik, Therapie und Nachsorge des Mammakarzinoms:

1. 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 1 with Recommendations for the Screening, Diagnosis and Therapy of Breast Cancer. Geburtshilfe Frauenheilkd. 2018 Oct;78(10):927-948. doi: 10.1055/a-0646-4522. Epub 2018 Oct 19.
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

Früherkennung bei asymptomatischen Frauen durch Mammographie

Alter	Intervall (Monate)	Oxford		AGO
		LOE	GR	
< 40	na	-	-	--
40-44	na	1b	B	-
45-49	24-36	1a	B	+#
50-69*	24	1a	A	++
70-74	24	1a	A	+#
> 75**	24	4	C	+/-#

* Nationales Mammographie-Screening-Programm

** Abhängig von Gesundheitszustand + Lebenserwartung mehr als 10 Jahre

Cave: rechtfertigende Indikation ist notwendig bzw. bei Anpassung des Screenings indiziert

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8. Myers ER, Moorman P, Gierisch JM et al.: Benefits and harms of breast cancer screening: a systematic review. JAMA 2015;314(15)1615-1634

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(https://healthcare-quality.jrc.ec.europa.eu/sites/default/files/Guidelines/EtDs/ECIBC_GLs_EtD_screening_40-44.pdf)
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Früherkennung bei asymptomatischen Frauen Tomosynthese

	Oxford		
	LOE	GR	AGO
Digitale Tomosynthese (DBT ± SM)*	1a	A	+
Ersatz der DM durch synthetische MG + DBT	1a	A	++

Es muss immer auch der komplette Datensatz der Tomosyntheseschichten zur Beurteilung zur Verfügung stehen, die alleinige synthetische Mammographie ist nicht ausreichend.

* Sign. höhere Sensitivität, heterogene Spezifität und höhere Kosten [Gerät, Befunder, Archivierung] der digitalen Brust-Tomosynthese (DBT) im Vgl. zur digitalen Mammographie (DM)
Dosisreduktion durch Berechnung einer synthetische Mammographie (SM) statt DM

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1. Heindel, W., S. Weigel, J. Gerss, H. W. Hense, A. Sommer, M. Krischke, L. Kerschke and T. S. T. S. Group (2022). "Digital breast tomosynthesis plus synthesised mammography versus digital screening mammography for the detection of invasive breast cancer (TOSYMA): a multicentre, open-label, randomised, controlled, superiority trial." *Lancet Oncol* **23**(5): 601-611.
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1. Weigel, S., W. Heindel, H. W. Hense, T. Decker, J. Gerss, L. Kerschke and T. S. T. S. Group (2022). "Breast Density and Breast Cancer Screening with Digital Breast Tomosynthesis: A TOSYMA Trial Subanalysis." *Radiology*.

Breast cancer mortality reduction	
Metaanalyses	RR 95% CI
Independent UK Panel, 2012 13-year metaanalysis	0.80 (0.73–0.89)
Cochrane Review, 2011 Fixed-effect metaanalysis of 9 RCT-trials	0.81 (0.74–0.87)
As above, but excluding women <50 years	0.77 (0.69–0.86)
Canadian Task Force, 2011 Women aged 50–69 years	0.79 (0.68–0.90)
Duffy et al, 2012 Review of all trials and age groups	0.79 (0.73–0.86)
Duffy et al, 2020 Review of 549,091 Women (30% eligible Swedish screening population)	0.59 (0.51-0.68) mortality 0.75 (0.66-0.84) advanced BC

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Breast cancer mortality reduction

Metaanalyses		RR 95% CI
Case-Control Studies		
Broeders et al	Screening Mx	0.46 (0.4 – 0.54)
	Corr. for self selection	0.52 (0.42–0.65)
	Invited for screening	0.69 (0.57–0.83)
Incidence-based Mortality Studies		
Broeders et al	Screening Mx	0.62 (0.56–0.69)
	Invited to screening	0.75 (0.69–0.81)
Randomized Clinical Trials		
Gotsche and Jorgenson	Screening Mx	0.81 (0.74–0.87)
ECIBC	Screening MX	
	45-49	0.88 (0.76 - 1.02)
	50-69	0.77 (0.66 - 0.90)
	70-75	0.77 (0.54 - 1.09)

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Breastcancer: incidence and mortality

■ Annual incidence of breast cancer and mortality in the EU (GLOBOCAN 2012)

Age	Incidence / 1000	Mortality / 1000
40 to 44	1.2	0.1
45 to 49	1.7	0.2
50 to 69	2.7	0.5
70 to 74	3.0	0.8

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Mammography-Screening Benefit and Harm

**Data background: Breast Cancer Surveillance Consortium Registry Data
per 10.000 Women screened over 10 years**

Age	40-49	50-59	60-69	70-74
Breast cancer death avoided (CI 95%)	3 (0-9)	8 (2-17)	21 (11-32)	13 (0-32)
False-positive (n)	1212	932	808	696
Breast biopsies (n)	164	159	165	175
False-negative (n)	10	11	12	13

Siu AL on behalf of the USPSTF 2016, 164:279–296

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

Früherkennung (normales Risiko) Sonographie / MRT

	Oxford		
	LoE	GR	AGO
▪ Screening-Mammasonographie alleine	5	D	--
▪ Autom. 3D-Sonographie	3a	C	-
▪ Mammasonographie als Ergänzung bei:			
• Dichtem Parenchym (inhomogen dicht, extrem dicht)	2a	B	++
• Erhöhtem Risiko	1b	C	++
• Mammographischer Läsion	2b	B	++
• Zur Abklärung susp. Läsionen im MRT	2b	C	++
▪ MRT bei neg. MG und extrem dichter Brust* 45-75 LJ	1b	B	+

* Definition von extrem dicht entspricht BIRADS-Dichtekategorie D inhomogen dicht Kategorie C nach ACR BI-RADS-Atlas 5. ed. 2013

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Früherkennung

Klinische Untersuchung (clinical breast examination; CBE)

	Oxford		
	LoE	GR	AGO
Als alleinige Untersuchung			
▪ Selbstuntersuchung (BSE)	1a	A	-*
▪ Klinische Brust-Untersuchung (CBE) (außerhalb der Krebsfrüherkennungsuntersuchung (KFU))	1a	C	-*
▪ Klinische Brust-Untersuchung (CBE) (im Rahmen der KFU)	1a	B	++
▪ Medizinisch-taktile Untersuchung durch Blinde / Sehbehinderte	3b	C	-
CBE wegen klinisch- / mammo- / sonographischer Läsion	5	D	++
CBE in Kombination mit Bildgebung	1a	A	++

* Kann Brust-Bewußtsein erhöhen

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Abklärung von Symptomen

	Oxford		
	LoE	GR	AGO
▪ Klinische Untersuchung	3b	B	++
▪ Mammographie	1b	A	++
▪ Tomosynthese***	2a	B	+
▪ Kontrastmittelmammographie (alleine oder zusätzlich)	2a	B	+
▪ Sonographie	2b	B	++
▪ Elastographie (Shear wave)*	2b	B	+
▪ Automat. 3D-Sonographie	3b	B	+/-
▪ MRT**	2b	B	+
▪ Minimalinvasive Biopsie	1b	A	++
* Zusatzuntersuchung			
** Wenn klinische, mammographische und sonographische Diagnostik ggf. inkl. Nadelbiopsie keine sichere Einschätzung erlauben.			
*** Ersatz der DM durch synthetische Mammographie (SM)			

Combined DM + DBT + US + MRI

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US-Axilla +FNA/CNB

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1. Luczynska, E., et al., Comparison of the Mammography, Contrast-Enhanced Spectral Mammography and Ultrasonography in a Group of 116 patients. *Anticancer Res*, 2016. 36(8): p. 4359-66.
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Prätherapeutische Mamma- und Axilladiagnostik

	Oxford		
	LoE	GR	AGO
■ Klinische Untersuchung	5	D	++
■ Mammographie	2b	B	++
■ + Tomosynthese***	2b	B	+
■ Kontrastmittelmammographie (alleine) nach Rx-Sensibilität und Verfügbarkeit	2a	B	+
■ Sonographie (Mamma/Axilla#)	2b/2a#	B	++
■ MRT*	1b	A	+
■ Minimalinvasive Biopsie Mamma** (CNB, VAB)	1b	A	++
■ CNB Axilla, wenn auffälliger LK-Befund und Markierung des LK wenn TAD geplant/≤3 susp. LK	2b	B	++
■ Mamma-CT	4	D	-
■ PET für die Axilla. (PET-CT, PET-MRT)	2b	B	-

* Möglichkeit der MRT-gestützten Biopsie (in domo oder im Rahmen einer Kooperation). MRT erwägen bei hohem familiärem Risiko, eingeschränkter Beurteilbarkeit in MG & US (Beurteilbarkeit C/D), invasiv lobulärem Karzinom.

** Histologische Sicherung von Zusatzbefunden im Fall therapeutischer Relevanz.

*** Ersatz der DM durch synthetische Mammographie (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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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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Sensitivities CEM (contrast enhanced Mammography)						
Author	N	MG	CESM	MRI	US	Analyse
Dromain 2011	110	78	92			Per patient
Fallenberg 2014	118	77.9	94.7			Per patient
Mokhtar 2014	60	93.2	97.7			Per patient
Lobbes 2014*	113	96.9	100			Per patient
Perez 2015 ECR	98		78		66	Per lesion
Luczynska 2014	152	91	100			
Jochelson 2012	52	81 59	96 83	96 93		Per patient Per lesion
Fallenberg 2013	80	81	100	97		Per patient
Fallenberg 2016	155	81 55	94 72	95 76		Index Per Lesion
Lalji 2016*	199	93	96,9			Per patient 10 reader
Tennant 2016	100	84	95			
Luczynska 2016	116	90	100		92	
Xing 2019	235		91,5	91,5		Per lesion

CESM is comparable to MRI regarding index, a bit inferior for additional lesions

* Recall from Screening

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sowie
in der DKG e.V.

Guidelines Breast
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HEILEN

CESM Originalarbeiten:

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Prätherapeutisches Staging

	Oxford		
	LoE	GR	AGO
■ Anamnese und klinische Untersuchung	5	D	++
Nur bei hohem Risiko für Fernmetastasen und/oder Symptomen und/oder Indikation zur (neo-)adjuvanten Chemo- / Antikörpertherapie:			
■ CT Thorax / Abdomen	2a	B	+
■ Skelettszintigraphie	2b	B	+
■ Röntgen-Thorax	5	C	+/-
■ Leberzonographie	5	D	+/-
■ Weiterführende Diagnostik je nach Befund (z. B. Leber-MRT / CEUS* / Biopsie etc.)	2a	B	+
■ FDG-PET oder FDG-PET-CT** FDG-PET-MRT**	2b	B	+/-
■ Ganzkörper MRT	4	C	+/-

* Contrast enhanced ultrasound

** vorzugsweise bei hohem Stadium (III), wenn verfügbar

Statement: history and physical examination

1. GCP

Statement: high metastatic potential / symptoms

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