

Chirurgie van borstkanker

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ZIEKENHUIS *aan*
de STROOM

Overzicht

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Evolutie van
axillaire
chirurgie

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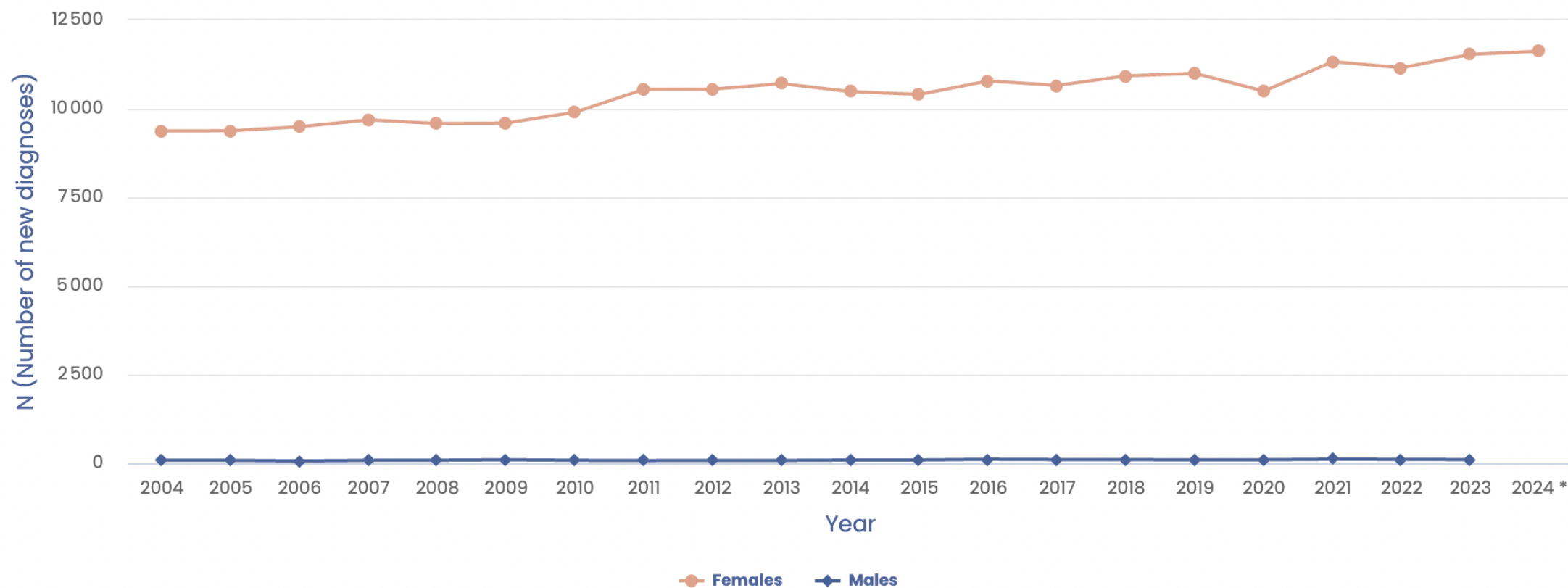
Conclusie

Incidentie in België

Incidence by year & sex (Number of new diagnoses)

Age: All ages **Region:** Belgium **Cancer:** Breast

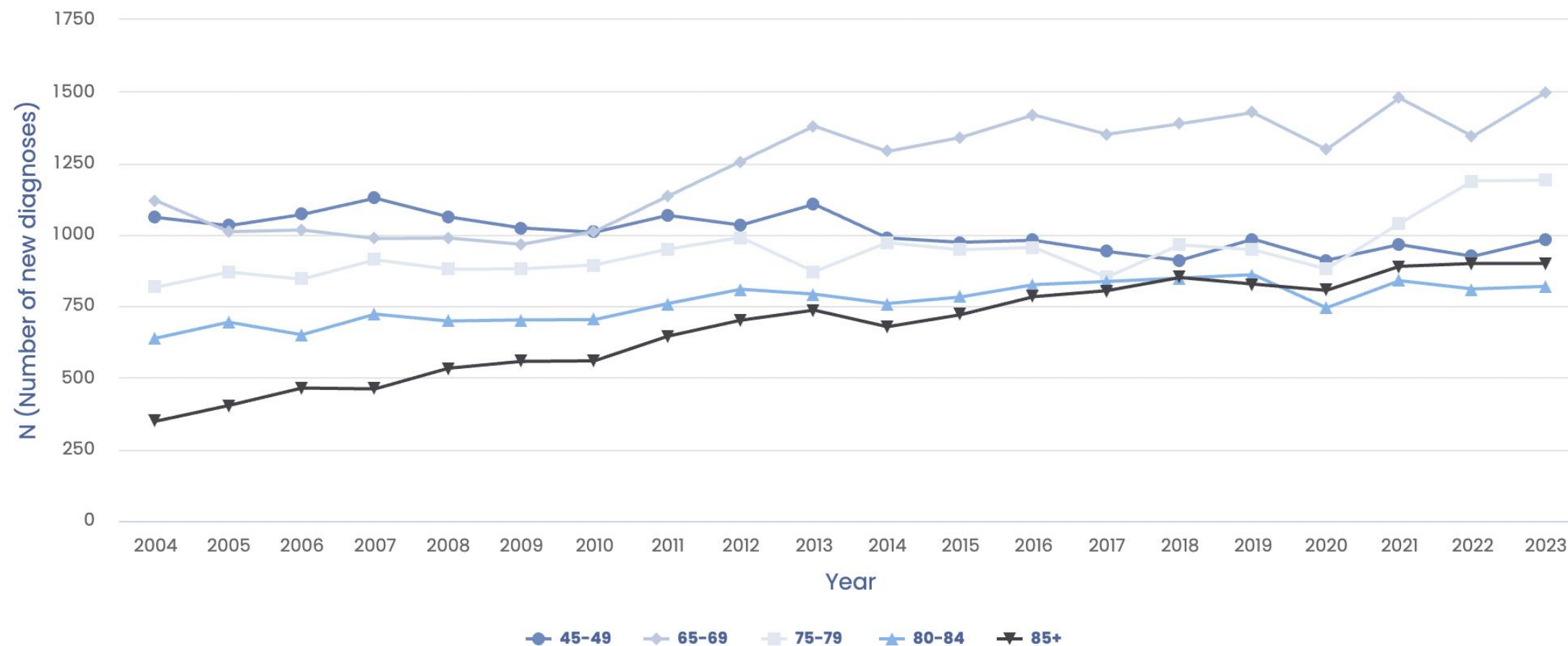
Source: Belgian Cancer Registry (11-2025)



Incidence by year & age (Number of new diagnoses)

Sex: Males, Females **Region:** Belgium **Cancer:** Breast

Source: Belgian Cancer Registry (11-2025)

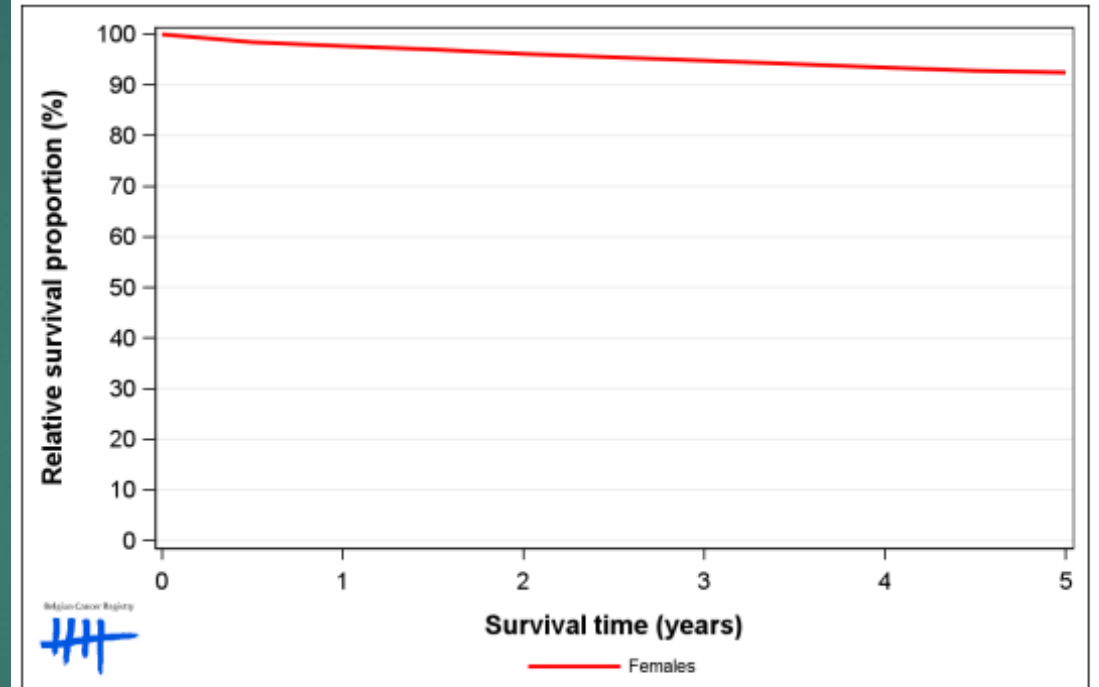


Prognose

5j 91%

10j 85%

Female Breast Cancer: relative survival proportion, Belgium 2016-2020



Betere risico-inschatting → behandeling op maat → betere overleving

Basisprincipes van behandeling

1. Lokale ziekte verwijderen van borst en lymfeklieren
 - Chirurgie
 - Radiotherapie
2. Herval vermijden dmv systeemtherapie
 - Chemotherapie (neo)adjuvant
 - Endocriene therapie
 - Doelgerichte therapie

2 Evolutie van Borstchirurgie

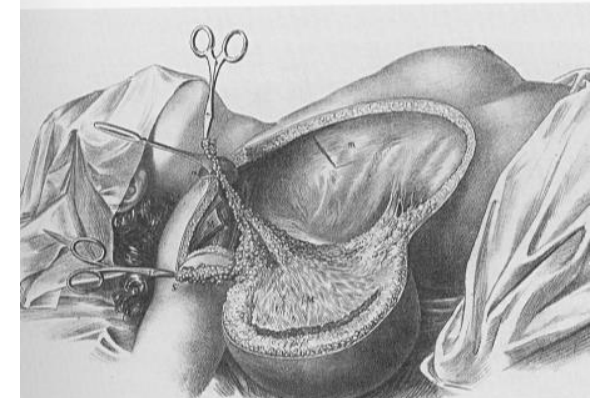
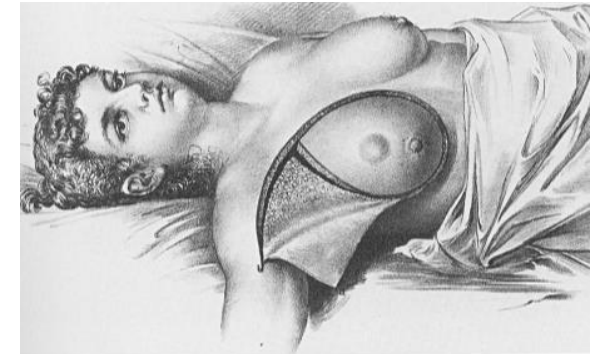
- 18^{de} eeuw
- Instrument om in 1 snelle beweging een mastectomie te verrichten



William Halsted 1852-1922

Radicale mastectomie

- ▶ Pectoralis spieren
- ▶ Supraclaviculair en mediastinum klieren
- ▶ Strippen van schacht van rectus abdominis, serratus anterior, subscapularis, latissimus dorsi en teres major spieren



Local recurrence rate

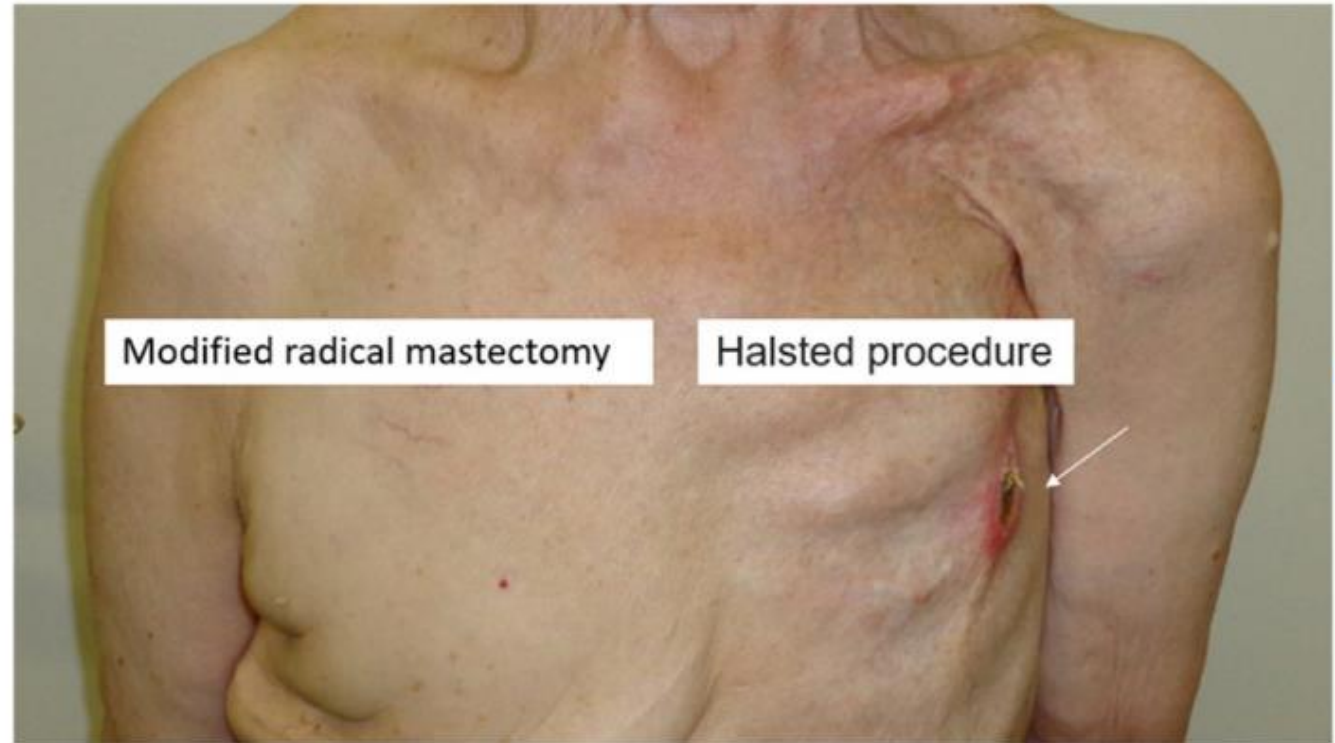
Surgeon	Time period	No of cases	Rate
Bergmann	1882–1887	114	51–60%
Billroth	1867–1876	170	82%
Czerny	1877–1886	102	62%
Fischer	1871–1878	147	75%
Gussenbauer	1878–1886	151	64%
Halsted	1889–1894	50	6%
Koning	1875–1885	152	58–62%
Kuster	1871–1885	228	60%
Lucke	1881–1890	110	66%
Von Volkman	1874–1878	131	60%

*Halsted is an obsessional
fuddy-duddy who takes all day
to do an operation that should
never be done at all... radical
mastectomy seems to have
been designed to inflict the
maximal possible deformity,
disfiguration and disability*



John Madden 1972

- ▶ Modified radical mastectomy (MRM)
- ▶ Behoud van pectoralis spieren



A patient who underwent Halsted's mastectomy on the left side and modified radical mastectomy on the right. On the left, deformity from pectoral muscle removal is noted and the ribs are easily seen. The arrow on the left shows a local recurrence at the mastectomy scar, 25 years after the surgical procedure. On the right side, excess skin is noted.

Borstsparende
chirurgie + RT

1981



The NEW ENGLAND
JOURNAL of MEDICINE

COMPARING RADICAL MASTECTOMY WITH QUADRANCTECTOMY, AXILLARY DISSECTION,
AND RADIOTHERAPY IN PATIENTS WITH SMALL CANCERS OF THE BREAST

UMBERTO VERONESI, M.D., ROBERTO SACCOZZI, M.D., MARCELLA DEL VECCHIO, Ph.D., ALBERTO BANFI, M.D.,

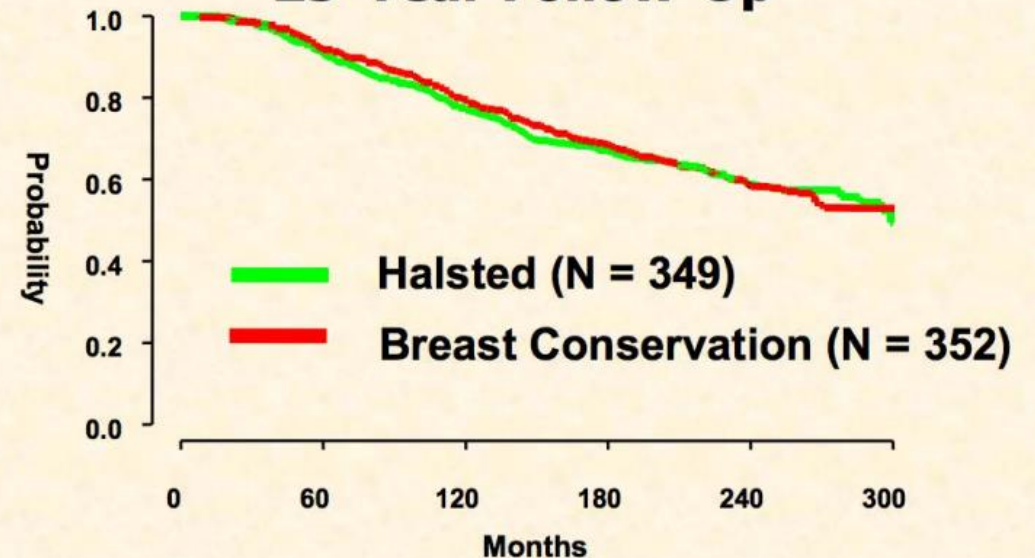
Landmark Study

5-Yr Survival Equal

Mastectomy Versus BCT

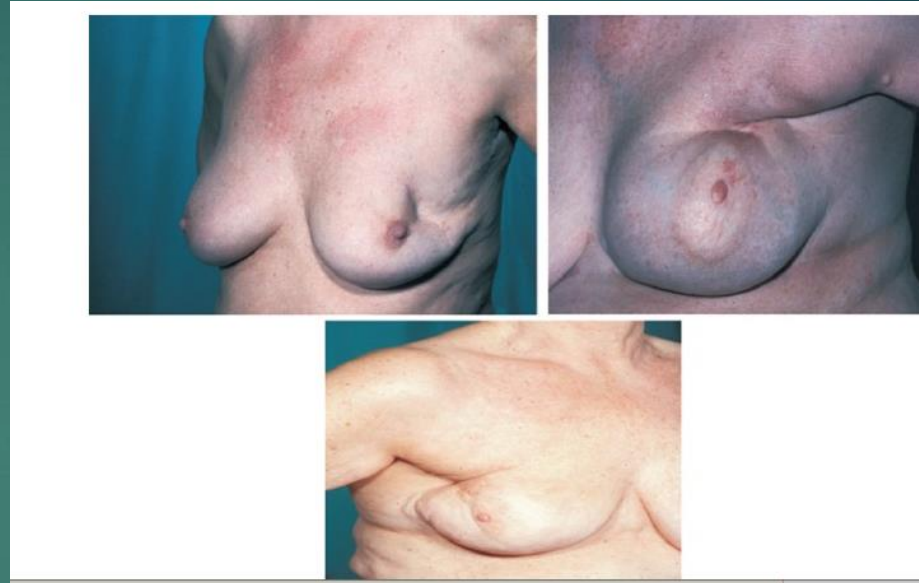
Milan I - Overall Survival

25-Year Follow-Up



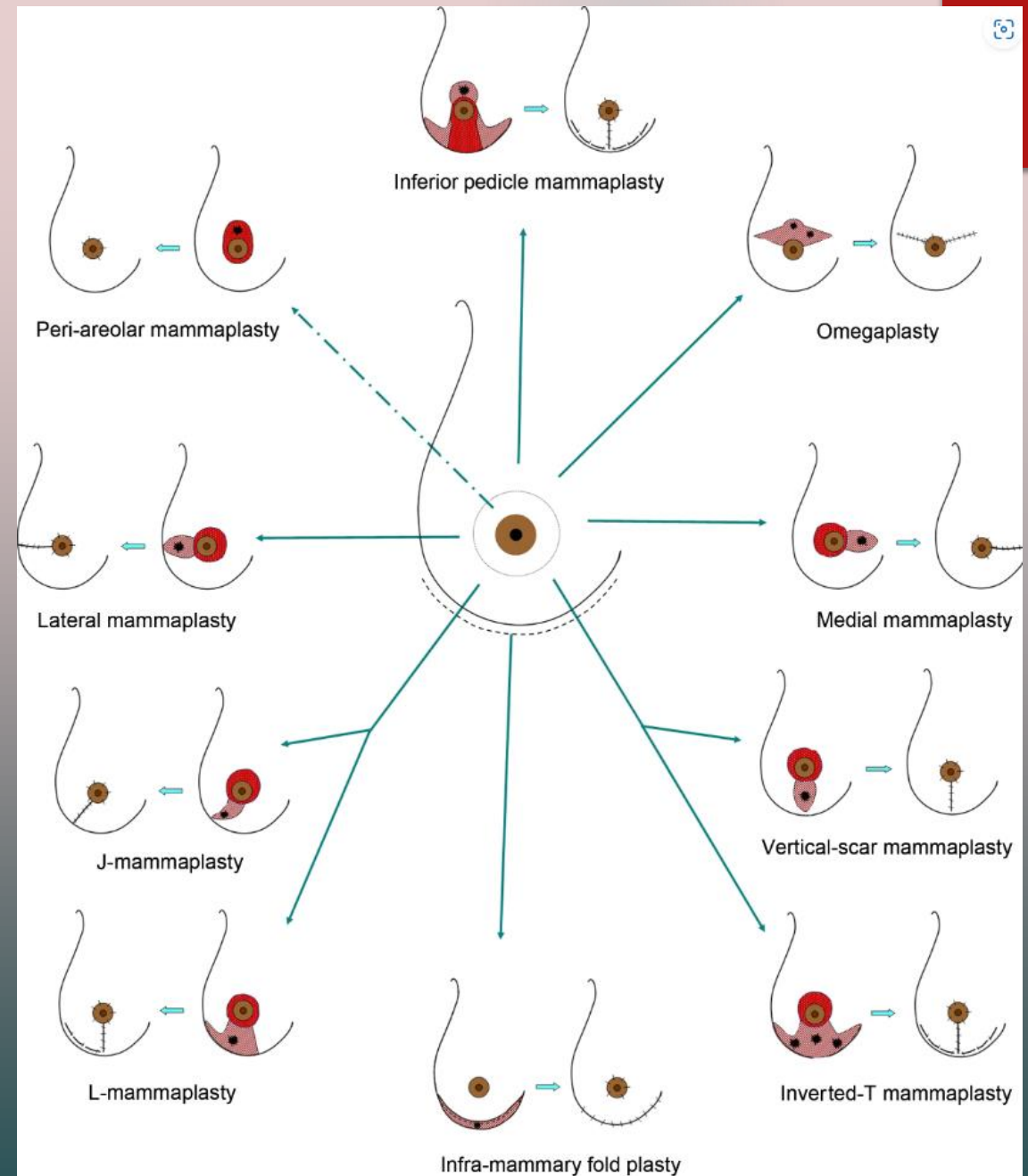
Veronesi U, et al. N Engl J Med, 2002

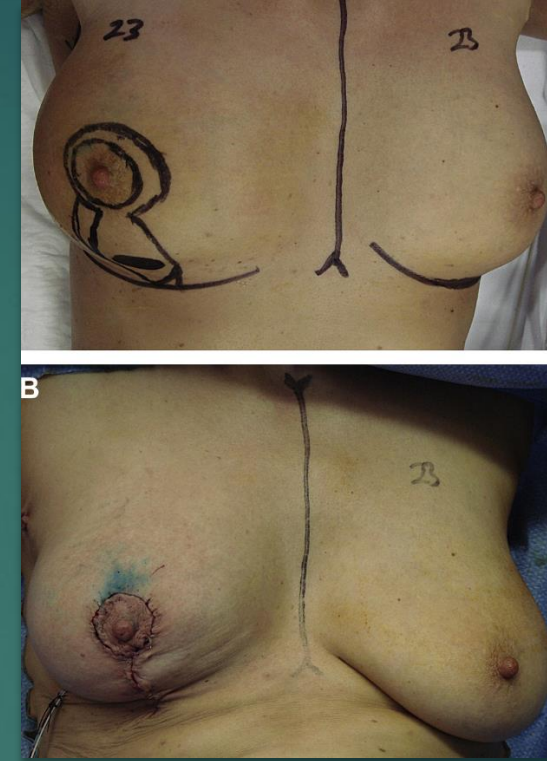
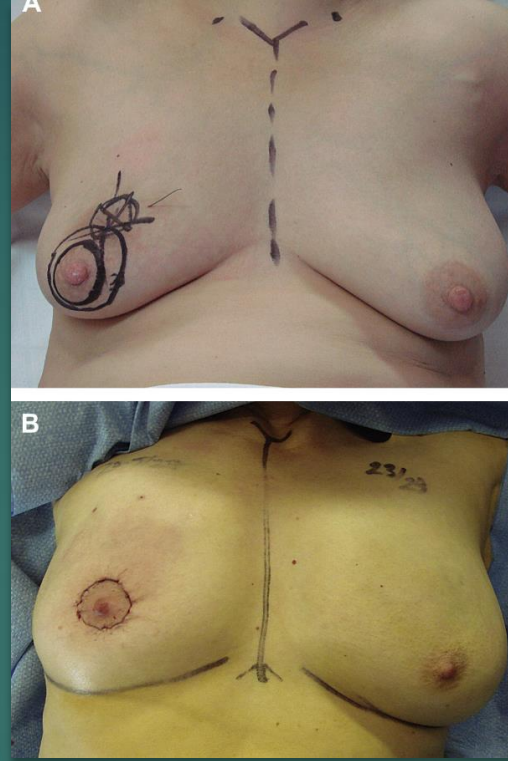
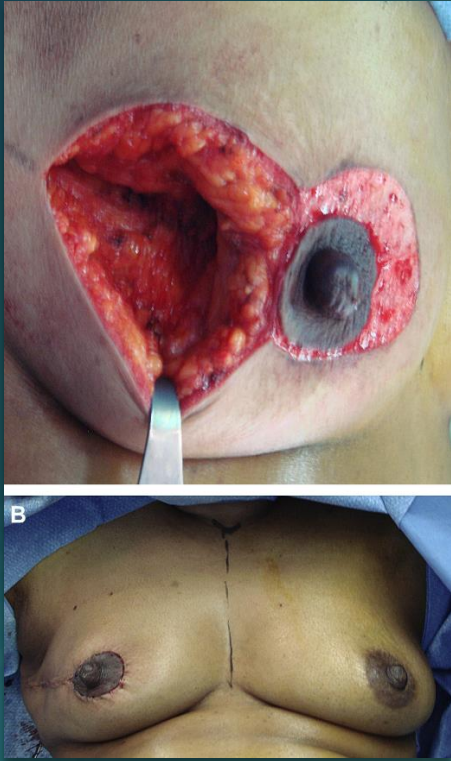
Borstsparende chirurgie



Verbeterde overleving → Cosmetische uitkomsten worden belangrijk

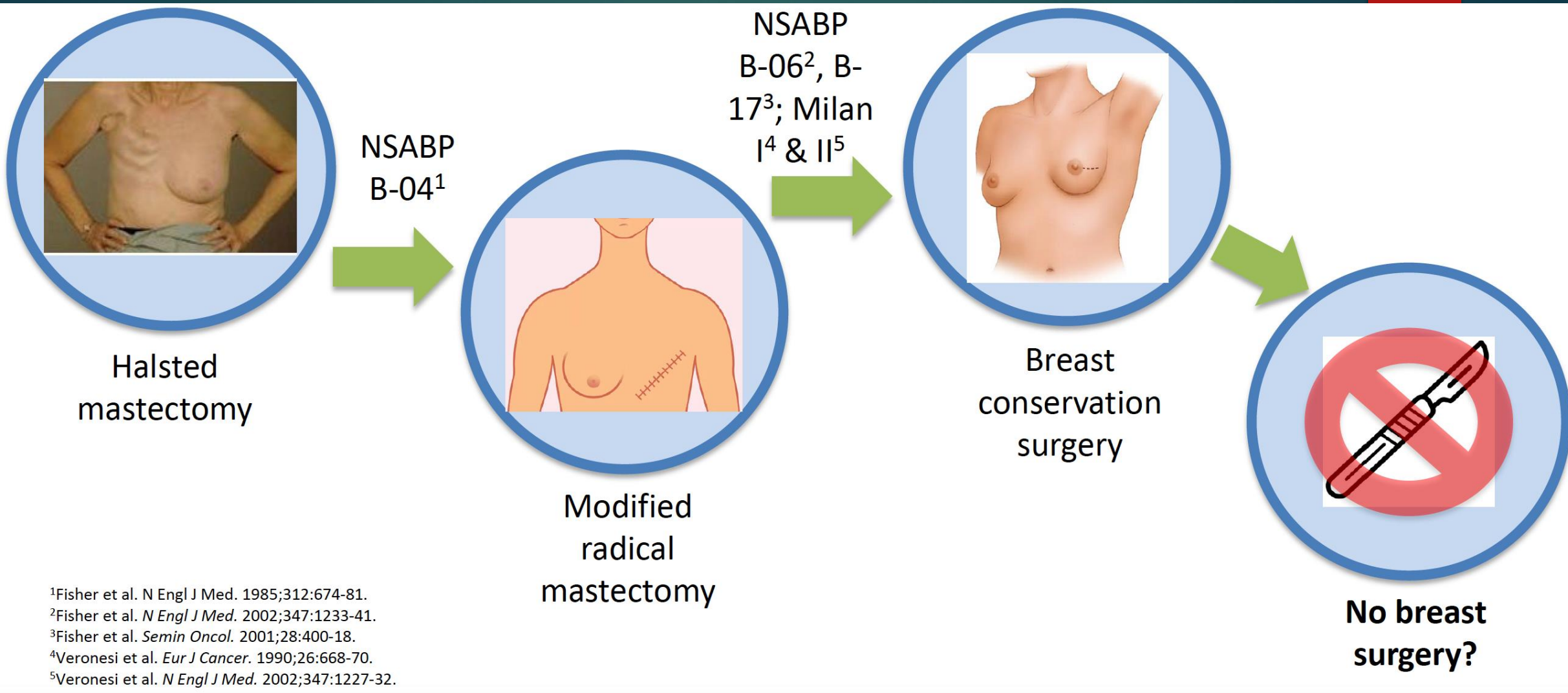
Oncoplastie





ACOSOG Z11102 trial: ook borstsparend voor multifocale tumoren

- 7% conversie naar mastectomie
- 70% waren blij met cosmetische resultaat
- 6/204 lokaal recidief (3.7%)



Deëscalatie van borstchirurgie

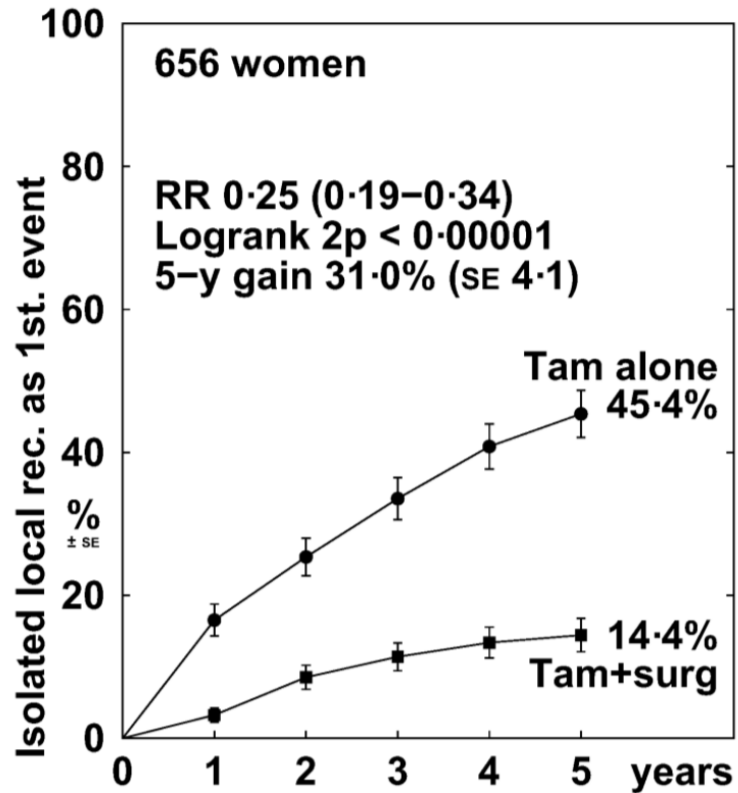
Chirurgie bij ≥ 70 jaar

Early Breast Cancer Trialists' Collaborative Group (EBCTCG)

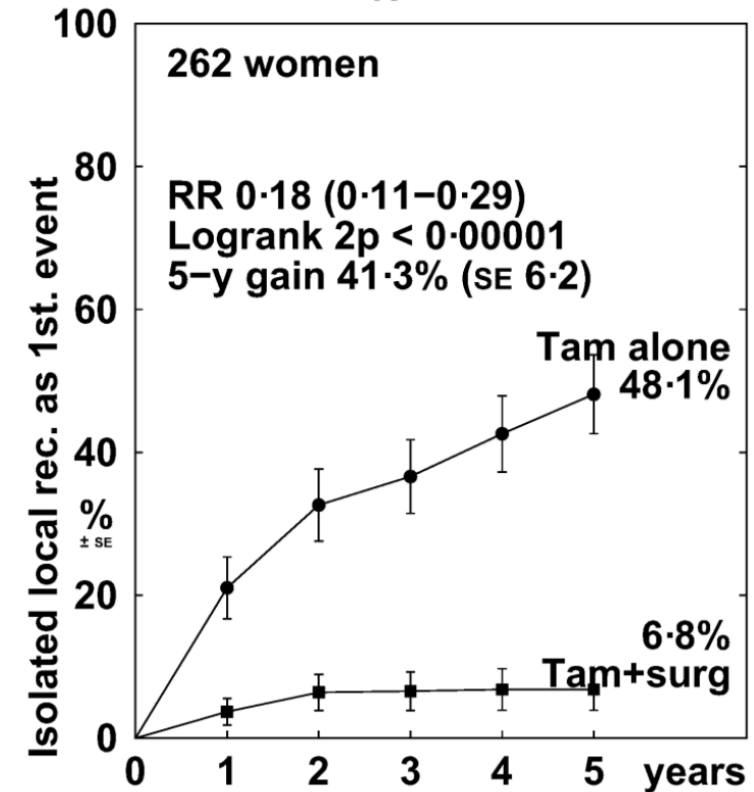
- Rates of surgery decrease with age, especially over age of 80*
- Does immediate surgery improve outcomes in older women compared to delaying surgery until after progression?
- Meta-analysis of individual patient data
 - 3 trials of immediate surgery vs deferral in absence of radiotherapy
 - 1,082 individual women aged 70+
 - Median 5 years on-study
- Main outcomes: local, distant recurrence, mortality

Maar...

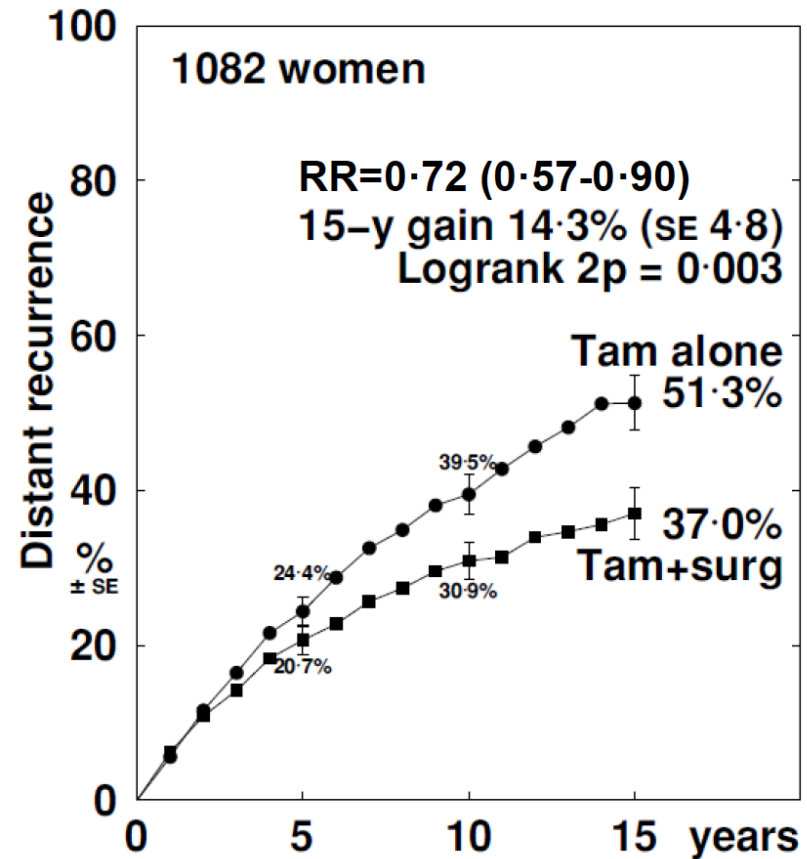
Node-negative disease



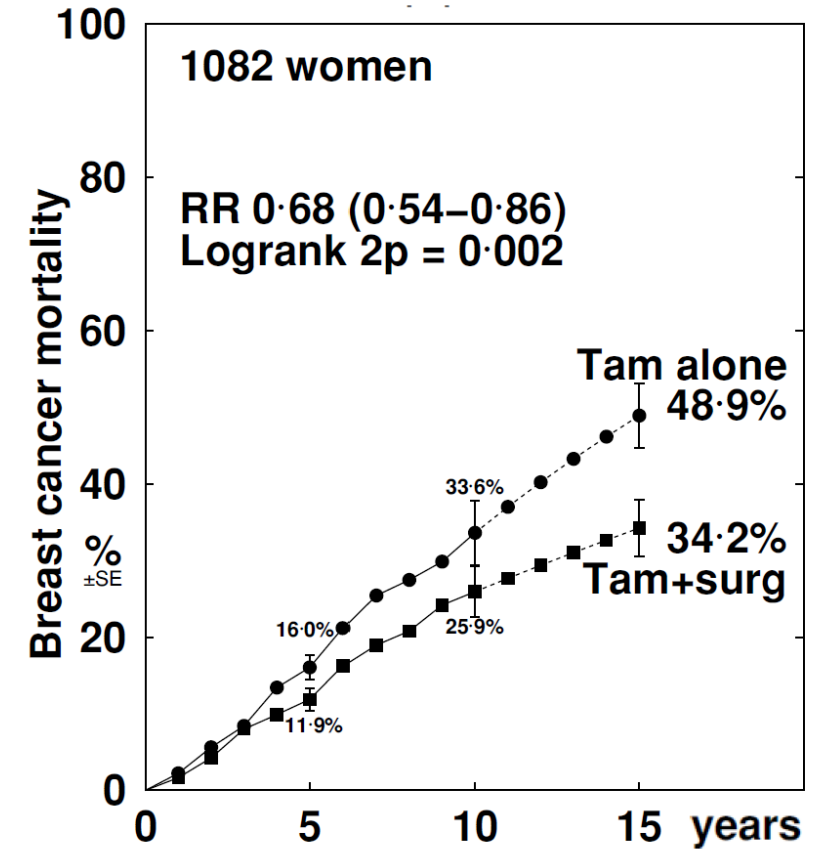
Node-positive disease



Distant Recurrence



Breast cancer mortality



Little effect on distant recurrence or breast cancer mortality in years 0-1

Voordeel van chirurgie wordt **duidelijker bij langere follow-up.**

3

Evolutie van axillaire chirurgie

1960-1980s

ALND



1990s

SLNB for
cN0



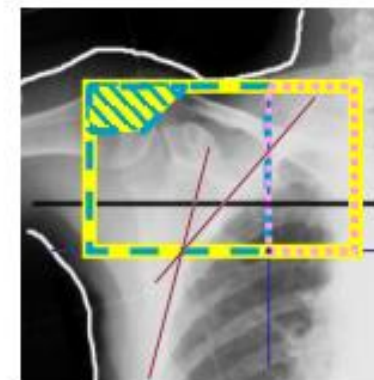
2000s

SLNB ± RT
for pN+



2010s

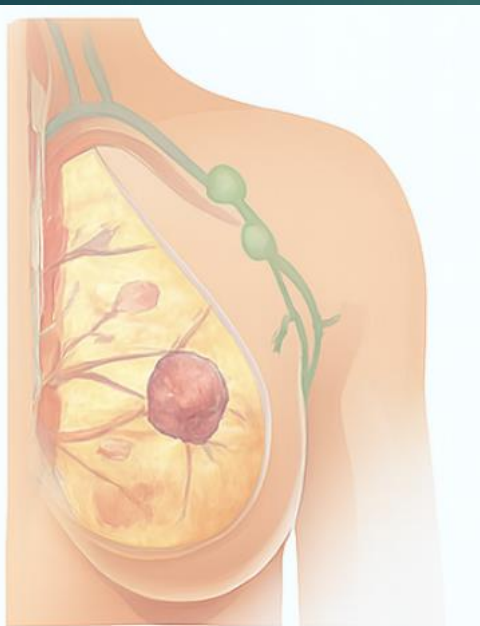
SLNB for cN1
after NAC



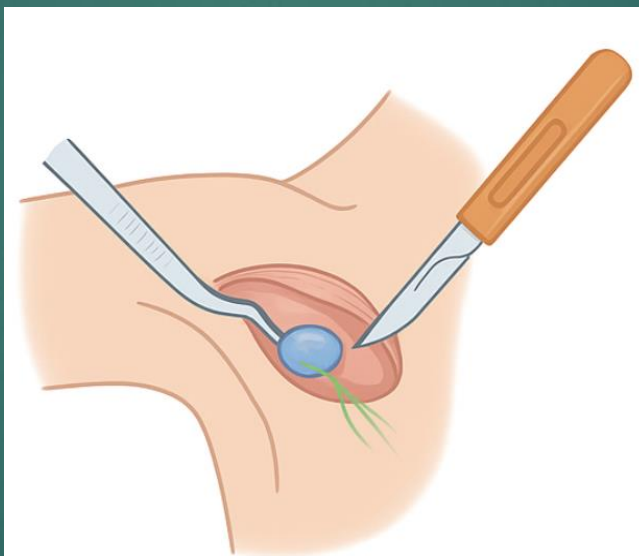
Adapted from T King, MD and M Morrow, MD

Deëscalatie van axillaire chirurgie

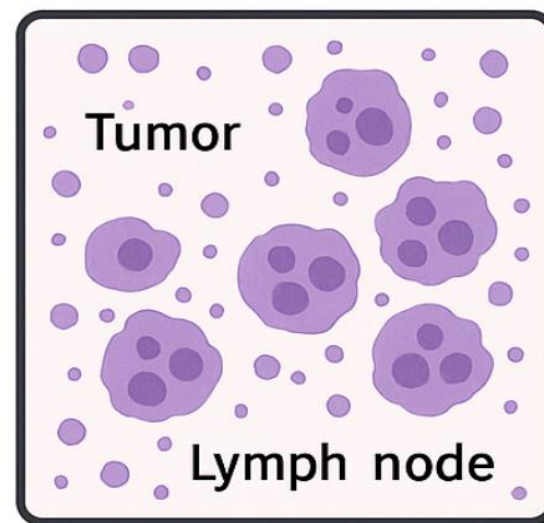
cN0 → pN1



cN0



**Sentinel node
surgery**



pN1

ACOSOG Z0011 : 2010
IBCSG 23-01: 2013
EORTC AMAROS: 2014
SINODAR-ONE: 2022 (*SLN
macro)

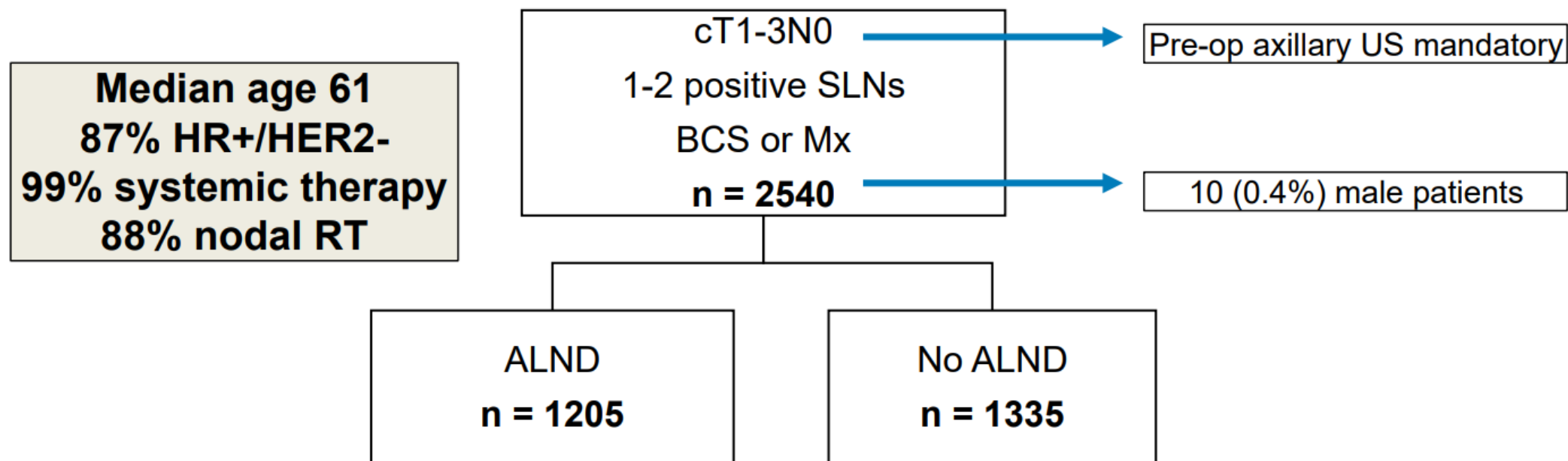
cN0 → pN1

Onzekerheden omtrent

- ▶ Statistische power
- ▶ Laag risico jonge patiënten
- ▶ cN0 maar echo cN+
- ▶ Weinig graad 3
- ▶ Weinig grote tumoren
- ▶ Weinig SN macrometa (*)
- ▶ Weinig mastectomie
- ▶ Onzekere RT velden

SENOMAC

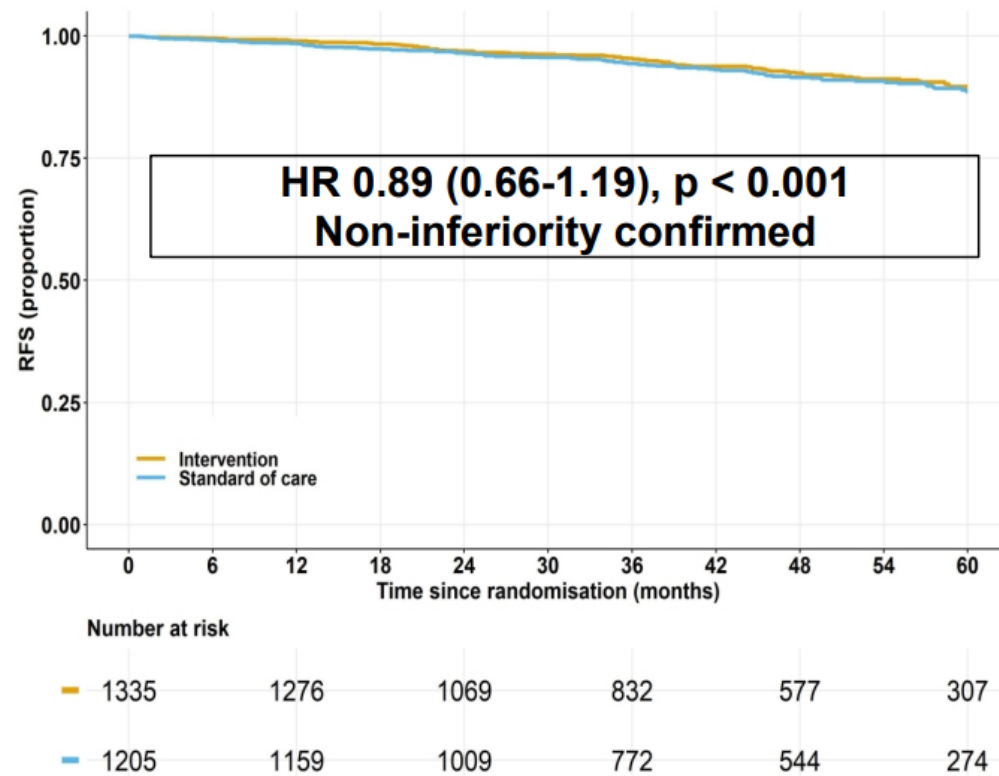
SENOMAC Consort Diagram



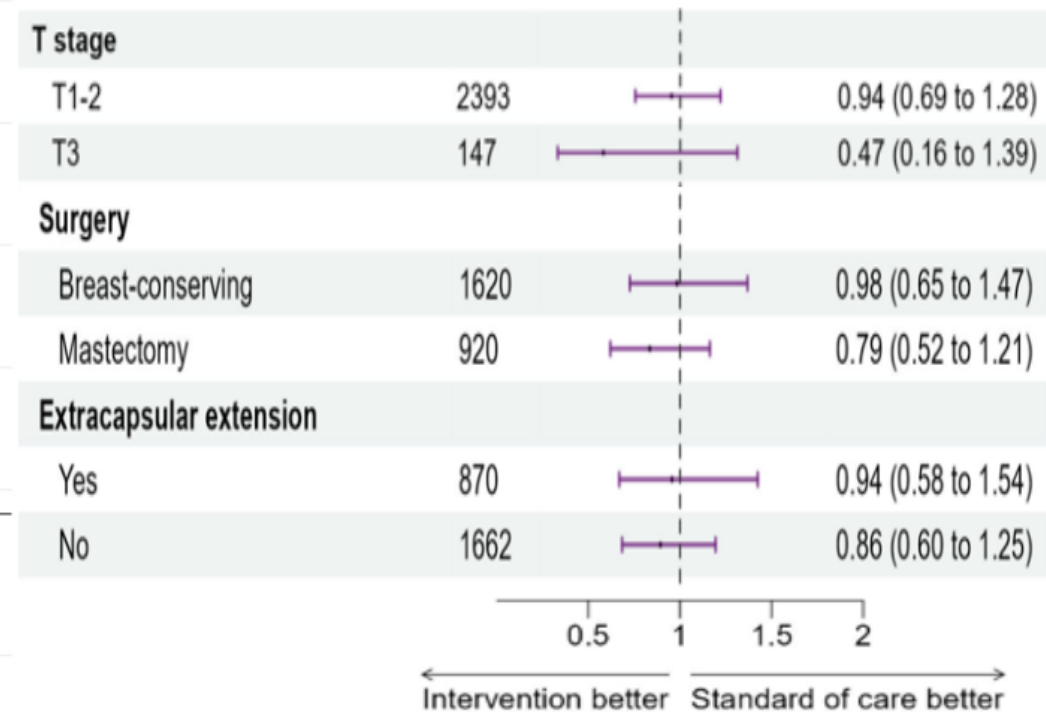
How is SENOMAC different from Z0011 and AMAROS?
Enrolled male patients!, 6% had cT3 tumors, 34% had mECE, 1.4% had positive FNA, and a large number mastectomy patients enrolled (n = 920, 36%)

SENOMAC Confirmed Safety of SLNB + RT for Patients with 1-2 Positive SLNs

Recurrence-Free Survival

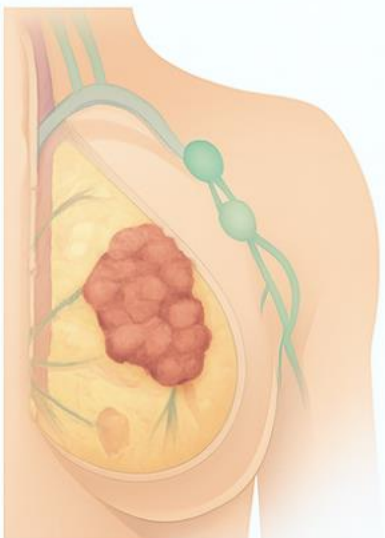


Subgroup Analyses

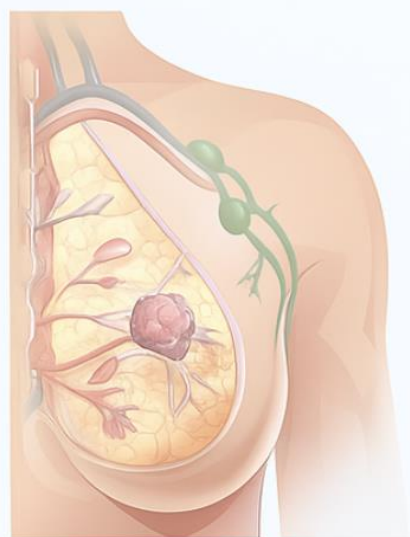


Deëscalatie van axillaire chirurgie

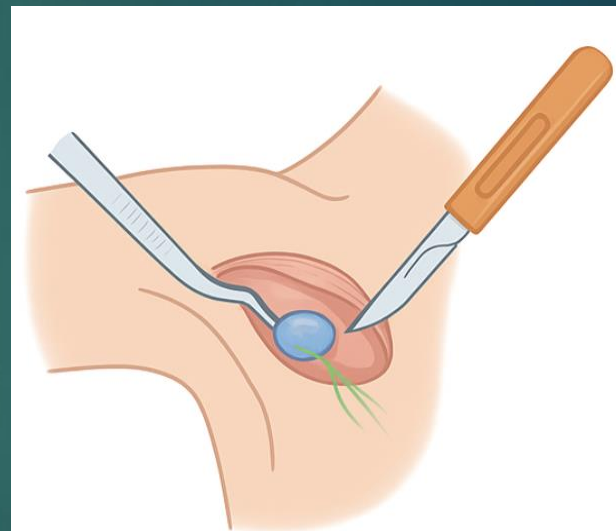
cN+ → ycN0 → ypN0(i+)



cN1



ycN0



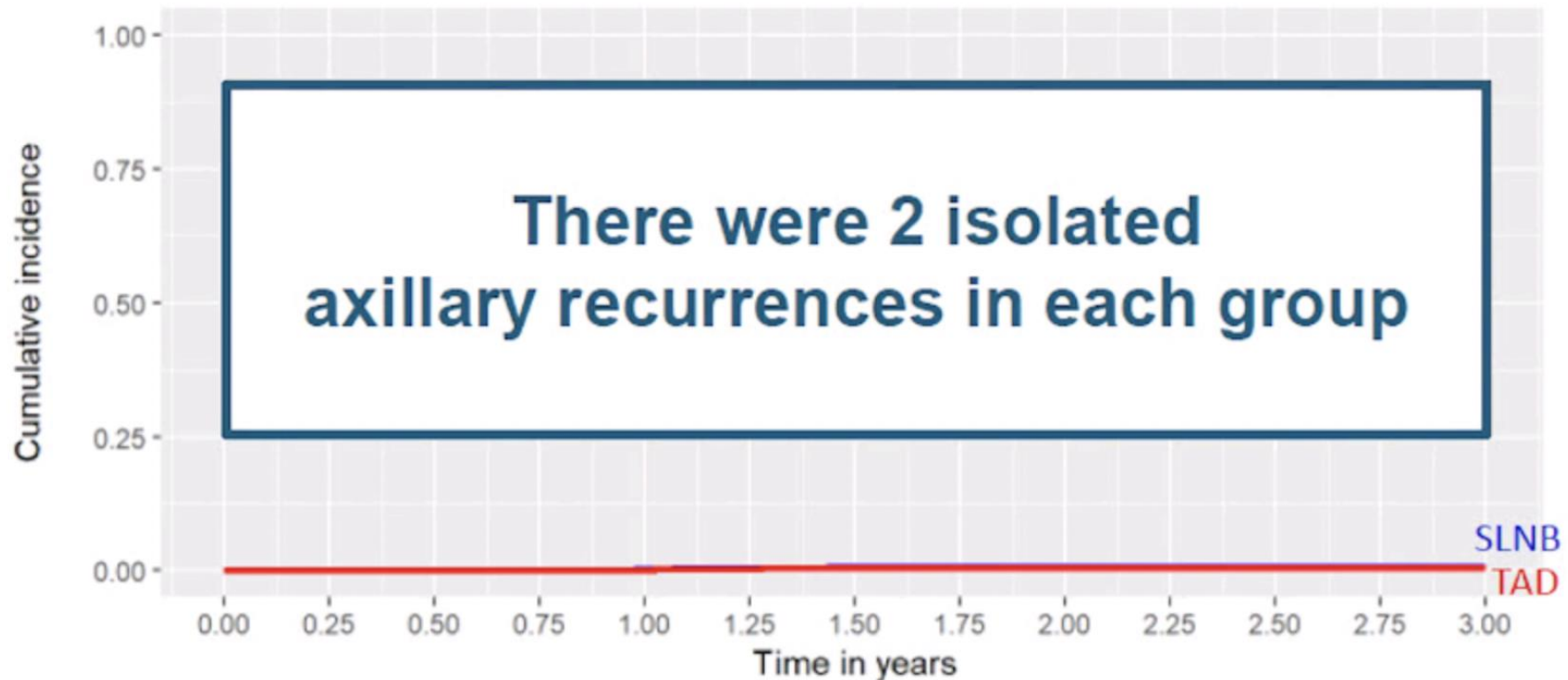
**Sentinel node
surgery**

Study (Year)	Yrs of Study	cN+→cN0 (n)	Axillary Surgery Technique	pN0 no ALND	Axillary RT	Median f/u	Ax recurrence rate	Distant recurrence rate
MSKCC (2020)	2014-2019	555	SLNB with ≥3 SLN	234	78%	35mo	1 (0.4%)	4-yr distant recurrence rate = 6.1%
Milan (2016)	2000-2010	147	SLNB (0% DT)	70	35%	61mo	0	Absolute distant recurrence rate = 12.8%
Mayo (2020)	2009-2019	315	SLNB	159	78%	34 mo	1 (0.6%)	NR
Montreal (2020)	2013-2018	132	SLNB (100% DT)	60	71%	36mo	0	5-yr distant recurrence rate = 13.7%
EUBREAST-06 (SABCS 2022)	2014-2020	666	SLNB (100% DT)	666	74%	NR	0.8% at 4 yrs	5-yr any invasive recurrence rate = 7.8%
EUBREAST-06 (SABCS 2022)	2014-2020	478	TAD	478	78%	NR	0.5% at 3 yrs	5-yr any invasive recurrence rate = 7.3%
NEOSENTITURK (SABCS 2022)	2018-2020	2358	SLNB or TAD	1179	100%	28mo	0.3% at 3 yrs	NR

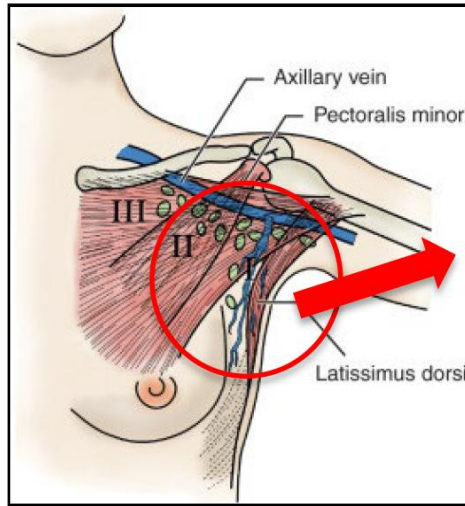
Barrio A, et al. JAMA Oncol, 2021;7:1851-1855
Galimberti V, et al. Eur J Surg Oncol, 2016;42:361-368
Pittin MA, et al. Ann Surg Oncol, 2020;27:4795-4801
Wong S, et al. Ann Surg Oncol, 2021;28:2621-2629
Montagna G, et al. SABCS 2022
Cabioglu N et al. SABCS 2022

OPBC-04 / EUBREAST-06 / OMA STUDY

**3-year rate of any axillary recurrence TAD vs SLNB
(0.5% vs 0.8%, $p = 0.55$)**



ALND



NSABP B-32¹



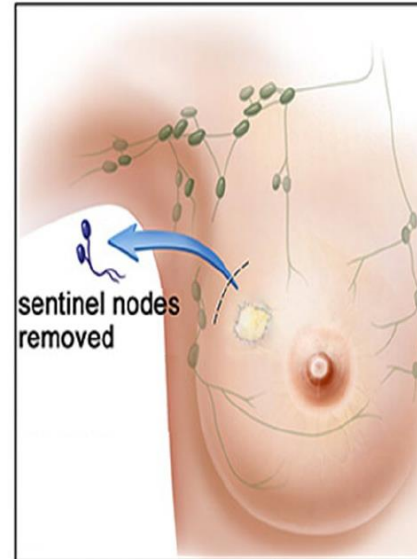
ACOSOG Z0011²

AMAROS³

IBCSG 23-01⁴

SENOMAC⁵

SLNB



No axillary
surgery?

- SLNB has always been a staging technique rather than a therapeutic intervention

¹Krag DN et al. *Lancet Oncol.* 2010;11:927-33.

²Giuliano AE et al. *JAMA.* 2017;318:918-26

³Bartels et al. *J Clin Oncol.* 2023;41:2159-65.

⁴Galimberti V et al. *Lancet Oncol.* 2018;19(10):1385-93.

⁵de Boniface et al. *N Engl J Med.* 2024;25:1222-1230.

RCT: Sentinel Lymph Node Biopsy vs No Axillary Procedure in Small Node-Negative Breast Cancer

POPULATION

1463 Women



Adult women with breast cancer smaller than 2 cm and negative preoperative axillary ultrasound

Median (IQR) age, 60 (52-68) y

INTERVENTION

1463 Patients randomized and analyzed



727 Sentinel node biopsy (SLNB)

SLNB was performed (control group)

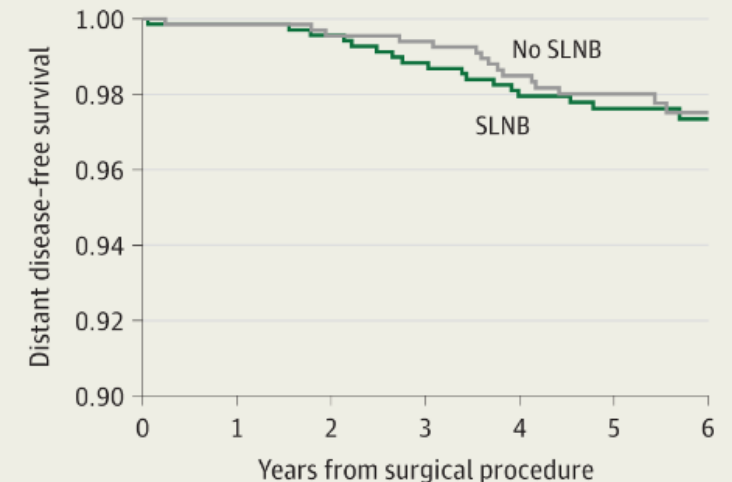


736 No SLNB

SLNB was omitted (experimental group)

FINDINGS

Omission of SLNB was noninferior to SLNB in patients with breast cancer smaller than 2 cm and a negative ultrasound of the axillary lymph nodes



SETTINGS / LOCATIONS



**18 Hospitals
in 4 countries**

PRIMARY OUTCOME

The protocol-specified primary end point was distant disease-free survival (DDFS) at 5 y

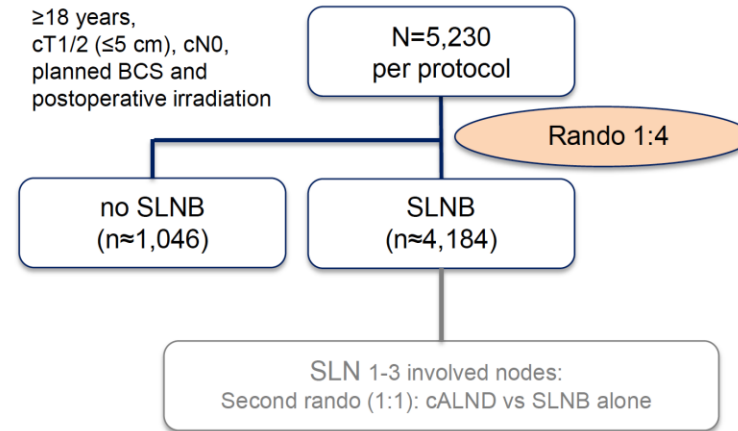
SLNB: 5-y DDFS, 97.7%

No SLNB: 5-y DDFS, 98.0%

(log-rank test, $P = .67$; hazard ratio, 0.84; 90% CI, 0.45-1.54; noninferiority $P = .02$)

INSEMA trial

- ▶ cT1/2
- ▶ cN0
- ▶ Borstsparend



iDFS, invasive disease-free survival; BCS, breast-conserving surgery;
SLNB, sentinel lymph node biopsy; cALND, completion axillary lymph node dissection

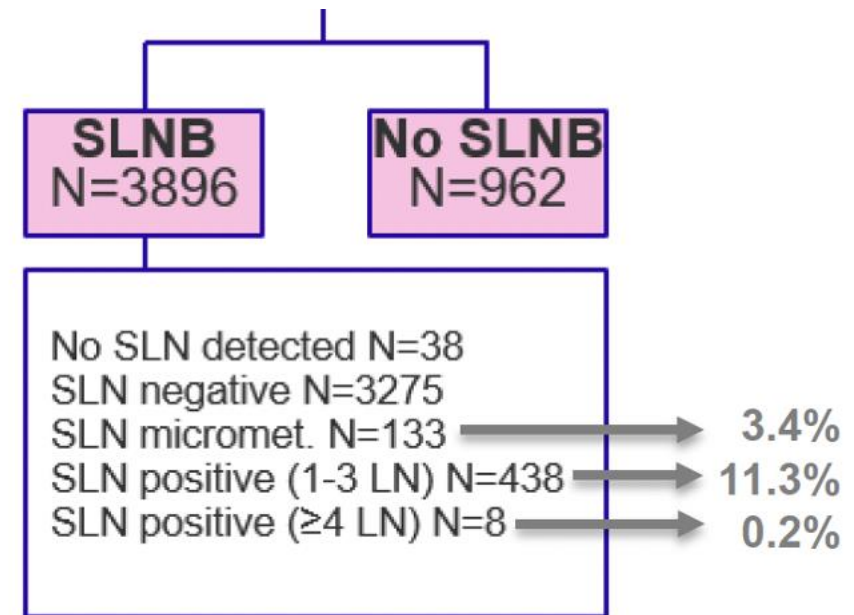
Primary objective:

- To compare iDFS after BCS (non-inferiority question) between no axillary surgery and SLNB patients (first randomization)

Key secondary objective:

- To compare iDFS after BCS between SLNB alone and completion ALND patients (second randomization)
- Recruitment in Germany and Austria (2015-2019)

GBG



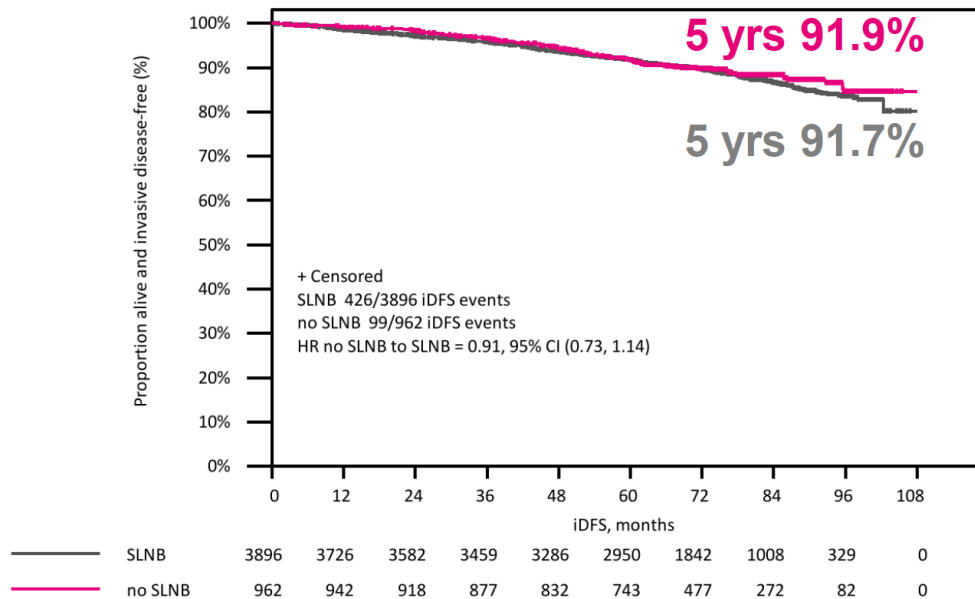
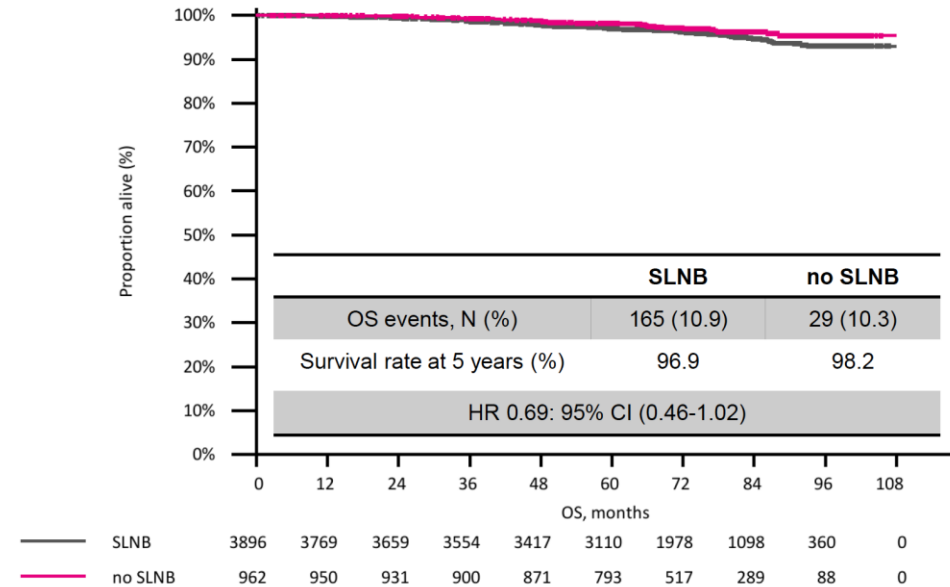
10.8% were
aged
<50 years

95.2% had
HR+/HER2-
subtype

Parameter	Category	No SLNB N=962 N (%)	SLNB N=3896 N (%)
Age	median (IQR)	62 (53-68)	62 (53-68)
	<65 years	583 (60.6)	2387 (61.3)
	≥65 years	379 (39.4)	1509 (38.7)
Preop. tumor size	≤2 cm	871 (90.5)	3521 (90.4)
	>2 cm	91 (9.5)	375 (9.6)
Grading	G1	372 (38.7)	1463 (37.6)
	G2	552 (57.4)	2294 (58.8)
	G3	38 (3.9)	139 (3.6)
Tumor type	NST	726 (75.5)	2828 (72.6)
	Invasive/mixed lobular carcinoma	125 (13.0)	491 (12.6)
	other	111 (11.5)	576 (14.8)
ER/PgR	both negative	15 (1.6)	58 (1.5)
	ER and/or PgR positive	946 (98.4)	3835 (98.5)
HER2 status	negative	914 (95.4)	3755 (96.7)
	positive	44 (4.6)	130 (3.3)

Invasief recidief en overleving

- ▶ Mediane follow up 73,6 maanden
- ▶ HR 0,91 (95% CI 0,73-1,14)



	SOUND	INSEMA
Randomization	SLNB vs no SLNB	SLNB vs no SLNB (4:1)
N	1,405 708 SLNB vs 697 no SLNB	4,858 3,896 SLNB vs 962 no SLNB
Population	cT <2cm, cN0 (including negative axillary ultrasound) invasive breast cancer, BCT	cT ≤5cm (90% ≤2cm), cN0 invasive breast cancer, BCT
Age	Median (IQR) 60 years (52-68)	~61% age < 65 years
Survival	5-year DDFS: 97.7% SLNB vs 98.0% no SLNB HR 0.84 (90% CI 0.45-1.54) 5-year OS: 98.2% vs 98.4% (p=0.72)	5-year iDFS: 91.7% SLNB vs 91.9% no SLNB HR 0.91 (95% CI 0.73-1.14) 5-year OS: 98.2% vs 96.9%
Recurrence	Local 1.0% SLNB vs 0.9% no SLNB Axillary 0.4% vs 0.7%	Local 1.1% SLNB vs 0.8% no SLNB Axillary 0.3% vs 1.0%

Gentilini OD et al. *JAMA Onc.* 2023;e233759.

Maar...

- ▶ **Positieve schildwachtlieren (SLNs)** beïnvloeden de keuze voor adjuvante therapie,
 - ▶ Systemische therapie: chemotherapie en CDK4/6 remmers
 - ▶ Radiotherapie.
- ▶ Onderrepresentatie van **premenopauzale patiënten**

→ SLNB blijft een belangrijke stadiëringmethode die voor veel patiënten noodzakelijk is.

Conclusie

- ▶ Deëscalatie van zowel borst- en axillarie chirurgie
- ▶ Chirurgie bij >70j met goede levensverwachting
- ▶ Sentinelprocedure blijft een belangrijke stadiëeringsmethode met weinig morbiditeit



ZIEKENHUISaan
deSTROOM