FUNDACION MARIE CURIE
Córdoba - Argentina

Congreso sobre Avances Integrados en Oncología, Radiocirugía y Física Médica: Innovación y Precisión en el tratamiento del cáncer

Carcinoma ductal in situ:

Cuándo se puede omitir cirugía y/o radioterapia

Philip Poortmans, MD, PhD

Iridium Netwerk & Antwerp University, Antwerpen (B)

Former President

Conflict of interest

Affidea – medical advisor

MSD - consultant

And I worry about the future…

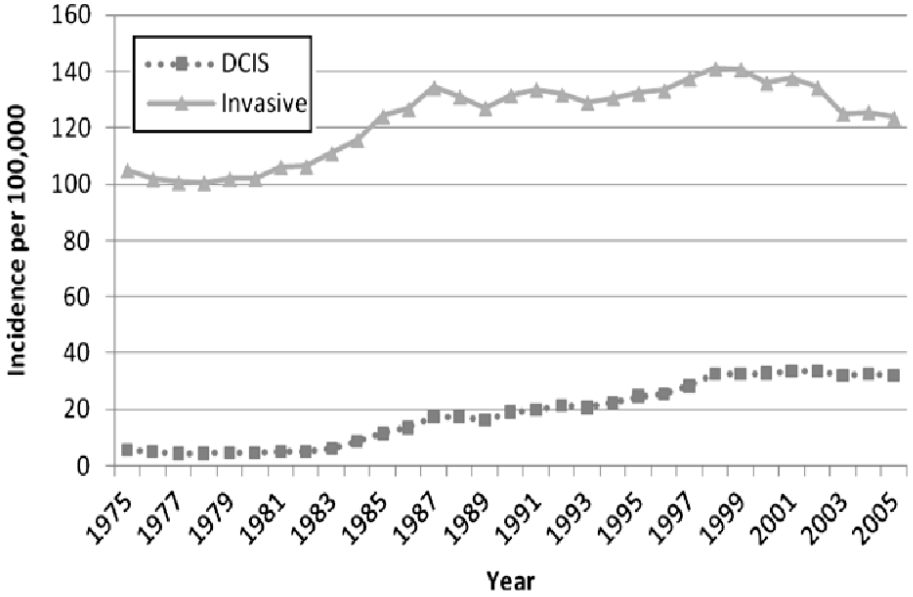

STOP WARS
STOP

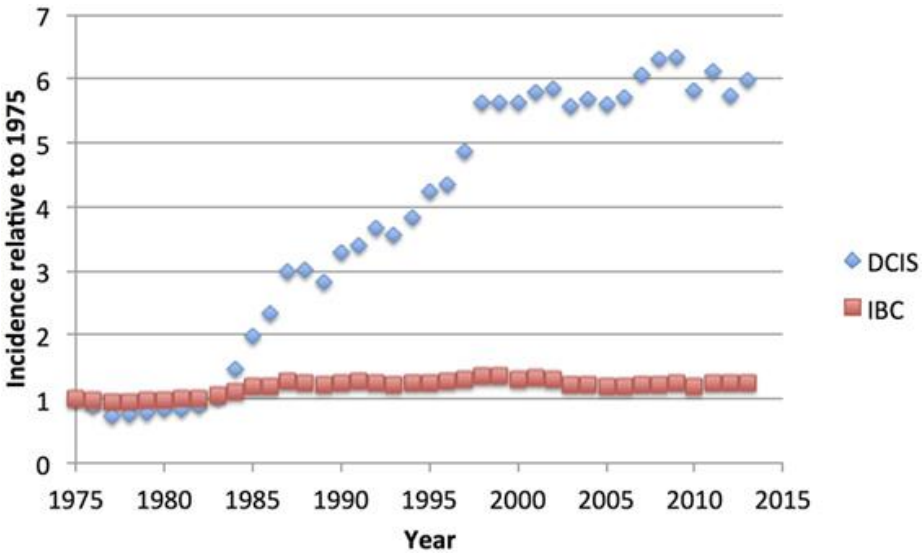
Radiation therapy for DCIS

- Introduction
- Evidence from the past
- Recent additions
- Discussion
- Conclusions

RT for DCIS: *Introduction*

Increasing breast cancer incidence, even (much) more for DCIS





Virnig BA, et al. doi: 10.1093/jncimonographs/lgq024

RT for DCIS: *Introduction*

Old thoughts & habits:

- Rarely events after mastectomy
- Considered as pre-malignant disease
- Doubts about radiosensitivity
- Introduction of BCT followed later

Radiation therapy for DCIS

- Introduction
- Evidence from the past
- Recent additions
- Discussion
- Conclusions

RT for DCIS: *Evidence from the past*

Lumpectomy alone

Prospective, single-arm, multi-institution study:

- DCIS of predominant grade 1 or 2
- Mammographic extent ≤ 2.5 cm
- Final resection margins ≥ 1 cm
- No tamoxifen

Wong et al. JCO 2006;24:1031-1036.

RT for DCIS: *Evidence from the past*

Lumpectomy alone

Prospective, single-arm, multi-institution study:

- DCIS of predominant grade 1 or 2
- Mammographic extent ≤ 2.5 cm
- Final resection margins ≥ 1 cm
- No tamoxifen

July 2002: preliminary closure (157/200) of study

- Median FU of 40 months: 13 local recurrences
- 2.4% per patient-year (95% CI, 1.3% to 4.1%)
- 5-year rate of 12.5%
- 4/13 = invasive disease

Wong et al. JCO 2006;24:1031-1036.

RT for DCIS: *Evidence from the past*

Lumpectomy alone – ECOG trial

Prospective registration trial; median FU 6.5 years

Eligible:
- G1-2 ≤ 2.5 cm
- G3 ≤ 1.0 cm
- margins ≥ 3 mm
- no residual microcalcifications post-op

Hughes et al. JCO 2009;27:5319-5324.

RT for DCIS: *Evidence from the past*

Lumpectomy alone – ECOG trial

Prospective registration trial; median FU 6.5 years

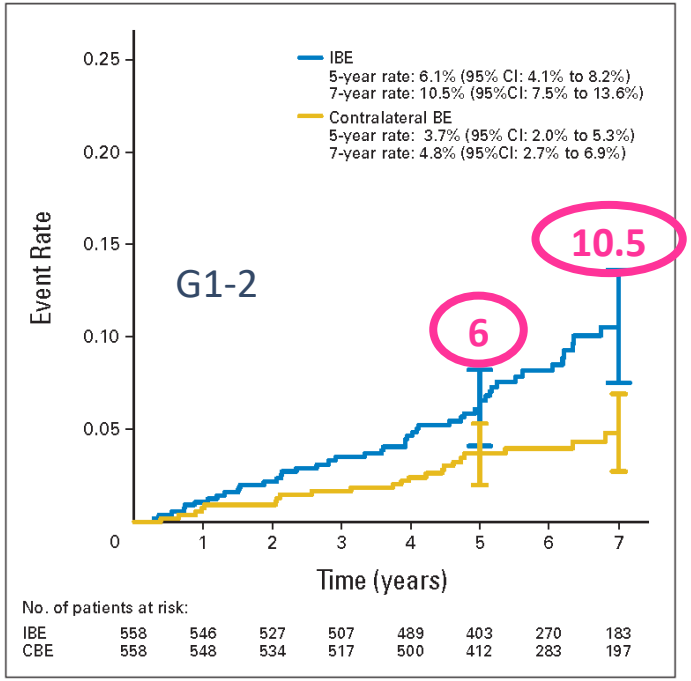
Eligible: - G1-2 ≤ 2.5 cm
- G3 ≤ 1.0 cm
- margins ≥ 3 mm
- no residual microcalcifications post-op

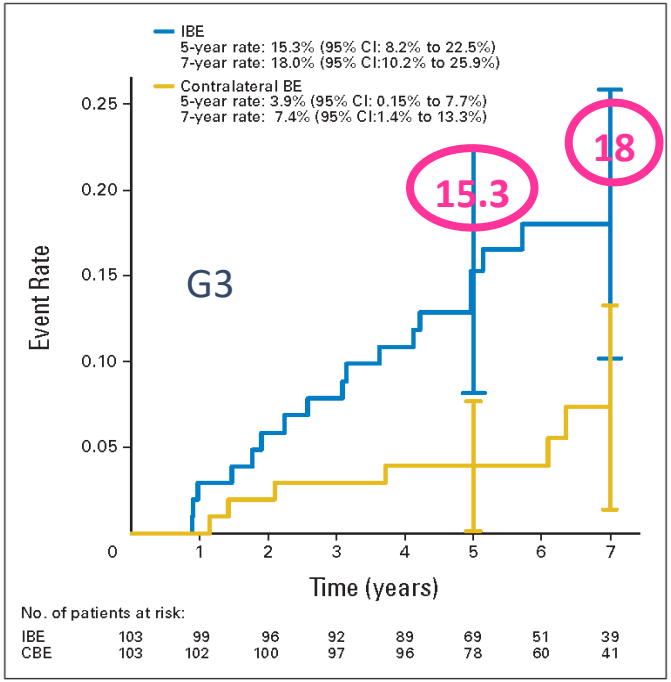
Included: - G1-2 median 6 mm (77% < 10 mm): n=565
- G3 median 5 mm (88% < 10 mm): n=105
- margins ≥ 5 mm: 83%; ≥ 10 mm: 53%
- ≥30% received Tamoxifen (from 2000 on)

Hughes et al. JCO 2009;27:5319-5324.

RT for DCIS: *Evidence from the past*

Lumpectomy alone – ECOG trial





Ipsilateral vs contralateral breast events. 53% of IBE were invasive.

Hughes et al. JCO 2009;27:5319-5324.

RT for DCIS: *Evidence from the past*

Nomogram for DCIS recurrence risks

Nomogram for Predicting the Risk of Local Recurrence After Breast-Conserving Surgery for Ductal Carcinoma In Situ

Udo Rudloff, Lindsay M. Jacks, Jessica I. Goldberg, Christine A. Wynveen, Edi Brogi, Sujata Patil, and Kimberly J. Van Zee

Rudloff et al. JCO 2010;28:3762-3769.

RT for DCIS: *Evidence from the past*

Nomogram for DCIS recurrence risks

Prospectively maintained DCIS database

All patients treated with BCT for DCIS

Between 1991 and 2006 ➔ n = 1.868

Histopathologic data from original pathology reports;

if incomplete ➔ original slides reviewed

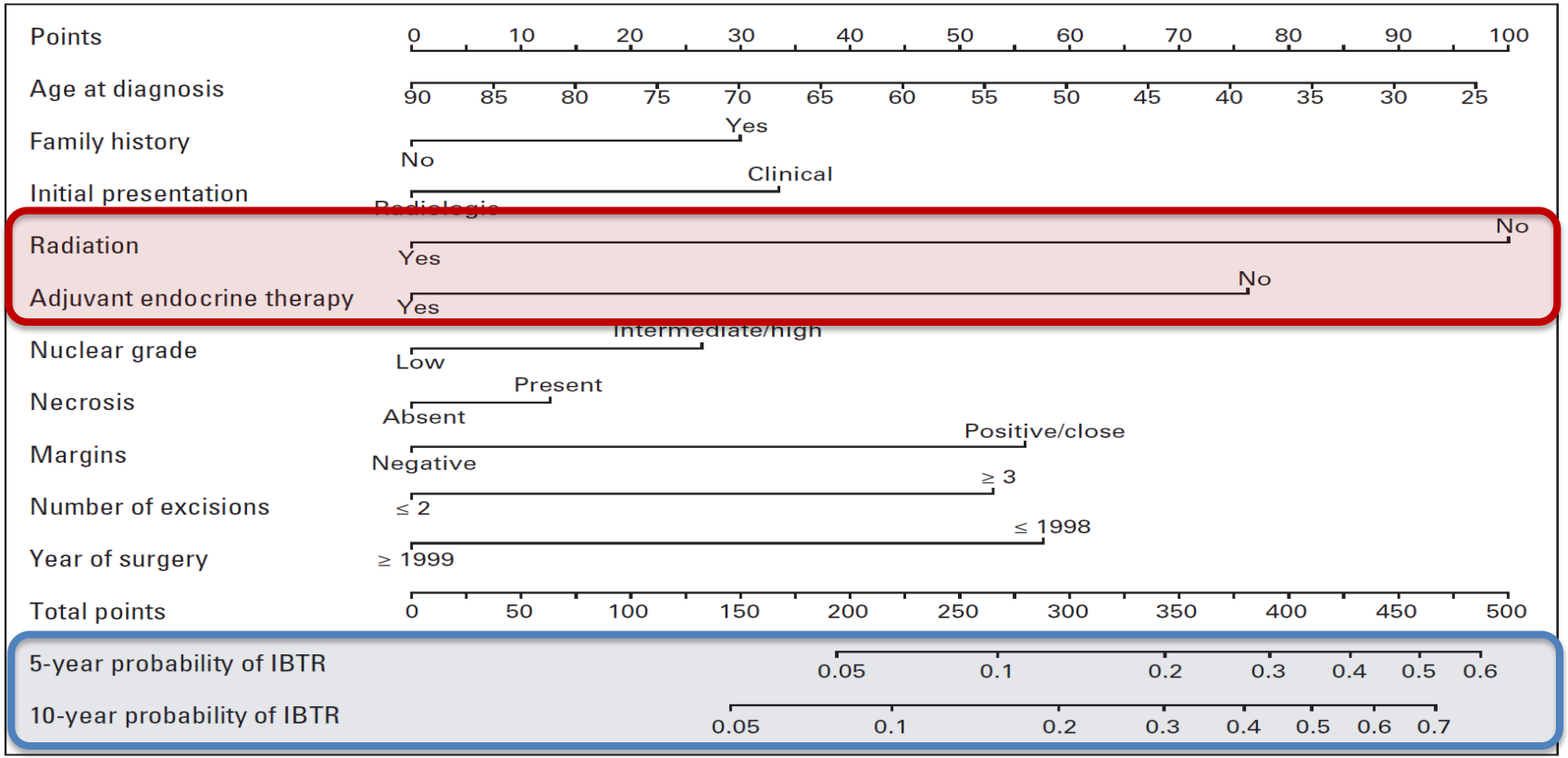
➔ 360 of 1.868 cases; 19%

Data from 1.681 patients were complete and used

Rudloff et al. JCO 2010;28:3762-3769.

RT for DCIS: *Evidence from the past*

Nomogram for DCIS recurrence risks



Rudloff et al. JCO 2010;28:3762-3769.

RT for DCIS: *Evidence from the past*

Nomogram for DCIS recurrence risks

Limitations:

- Retrospective data
- Not randomized
- External validation required

Rudloff et al. JCO 2010;28:3762-3769.

RT for DCIS: *Evidence from the past*

Lumpectomy with/without RT

Overview of the Randomized Trials of Radiotherapy in Ductal Carcinoma In Situ of the Breast

Early Breast Cancer Trialists' Collaborative Group (EBCTCG)

EBCTCG. J Natl Cancer Inst Monogr 2010;41:162–177.

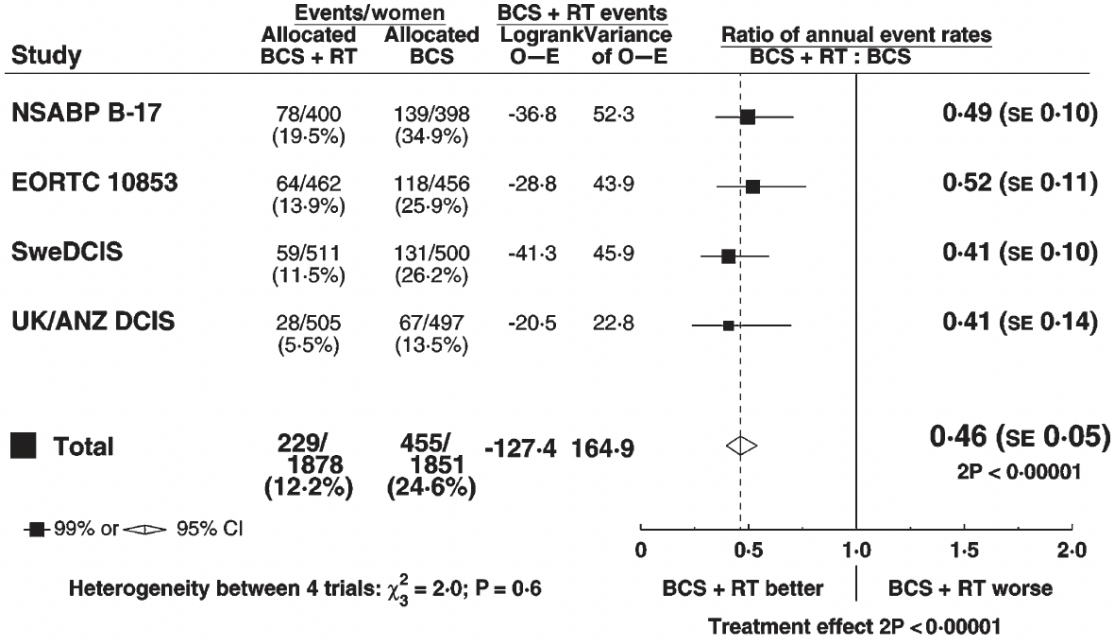
RT for DCIS: *Evidence from the past*

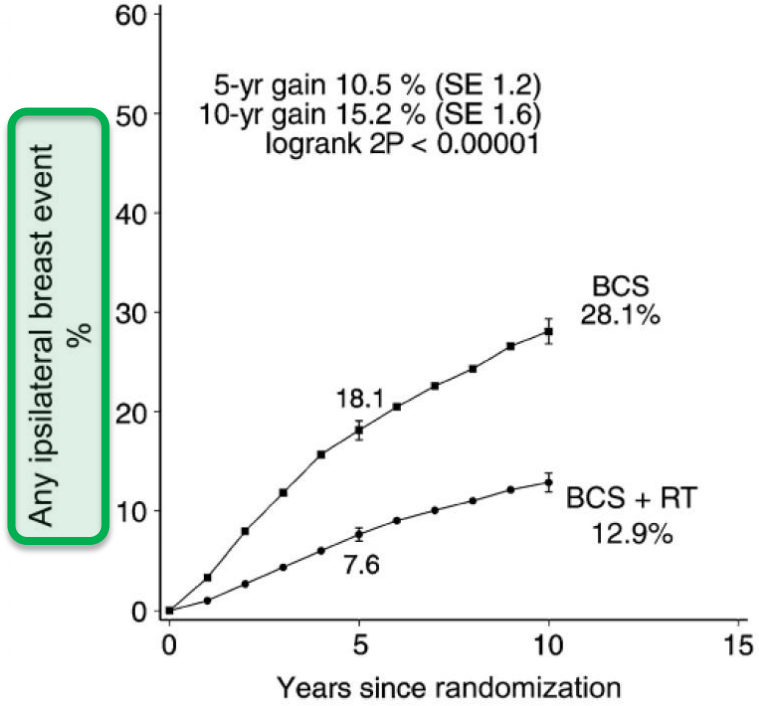
Year code, study name (reference)	Entry dates	No. of women randomized	No. of women eligible for analysis†	Median follow-up (yr)	Mammographic detection (%)	Breast and axillary surgery	Negative surgical margins required	Central pathological review	Breast radiotherapy
Data available for overview									
NSABP B-17 (3, 4, 5)	1985–1990	818	798	16.5	80	Local excision (37% axillary dissection)	Yes (13% involved or unknown)‡	623 (76%)	50 Gy (2 Gy/f) 9% with boost
EORTC 10853 (6, 7, 8, 9)	1986–1996	1010	918	10.4	72	Local excision (20% axillary dissection)	Yes (16% "not free," <1mm, involved or unknown)‡	824 (82%)	50 Gy (2 Gy/f) 5% with boost
SweDCIS (10, 11, 12)	1987–1999	1067	1011	8.4	79	Sector resection (17% axillary dissection)	No (11% positive, 9% unknown)‡	271 (25%)	50 Gy (2 Gy/f) (80%) or 48 Gy (2.4 Gy/f) (13%) or 54 Gy (2 Gy/f) then 2 wk gap (7%) Boost not recommended
UK/ANZ DCIS§(13)	1990–1998	1030	1002	4.8	100	Local excision (No axillary dissection)	Yes	0 (0%)	50 Gy (2 Gy/f) Boost not recommended
Data not yet available									
RTOG 9804	1999–2006	636	–	–	ns	Local excision (No axillary dissection)	Yes	0 (0%)	50.4 Gy (1.8 Gy/f) or 50 Gy (2 Gy/f) or 42.5 Gy (2.7 Gy/f) Boost not recommended

EBCTCG. J Natl Cancer Inst Monogr 2010;41:162–177.

RT for DCIS: *Evidence from the past*

Lumpectomy with/without RT

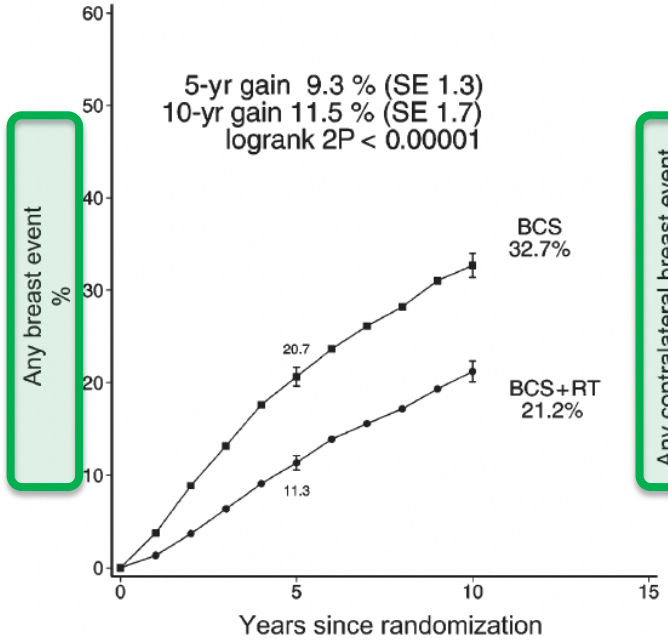


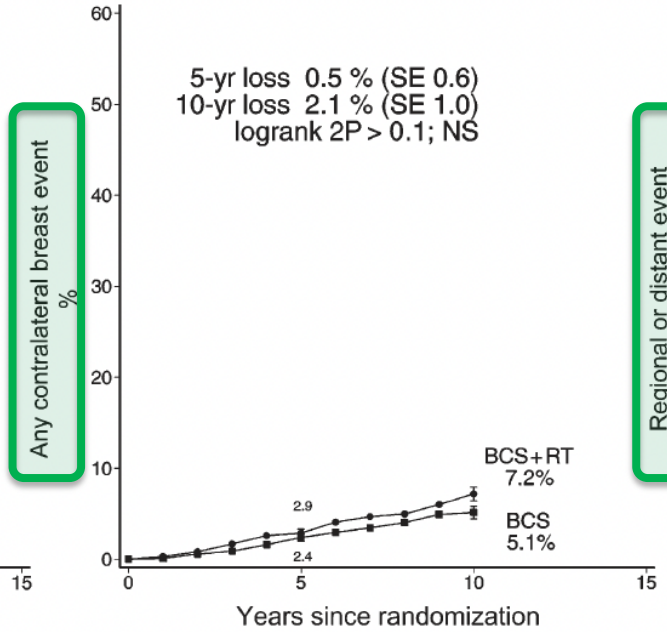


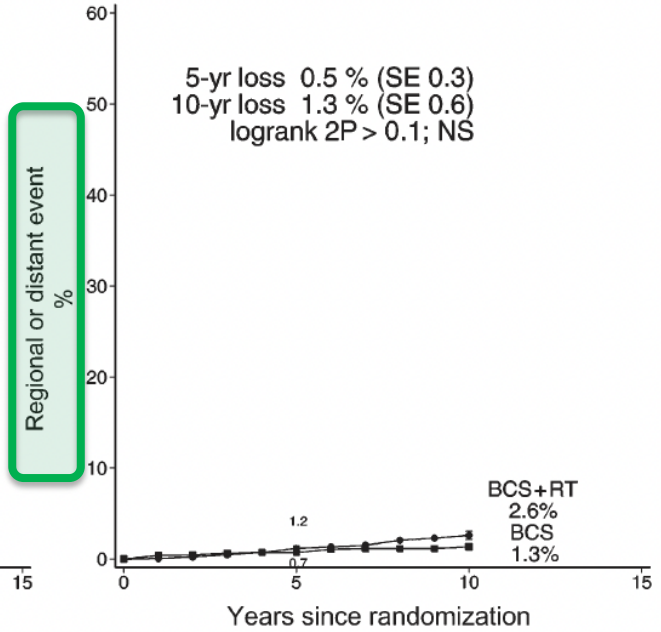
EBCTCG. J Natl Cancer Inst Monogr 2010;41:162–177.

RT for DCIS: *Evidence from the past*

Lumpectomy with/without RT







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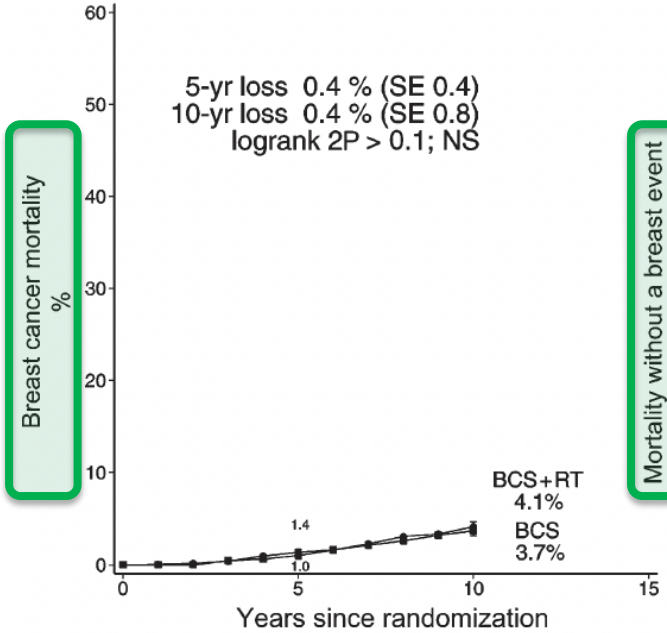
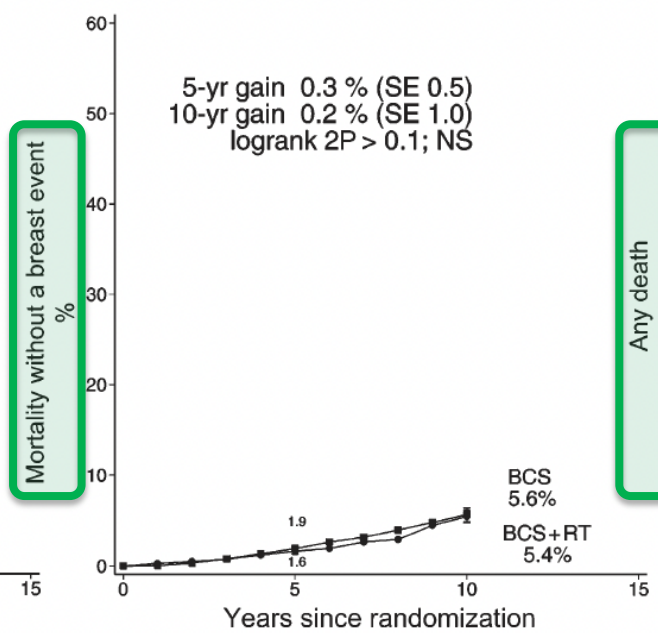
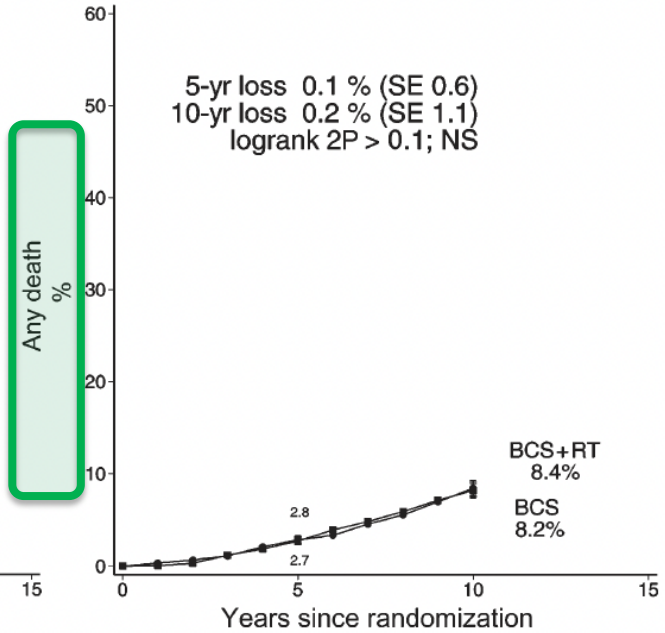
RT for DCIS: *Evidence from the past*

Lumpectomy with/without RT







EBCTCG. J Natl Cancer Inst Monogr 2010;41:162–177.

RT for DCIS: *Evidence from the past*

Lumpectomy with/without RT

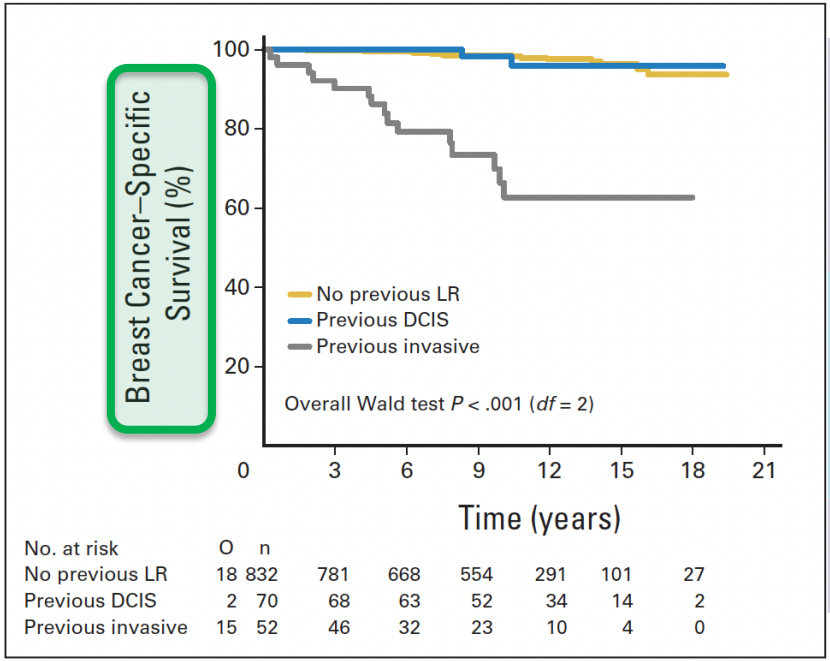
Breast-Conserving Treatment With or Without Radiotherapy in Ductal Carcinoma In Situ: 15-Year Recurrence Rates and Outcome After a Recurrence, From the EORTC 10853 Randomized Phase III Trial

Mila Donker, Saskia Litière, Gustavo Werutsky, Jean-Pierre Julien, Ian S. Fentiman, Roberto Agresti, Philippe Rouanet, Christine Tunon de Lara, Harry Bartelink, Nicole Duez, Emiel J.T. Rutgers, and Nina Bijker

Donker M, et al. J Clin Oncol. 2013;31:4054-9.

RT for DCIS: *Evidence from the past*

Lumpectomy with/without RT – after invasive recurrence



	FU (years)	Hazard ratio	
		Breast cancer mortality after invasive LR	All cause mortality after invasive LR
EORTC 10853	15.8	17.7	5.2
NSABP B17	17.3	7.1	1.8
NSABP B24	13.6		

Donker M, et al. J Clin Oncol. 2013;31:4054-9.

Wapnir et al. J Natl Cancer Inst 2011;103:478-88.

RT for DCIS: *Evidence from the past*

Optimal surgical margins

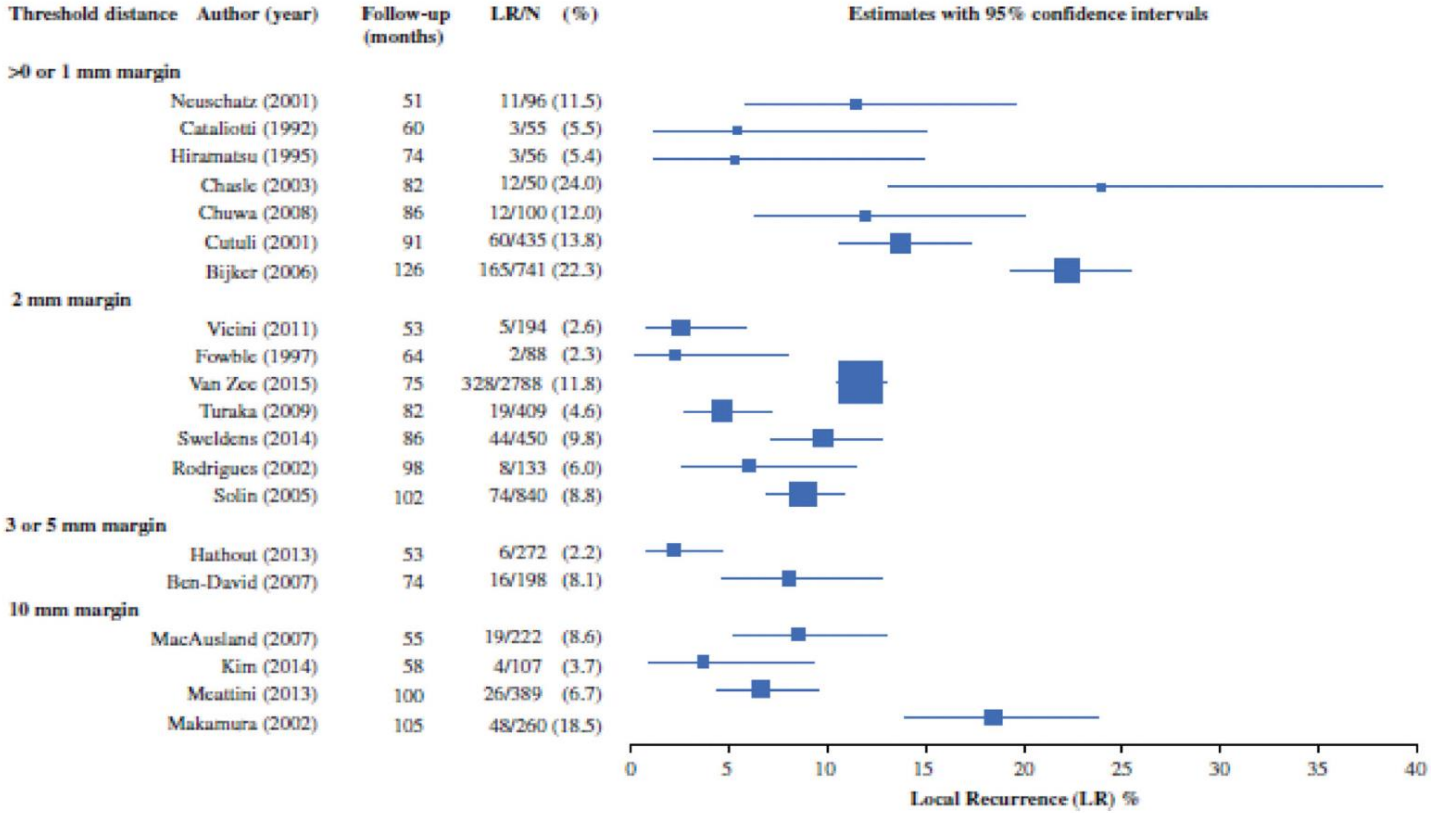
The Association of Surgical Margins and Local Recurrence in Women with Ductal Carcinoma *In Situ* Treated with Breast-Conserving Therapy: A Meta-Analysis

M. Luke Marinovich[1,*], **Lamiae Azizi**[1], **Petra Macaskill**[1], **Les Irwig**[1], **Monica Morrow**[2], **Lawrence J Solin**[3], and **Nehmat Houssami**[1]

Marinovich ML, et al. Ann Surg Oncol 2016;23:3811-21.

RT for DCIS: *Evidence from the past*

Optimal surgical margins



Marinovich ML, et al. Ann Surg Oncol 2016;23:3811-21.

RT for DCIS: *Evidence from the past*

Optimal surgical margins

Negative margins ➔ halved LR risk

Marinovich ML, et al. Ann Surg Oncol 2016;23:3811-21.

RT for DCIS: *Evidence from the past*

Optimal surgical margins

Negative margins ➔ halved LR risk

SSO-ASTRO-ASCO consensus guideline for BCS+WBI in DCIS

- ✓ 2 mm surgical margin ➔ low LR rates without adverse cosmetic outcome
- ✓ Margin >2 mm ➔ not significantly better
- ✓ Negative margin <2 mm ➔ as such not an indication for mastectomy, further surgery should be guided by clinical judgment and patient preference

Notes: Dutch protocol: re-excision rarely indicated
This is about pure DCIS, not about margins in associated DCIS
Also in DCIS, LR rates are decreasing

Marinovich ML, et al. Ann Surg Oncol 2016;23:3811-21. *Morrow M, et al. J Clin Oncol 2016;34:4040-6.*

RT for DCIS: *Evidence from the past*

Boost after WBI

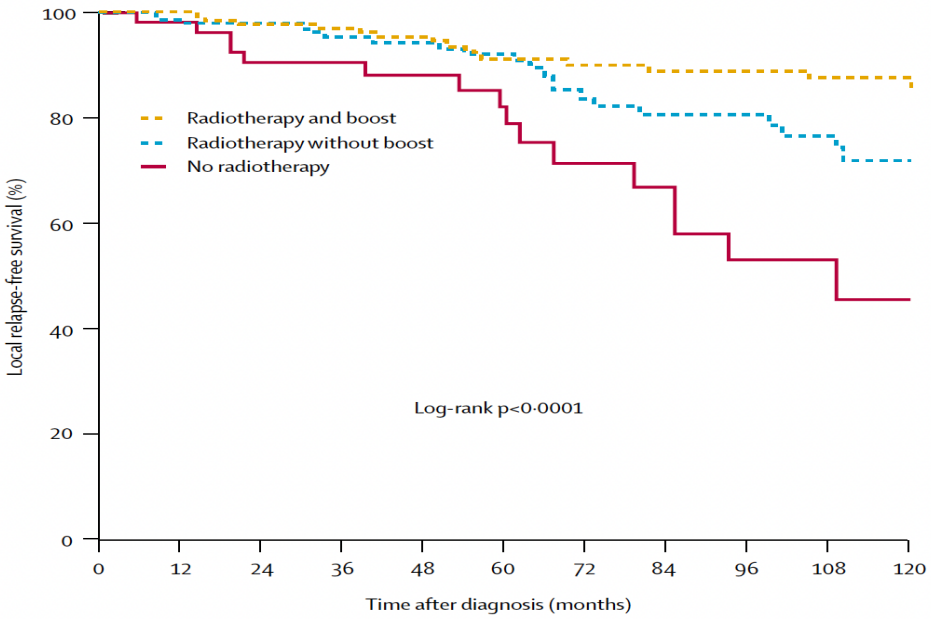
Boost radiotherapy in young women with ductal carcinoma in situ: a multicentre, retrospective study of the Rare Cancer Network

Aurelius Omlin, Maurizio Amichetti, David Azria, Bernard F Cole, Philippe Fourneret, Philip Poortmans, Diana Naehrig, Robert C Miller, Marco Krengli, Cristina Gutierrez Miguelez, David Morgan, Hadassah Goldberg, Luciano Scandolaro, Pauline Gastelblum, Mahmut Ozsahin, Dagmar Dohr, David Christie, Ulrich Oppitz, Ufuk Abacioglu, Guenther Gruber

Omlin A, et al. Lancet Oncol 2006;7:652–56.

RT for DCIS: *Evidence from the past*

Boost after WBI



Number at risk

Radiotherapy and boost	150	143	133	126	115	99	90	78	64	51	44
Radiotherapy without boost	166	148	125	103	88	68	56	50	43	34	24
No radiotherapy	57	53	46	39	33	26	17	15	10	7	3

Omlin A, et al. Lancet Oncol 2006;7:652–56.

Radiation therapy for DCIS

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- Evidence from the past
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RT for DCIS: *Recent additions*

BIG 3–07/TROG 07.01: fractionation & boost in DCIS

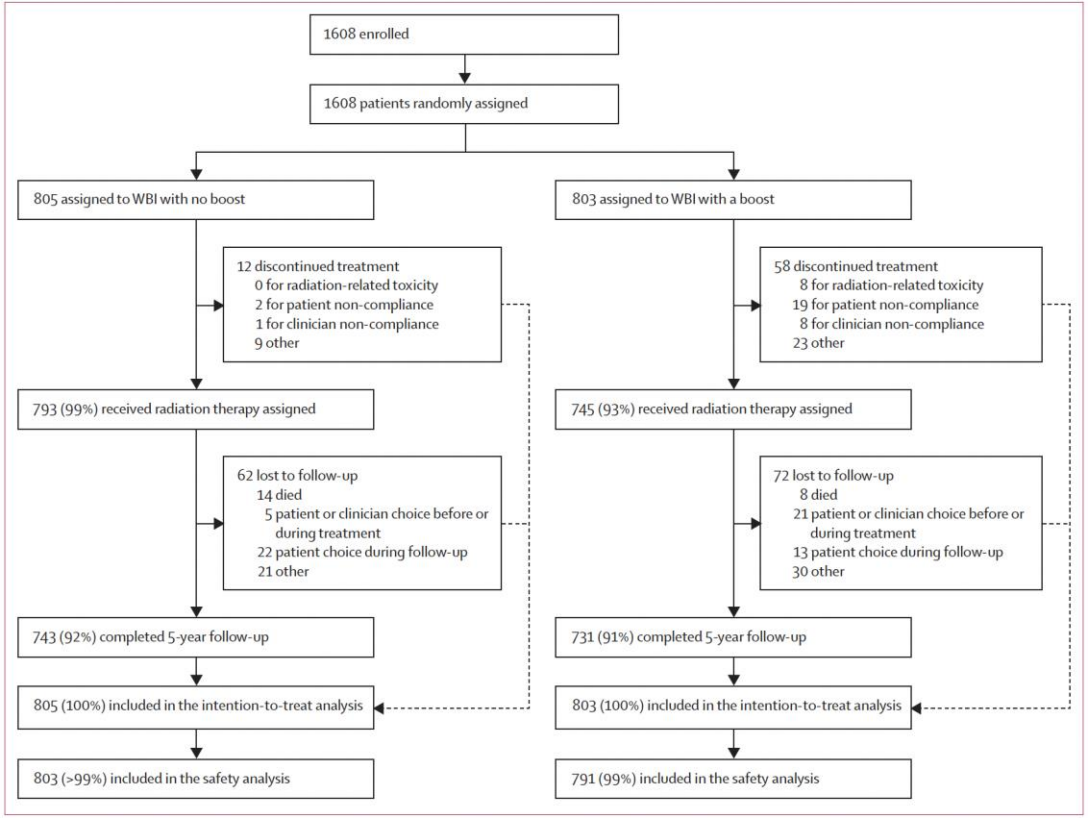
Radiation doses and fractionation schedules in non-low-risk ductal carcinoma in situ in the breast (BIG 3–07/TROG 07.01): a randomised, factorial, multicentre, open-label, phase 3 study

*Boon H Chua, Emma K Link, Ian H Kunkler, Timothy J Whelan, A Helen Westenberg, Guenther Gruber, Guy Bryant, Verity Ahern, Kash Purohit, Peter H Graham, Mohamed Akra, Orla McArdle, Peter O'Brien, Jennifer A Harvey, Carine Kirkove, John H Maduro, Ian D Campbell, Geoff P Delaney, Joseph D Martin, T Trinh T Vu, Thierry M Muanza, Anthony Neal, Ivo A Olivotto, on behalf of the BIG 3–07/TROG 07.01 trial investigators**

Boon HC, et al. Lancet 2022; 400: 431–4.

RT for DCIS: *Recent additions*

BIG 3–07/TROG 07.01: fractionation & boost in DCIS

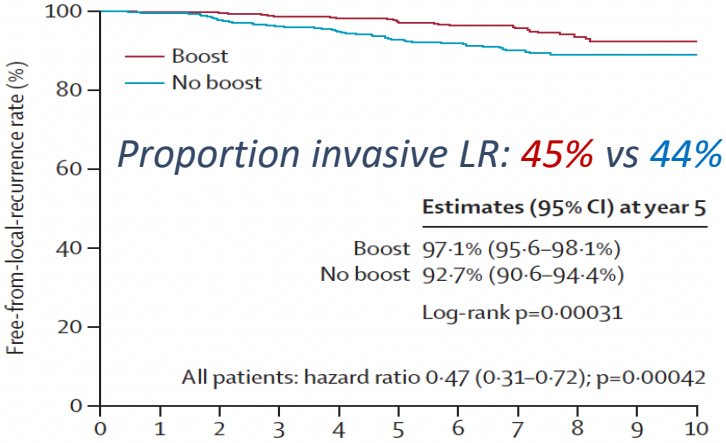


- 2007 - 2014
- N = 1608 patients
- Randomised:
  1. boost (n = 803) vs no boost (n = 805)
  2. CF WBI (n = 831) & HF WBI (n = 777)
- Median FU 6·6 years.

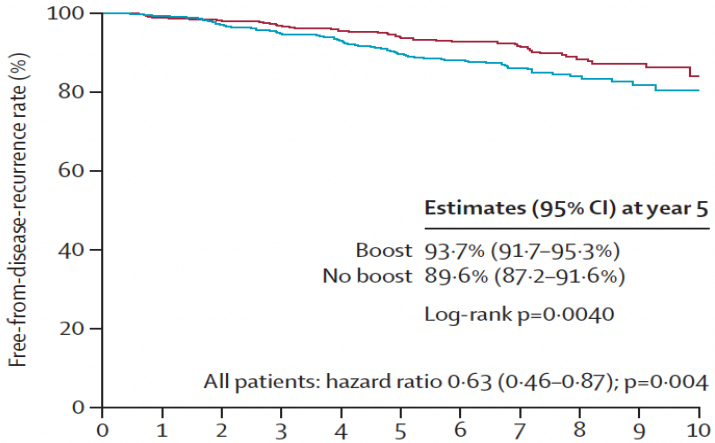
Boon HC, et al. Lancet 2022; 400: 431–4.

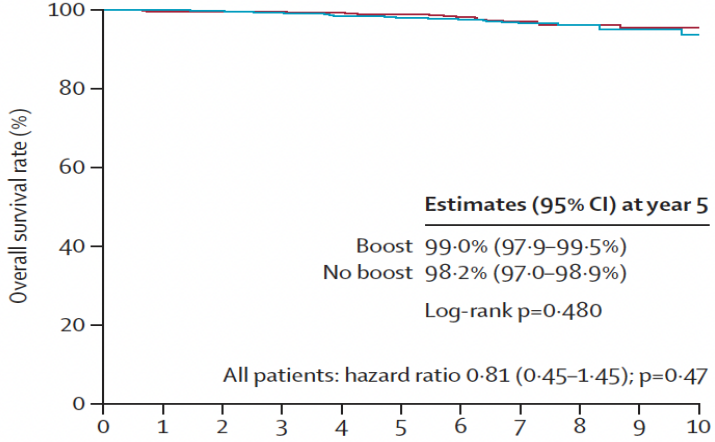
RT for DCIS: *Recent additions*

*BIG 3–07/TROG 07.01: fractionation & **boost** in DCIS*



Proportion invasive LR: 45% vs 44%



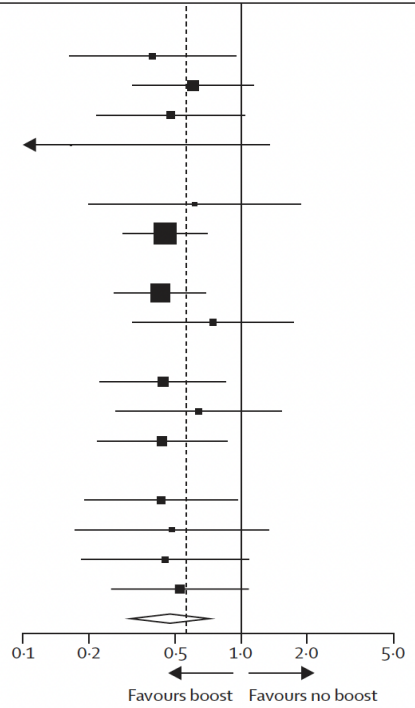


Boon HC, et al. Lancet 2022; 400: 431–4.

RT for DCIS: *Recent additions*

*BIG 3–07/TROG 07.01: fractionation & **boost** in DCIS*

	N	No boost		Boost		Hazard ratio (95% CI)
		LR	No LR	LR	No LR	
Age (years)						
<50	264	17	116	7	124	0·39 (0·16–0·95)
50–59	640	23	283	16	318	0·60 (0·32–1·15)
60–69	559	21	271	9	258	0·48 (0·22–1·05)
≥70	145	7	67	1	70	0·17 (0·02–1·35)
Endocrine therapy						
Yes	211	8	98	5	100	0·61 (0·20–1·87)
No	1397	60	639	28	670	0·45 (0·29–0·70)
High nuclear grade or comedo necrosis						
Yes	1176	56	551	23	546	0·43 (0·26–0·69)
No	432	12	186	10	224	0·74 (0·32–1·75)
Tumour size						
≤15 mm	808	26	363	13	406	0·44 (0·22–0·86)
>15 to 25 mm	420	15	218	8	179	0·64 (0·27–1·53)
>25 mm	380	27	156	12	185	0·43 (0·22–0·86)
Radial margin size						
<2 mm	283	18	116	9	140	0·43 (0·19–0·97)
2–5mm	319	11	147	6	155	0·48 (0·17–1·34)
>5 mm	398	17	188	7	186	0·45 (0·18–1·09)
Unknown	608	22	286	11	289	0·52 (0·25–1·09)
All	**1608**	**68**	**737**	**33**	**770**	**0·47 (0·31–0·72)**



Boon HC, et al. Lancet 2022; 400: 431–4.

RT for DCIS: *Recent additions*

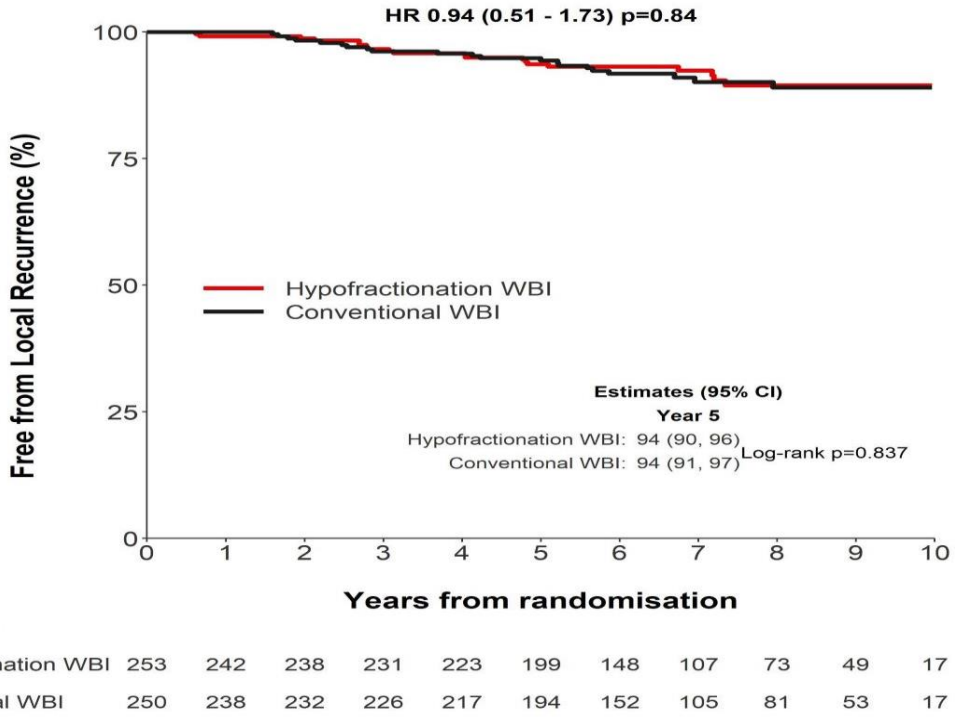
*BIG 3–07/TROG 07.01: fractionation & **boost** in DCIS – side effects*

Acute	No BOOST (N=805)			BOOST (N=803)			P
Grade	2	3	4	2	3	4	
Fatigue	112	7	0	131	11	1	0.25
Radiation dermatitis	227	8	0	338	23	1	0.006
Breast pain	90	8	0	116	10	1	0.49
Pneumonitis	0	1	0	1	1	0	>0.99
Late							
Breast pain	67	10	0	102	12	2	**0.003**
Induration or fibrosis	44	5	-	99	11	-	**<0.0001**
Telangiectasia	4	3	0	16	4	0	0.02
Pneumonitis	2	0	0	6	1	0	0.12
Cardiac	0	1	0	1	0	3	0.21
Second malignancy	-	2	2	-	0	0	>0.99

Boon HC, et al. Lancet 2022; 400: 431–4.

RT for DCIS: *Recent additions*

*BIG 3–07/TROG 07.01: **fractionation** & boost in DCIS*



Boon HC, et al. Lancet 2022; 400: 431–4.

RT for DCIS: *Recent additions*

RT boost

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journal homepage: www.clinicaloncologyonline.net

Original Article

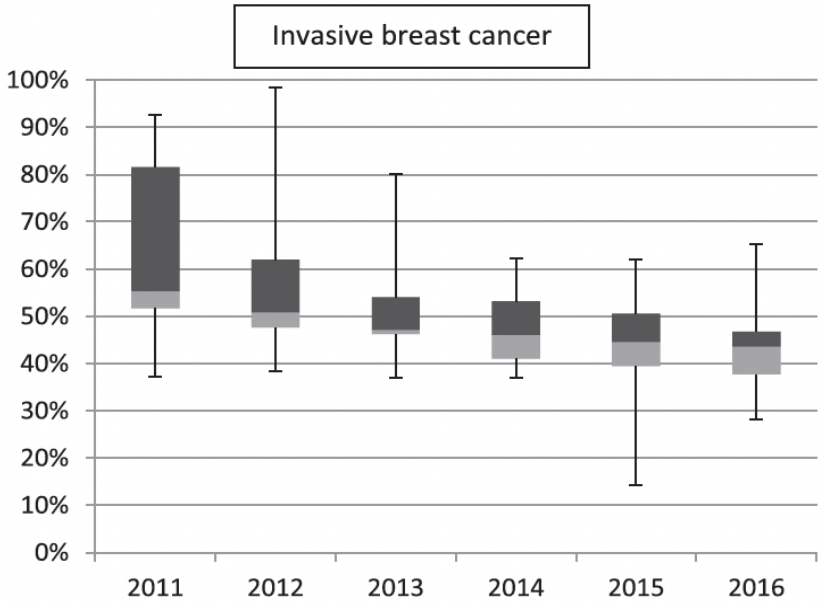
Variation in the Use of Boost Irradiation in Breast-Conserving Therapy in the Netherlands: The Effect of a National Guideline and Cofounding Factors☆

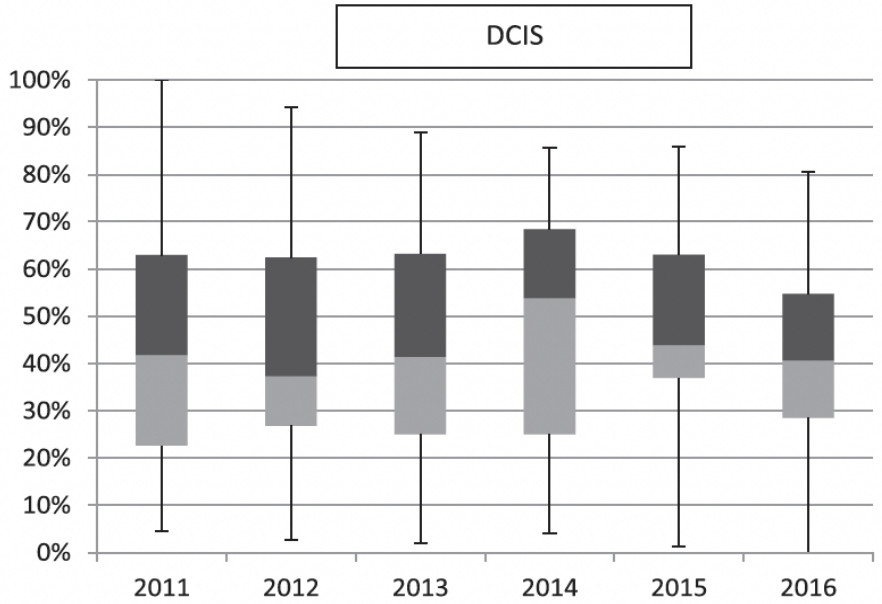
K. Schreuder *†‡, J.H. Maduro ‡§, P.E.R. Spronk ‡¶, N. Bijker ‡||, P.M.P. Poortmans **, T. van Dalen ‡††, H. Struikmans ‡‡‡, S. Siesling *†‡

Schreuder K, et al. Clinical Oncology 31 (2019) 250e259.

RT for DCIS: *Recent additions*

RT boost – NL, 2011-2016 after BCT





Schreuder K, et al. Clin Oncology 2019;31:250e259.

RT for DCIS: *Recent additions*

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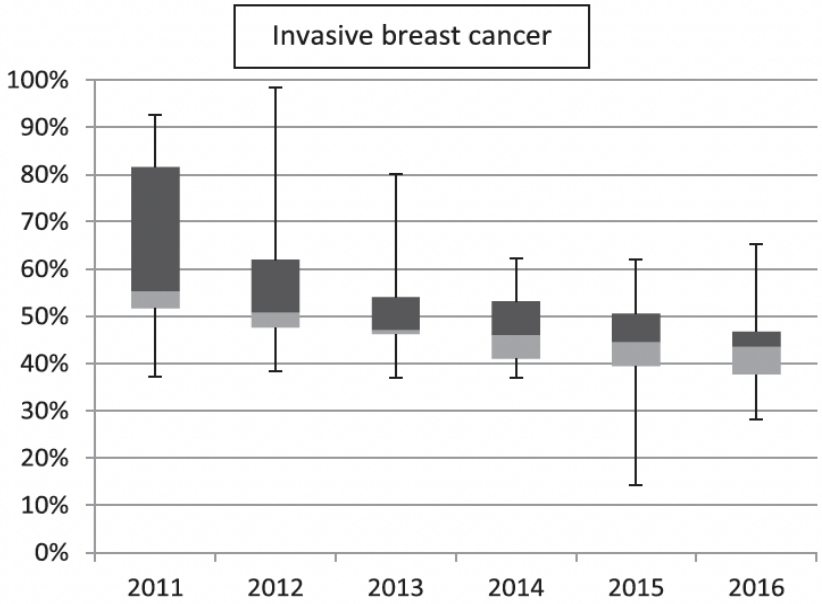

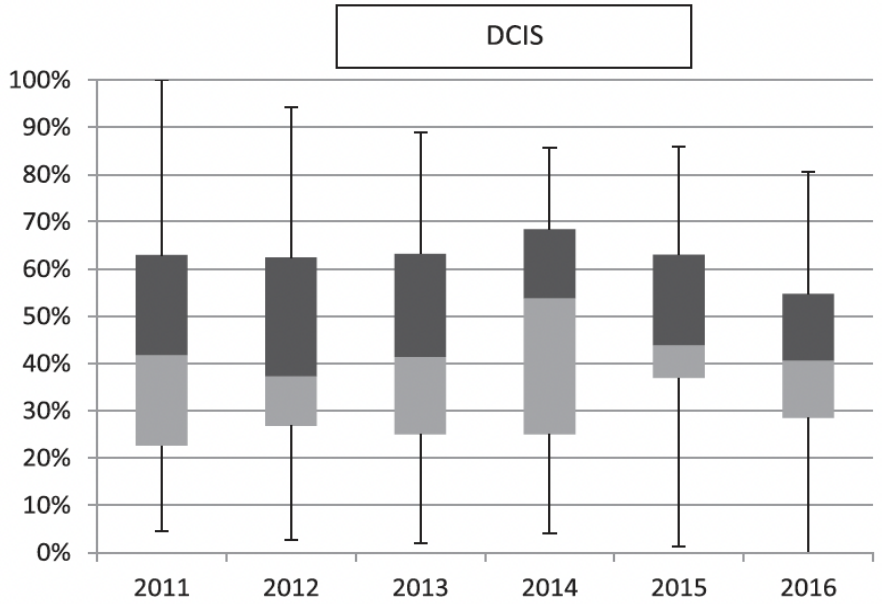

Schreuder K, et al. Clin Oncology 2019;31:250e259.

Evers J, et al Clin Oncol 2025 (2017-2022):

- *Omission of surgery ➔ 30%*
- *Decreased use of RT overall*
- *Decreased use of boost*
- *Introduction of PBI*

RT for DCIS: *Recent additions*

What about PMRT?

Radiotherapy and Oncology 161 (2021) 177–182

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journal homepage: www.thegreenjournal.com

Short Communication

Superficial margins in skin sparing and nipple sparing mastectomies for DCIS: A margin of potential concern

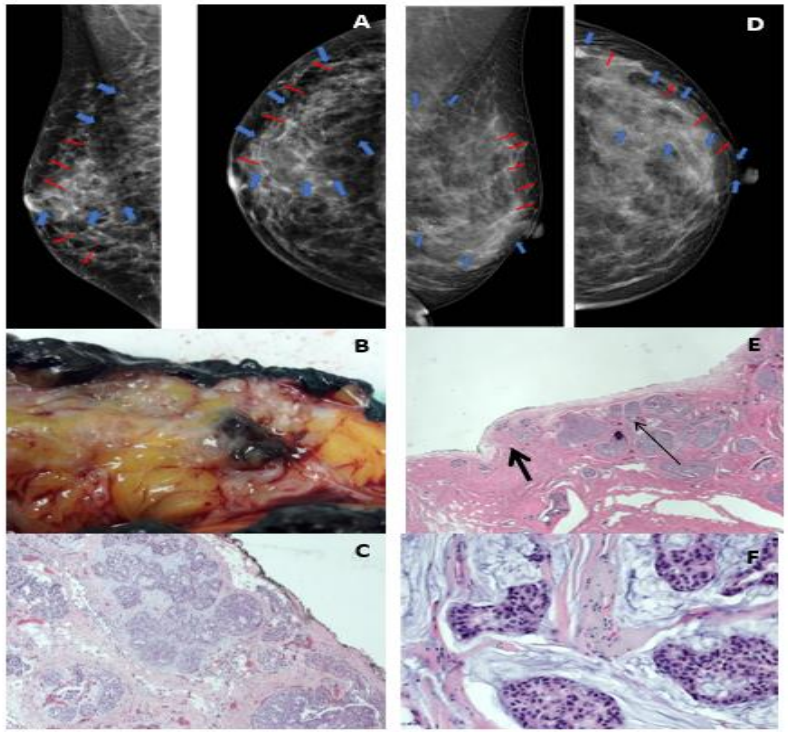
Trine Tramm [a,*], Peer Christiansen [b], Birgitte Vrou Offersen [c], Karen Berenth Madsen [d], Philip Poortmans [e,f], Orit Kaidar-Person [g,h]

Tramm T, et al. Radiother Oncol. 2021;161:177-82.

RT for DCIS: *Recent additions*

What about PMRT?

- Even if the resection is done <u>perfectly</u>, the limits of anatomic extension of the fibroglandular tissue may be imprecise and show substantial variation
- Depending on the primary disease site within the breast, involved or close superficial margins in SSM/NSM may be underestimated



Extensive DCIS close to the margin

Tramm T, et al. Radiother Oncol. 2021;161:177-82.

RT for DCIS: *Recent additions*

What about PMRT?

Critical Reviews in Oncology / Hematology 138 (2019) 207–213

Contents lists available at ScienceDirect

Critical Reviews in Oncology / Hematology

journal homepage: www.elsevier.com/locate/critrevonc

The Assisi Think Tank Meeting Survey of post-mastectomy radiation therapy in ductal carcinoma in situ: Suggestions for routine practice

A. Montero-Luis[a,*], C. Aristei[b], I. Meattini[c], M. Arenas[d], L. Boersma[e], C. Bourgier[f], C. Coles[g], B. Cutuli[h], L. Falcinelli[i], O. Kaidar-Person[j], M.C. Leonardi[k], B. Offersen[l], F. Marazzi[m], S. Rivera[n], L. Tagliaferri[o], V. Tombolini[p], C. Vidali[q], V. Valentini[r], P. Poortmans[s]

Montero-Luis A, et al. CROG 2019;138:207-13.

RT for DCIS: *Recent additions*

Partial breast irradiation

COMMENTARY

WILEY The Breast Journal

Partial breast irradiation for ductal carcinoma in situ: The Goldilocks principle?

Icro Meattini[1] MD | Philip Poortmans[2] MD, PhD | Lorenzo Livi[1] MD | Orit Kaidar Person[3] MD | Stefania Pallotta[4] PhD | Carlotta Becherini[1] MD | Livia Marrazzo[4] PhD

Meattini I, et al. Breast J. 2018;24:1118-1119.

RT for DCIS: *Recent additions*

Partial breast irradiation

European Society for Radiotherapy and Oncology Advisory Committee in Radiation Oncology Practice consensus recommendations on patient selection and dose and fractionation for external beam radiotherapy in early breast cancer

Icro Meattini, Carlotta Becherini, Liesbeth Boersma, Orit Kaidar-Person, Gustavo Nader Marta, Angel Montero, Birgitte Vrou Offersen, Marianne C Aznar, Claus Belka, Adrian Murray Brunt, Samantha Dicuonzo, Pierfrancesco Franco, Mechthild Krause, Mairead MacKenzie, Tanja Marinko, Livia Marrazzo, Ivica Ratosa, Astrid Scholten, Elżbieta Senkus, Hilary Stobart, Philip Poortmans, Charlotte E Coles**

Meattini I, et al. Lancet Oncol 2022; 23: e21–31.

RT for DCIS: *Recent additions*

Partial breast irradiation

4. Partial breast irradiation–patient selection for external beam radiotherapy

Low risk-features suitable for partial breast irradiation are: luminal-like subtypes small tumour (≤3 cm), absence of lymph vascular space invasion, non-lobular invasive carcinoma, tumour grade 1–2, low-to-intermediate grade DCIS (sized ≤2·5 cm with clear surgical margins ≥3 mm), age at diagnosis 50 years or more, unicentric or unifocal lesion, clear surgical margins (>2 mm), node negative (including isolated tumour cells), and no use of primary systemic therapy and neoadjuvant chemotherapy

Meattini I, et al. Lancet Oncol 2022; 23: e21–31.

RT for DCIS: *Recent additions*

Molecular & genomic predictors

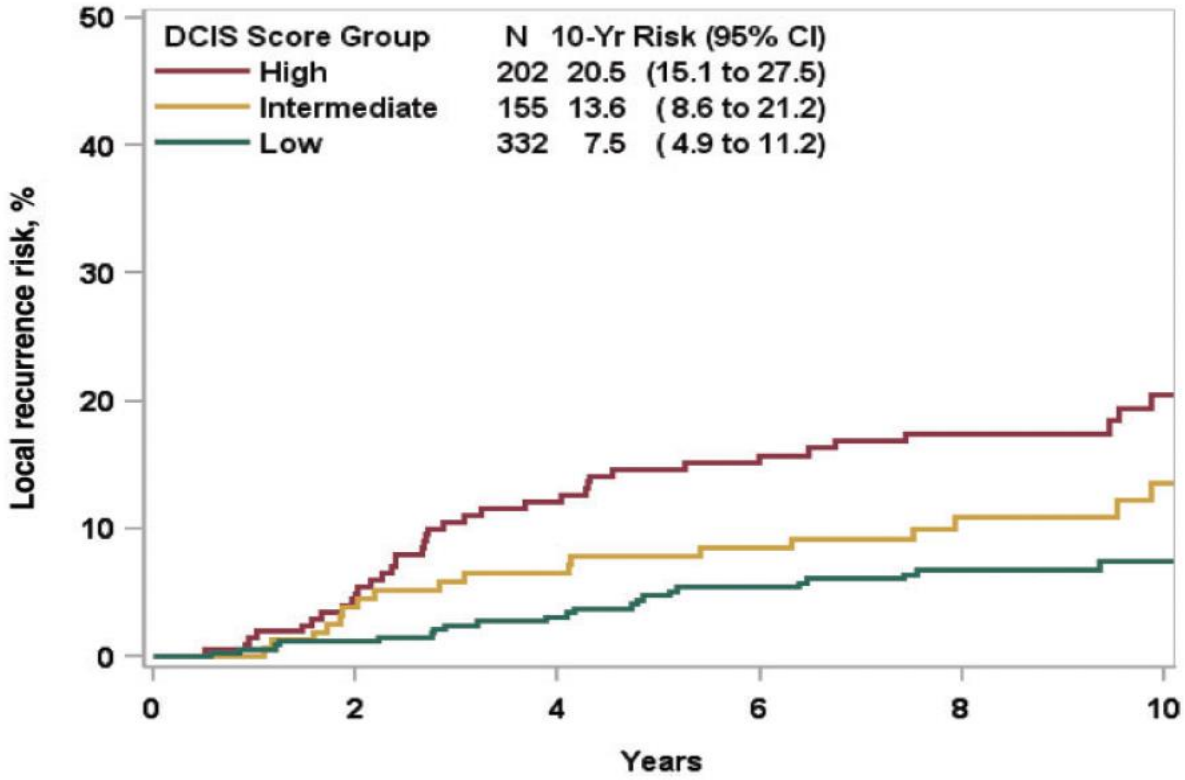
Multigene Expression Assay and Benefit of Radiotherapy After Breast Conservation in Ductal Carcinoma in Situ

Eileen Rakovitch, Sharon Nofech-Mozes, Wedad Hanna, Rinku Sutradhar, Frederick L. Baehner, Dave P. Miller, Cindy Fong, Sumei Gu, Alan Tuck, Sandip Sengupta, Leela Elavathil, Prashant A. Jani, Michel Bonin, Martin C. Chang, Elzbieta Slodkowska, Joseph M. Anderson, Diana B. Cherbavaz, Steven Shak, Lawrence Paszat

Rakovitch A, et al. JNCI 2017;109:djw256.

RT for DCIS: *Recent additions*

Molecular & genomic predictors



Rakovitch A, et al. JNCI 2017;109:djw256.

RT for DCIS: *Recent additions*

Molecular & genomic predictors

E4112 Schema & Eligibility

March 2015-Apr 2016

Inclusion

Women with core biopsy-proven unilateral DCIS within the past 4 months

No microinvasion

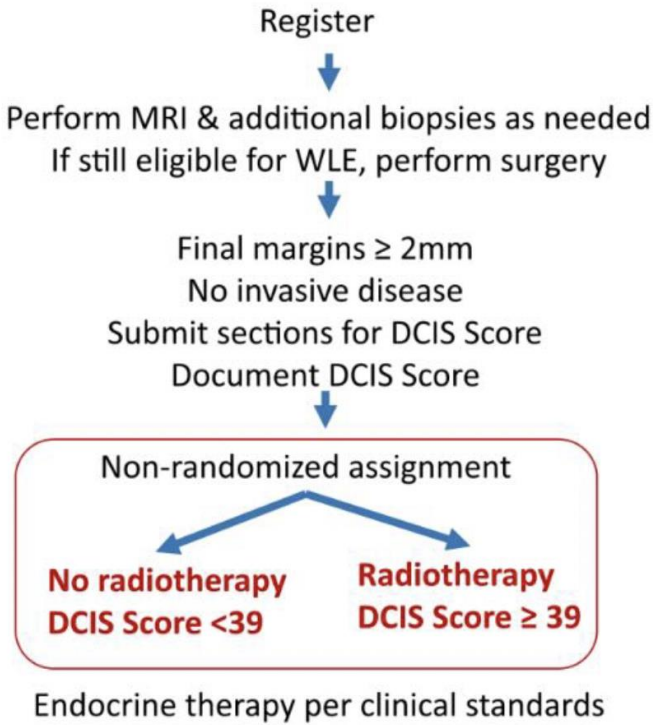
Breast conservation was feasible based on conventional imaging

Disease resectable in a single specimen

No prior history of invasive breast cancer or DCIS

No use of anti-estrogens in prior 3 months

ECOG-ACRIN cancer research group



Khan SA, et al. SABCS 2023.

RT for DCIS: *Recent additions*

Molecular & genomic predictors

Conclusion

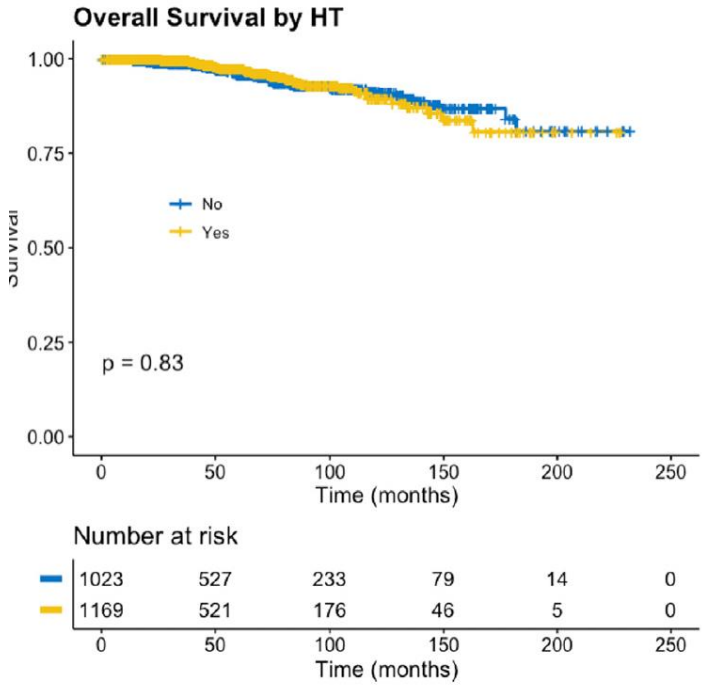
- DCIS Score identified ~50% as eligible for omission of radiation therapy following MRI and successful BCS.
  - Adherence to RT recommendations was 93% (159/171)
- Women with intermediate/high Score DCIS who received radiotherapy experienced an IBE rate that was approximately two-thirds lower than previously reported.
- When DCIS Score was low, 5-year IBE rate was ~5%, as in prior studies where RT omission was based on low-grade or low Score DCIS.
- Analysis of 10-year IBE outcomes from E4112 is planned, and larger prospective studies are under consideration.

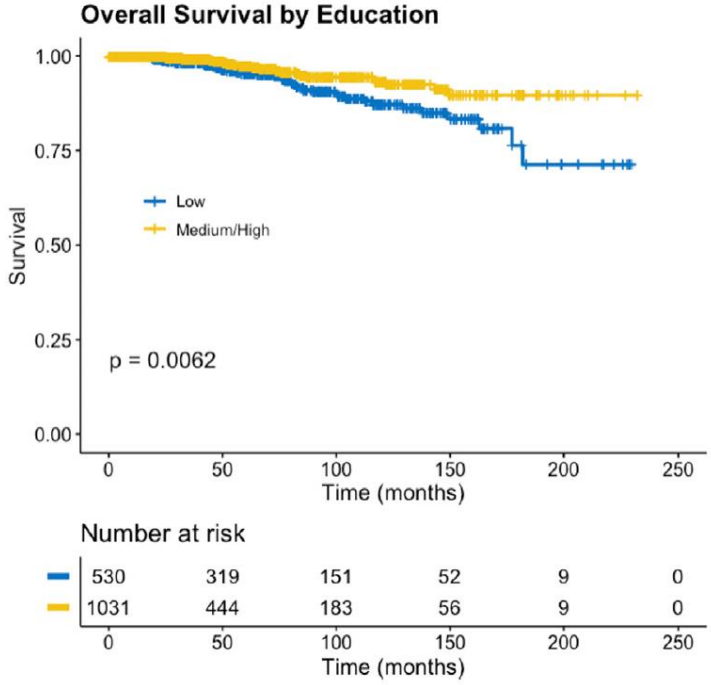
ECOG-ACRIN cancer research group

Khan SA, et al. SABCS 2023.

RT for DCIS: *Recent additions*

Value of endocrine therapy & SES

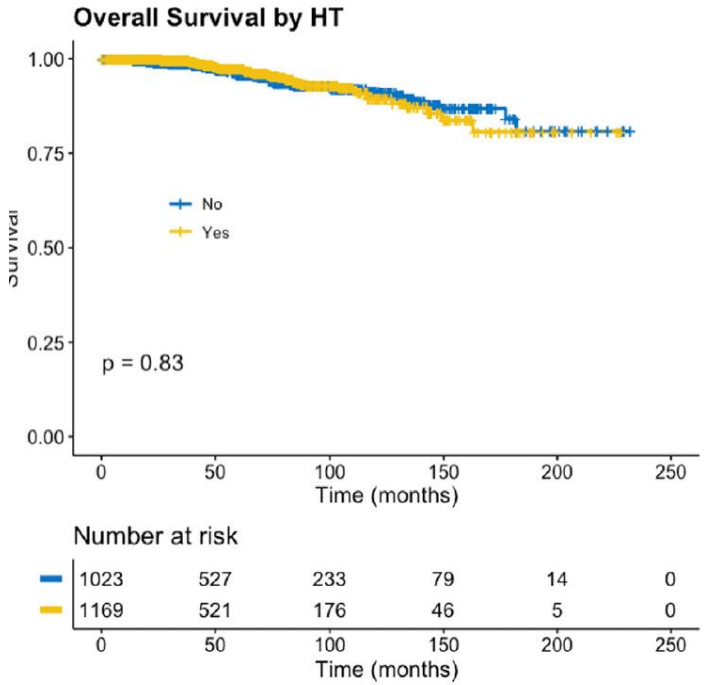


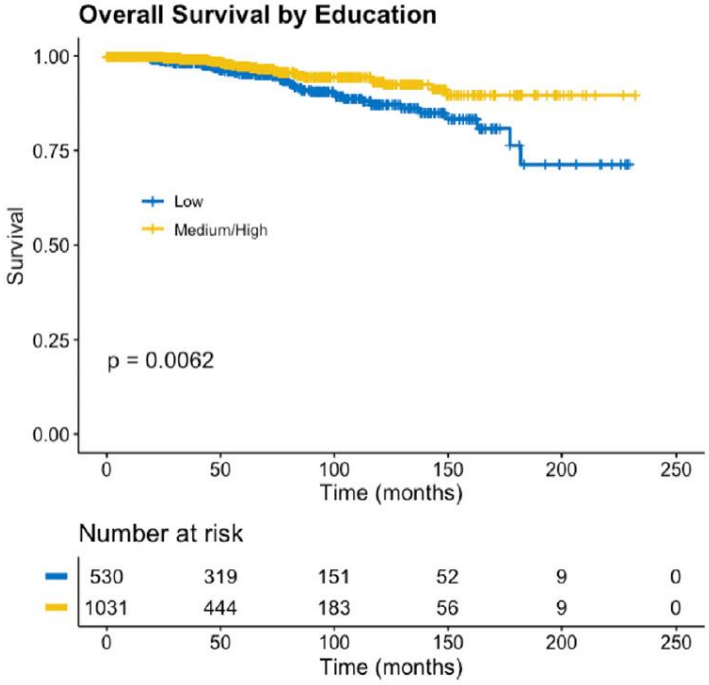


de Sousa CFPM, et al. Clin Breast Cancer. 2023;23:e499-e506.

RT for DCIS: *Recent additions*

Value of endocrine therapy & SES





SES-effect also seen in Dutch population-based study

Schmitz R, et al IJC 2025.

de Sousa CFPM, et al. Clin Breast Cancer. 2023;23:e499-e506.

RT for DCIS: *Recent additions*

Value of endocrine therapy & SES

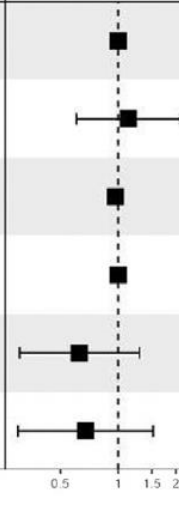
Multivariable analysis

OS

Variable		N	Hazard ratio	p
HT	No	1023	Reference	
	Yes	1169	1.01 (0.67, 1.53)	1.0
Age		2192	1.07 (1.05, 1.09)	<0.001
Education	Low	530	Reference	
	Medium/High	1031	0.66 (0.40, 1.08)	0.1
	Missing	631	0.95 (0.57, 1.58)	0.8

RFS

Variable		N	Hazard ratio	p
HT	No	1023	Reference	
	Yes	1169	1.13 (0.61, 2.09)	0.71
Age		2192	0.97 (0.94, 1.00)	0.03
Education	Low	530	Reference	
	Medium/High	1031	0.63 (0.31, 1.29)	0.21
	Missing	631	0.68 (0.30, 1.52)	0.34



de Sousa CFPM, et al. Clin Breast Cancer. 2023;23:e499-e506.

RT for DCIS: *Recent additions*

Omission of surgery

Study	N	Age	Eligibility	Endocrine therapy
LORIS (RCT)	932	≥48	Low-risk on central review	No
COMET (RCT)	1200	≥40	G1 or 2, ER/PR+	Optional
LORD (RCT ➔ registry)	1240	≥45	G1 or 2	No
LORETTA (registry)	340	≥40	G1 or 2, ER/PR+, ≤25mm	Tamoxifen

Hwang et al. J Clin Oncol 2020;38:2230-9.

Radiation therapy for DCIS

- Introduction
- Evidence from the past
- Recent additions
- Discussion
- Conclusions

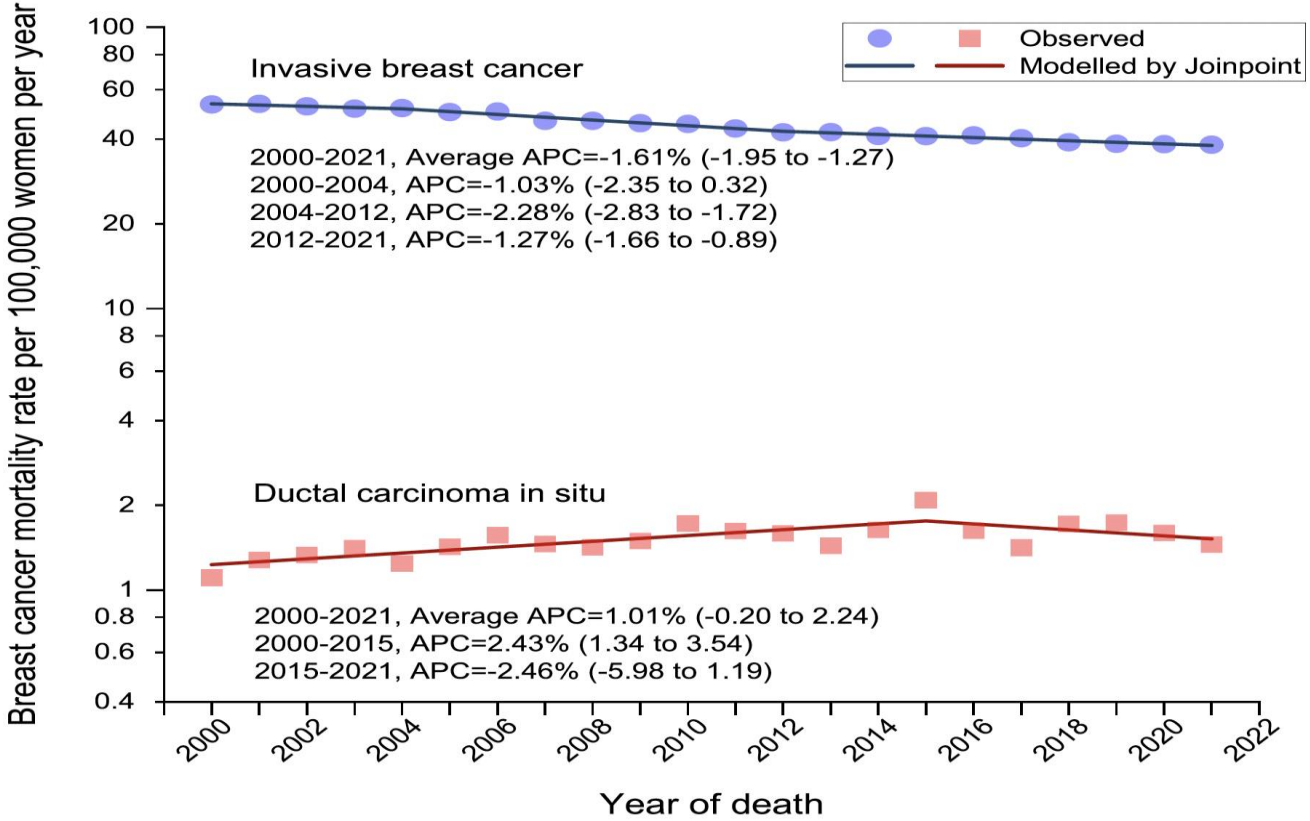
RT for DCIS: *Discussion*

Basis

- ✓ Low breast cancer mortality after DCIS diagnosis
- ✓ Increased mortality after invasive local recurrence (LR)
- ✓ Principal goal of treatment of DCIS is prevention of invasive LR
- ✓ Changing surgical extend ➔ jeopardising safety?

RT for DCIS: *Discussion*

Trends in death rates from DCIS versus invasive BC in the United States



Sung H, et al. Breast Cancer Research 2025;27:164.

RT for DCIS: *Discussion*

Local treatments for DCIS

- ✓ No randomised comparison of mastectomy vs BCS/BCT
- ✓ Higher LR if no RT after BCS
- ✓ Observational cohort study (n=140,366) 15-year BC-mortality: BCT 1.7% vs BCS or mastectomy 2.3% *(= significant)*
- ✓ BCT or mastectomy both options for shared decision-making
- ✓ Mastectomy ± reconstruction if no adequate surgical margins or no good cosmetic outcome expected after conservative surgery

Yin et al. Int J Tech Ass Health Care 1997;3:420-9. *Boyages et al. Cancer 1999;85:616-28.*

RT for DCIS: *Discussion*

Radiation therapy for DCIS

- Challenging to apply study results in practice:
  - Low-risk characteristics not well-defined
  - LR increases with follow-up
- Shared decision-making on omission of RT after BCS:
  - Patient preference
  - Competing causes of mortality
  - Side effects of RT

RT for DCIS: *Discussion*

Radiation therapy for DCIS ***spares breasts***

The Breast 37 (2018) 179–180

Contents lists available at ScienceDirect

The Breast

journal homepage: www.elsevier.com/brst

Editorial

Radiation therapy after breast conserving surgery increases long-term breast conservation for DCIS patients

Orit Kaidar-Person[1]
Oncology Institute, Radiation Oncology Unit, Rambam Medical Center, Haifa, Israel

Icro Meattini[1]
Oncology Unit, Oncology Department, Azienda Ospedaliero-Universitaria Careggi, University of Florence, Florence, Italy

Philip Poortmans[*]
Department of Radiation Oncology, Institut Curie, Paris, France

RT for DCIS: *Discussion*

Endocrine therapy for DCIS

Lack of consensus on adjuvant endocrine therapy for DCIS…

… but seems to add little more than “chemoprevention” of CL BC!

Wright et al. Cancer Prev Control 1998;2:312-9 (endorsed 31 Jan 2018)

RT for DCIS: *Discussion*

Omission of surgery for low-risk DCIS

- ✓ Increased early detection
- ✓ Increasing controversy on over-diagnosis and over-treatment of DCIS
- ✓ Invasive progression highly variable

Ryser et al. JNCI 2019;111:952-69. *Hwang et al. JCO 2020;38:1284-1292.*

RT for DCIS: *Discussion*

Prognostic & predictive factors for DCIS

- ✓ Molecular profiling complemented by clinical-pathologic markers have potential to improve precision of LR risk prediction
- ✓ Cost-effectiveness to guide RT omission has not been shown from population perspective
- ✓ Prospective studies of molecular profiling on tumour control and decision impact in progress

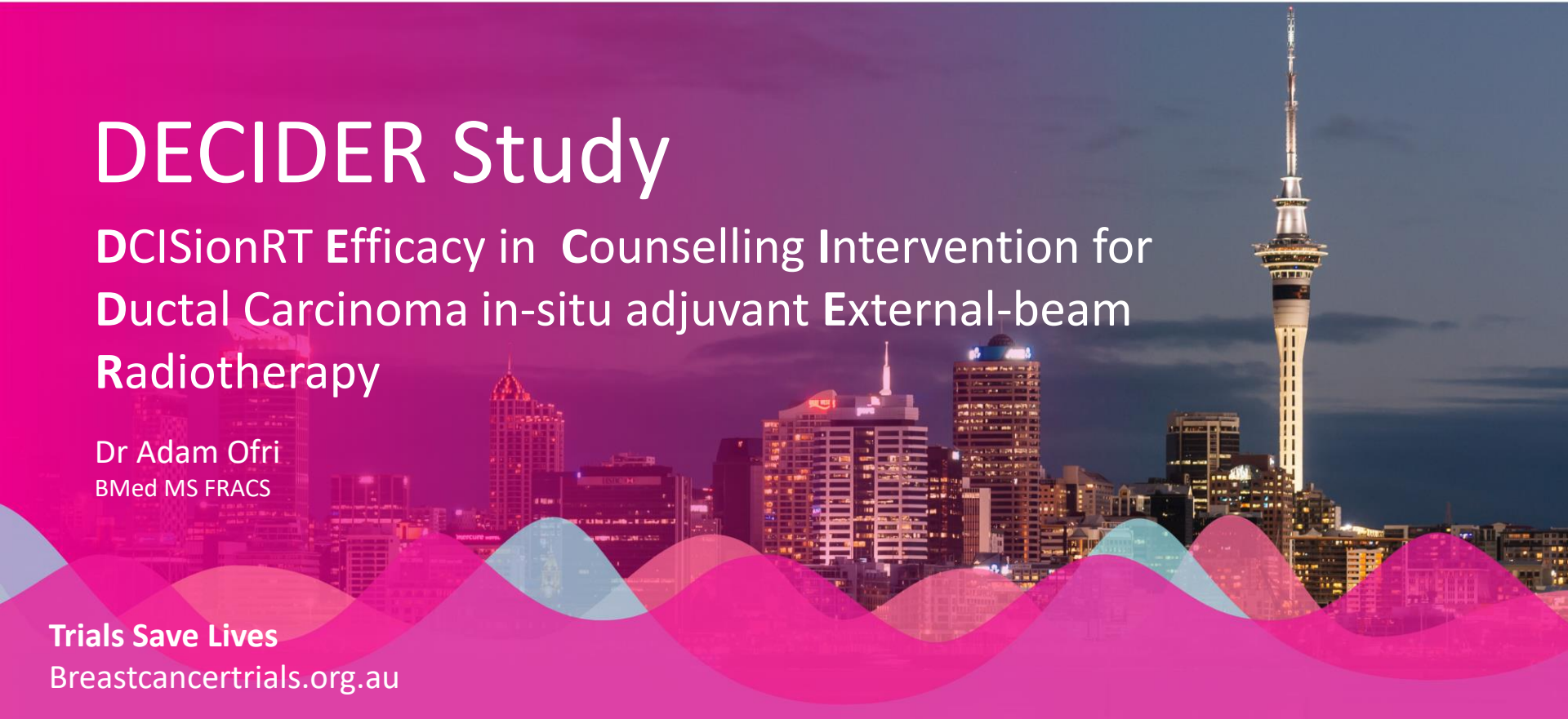
Raldow et al. J Clin Oncol 2016;34:3963-8.

BREAST CANCER TRIALS

DECIDER Study

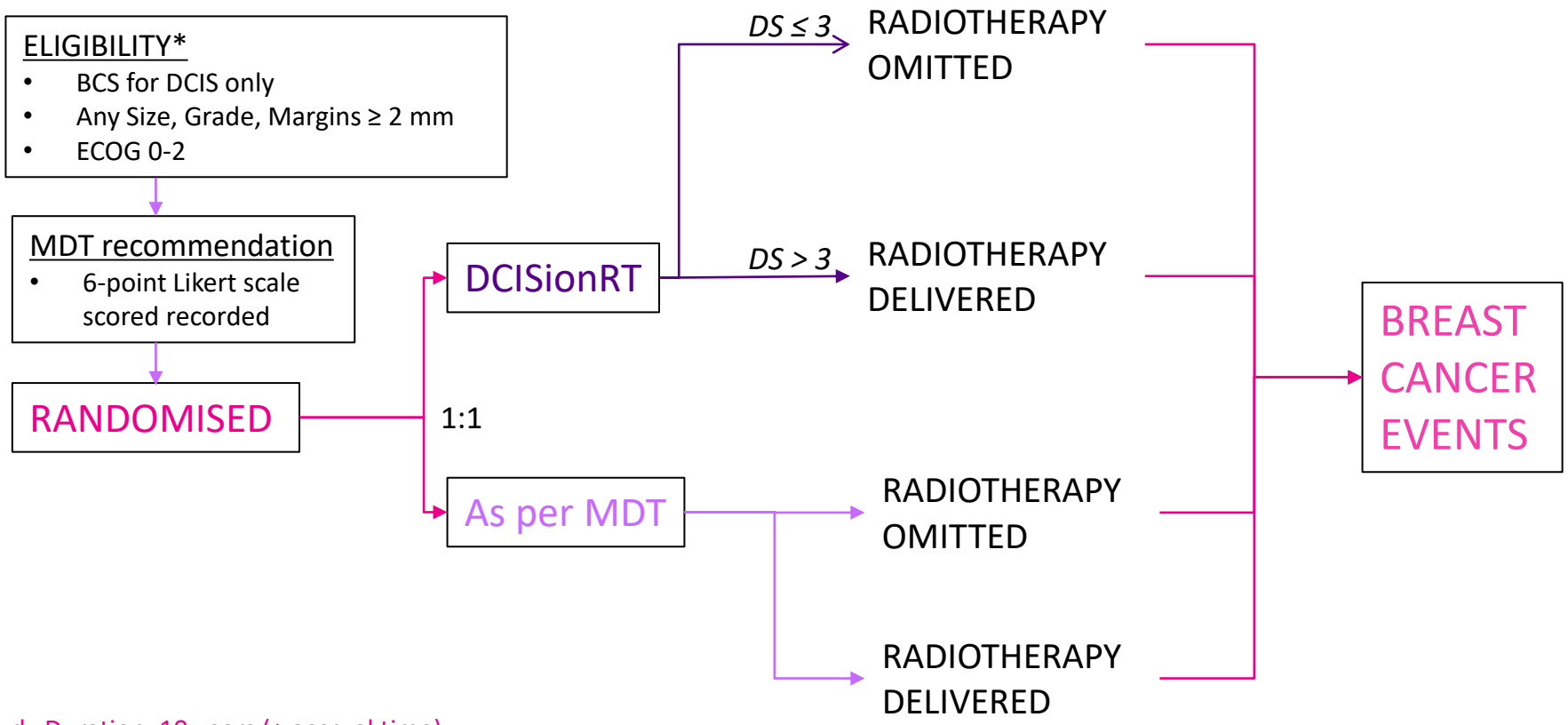
DCISionRT **E**fficacy in **C**ounselling **I**ntervention for **D**uctal Carcinoma in-situ adjuvant **E**xternal-beam **R**adiotherapy

Dr Adam Ofri
BMed MS FRACS



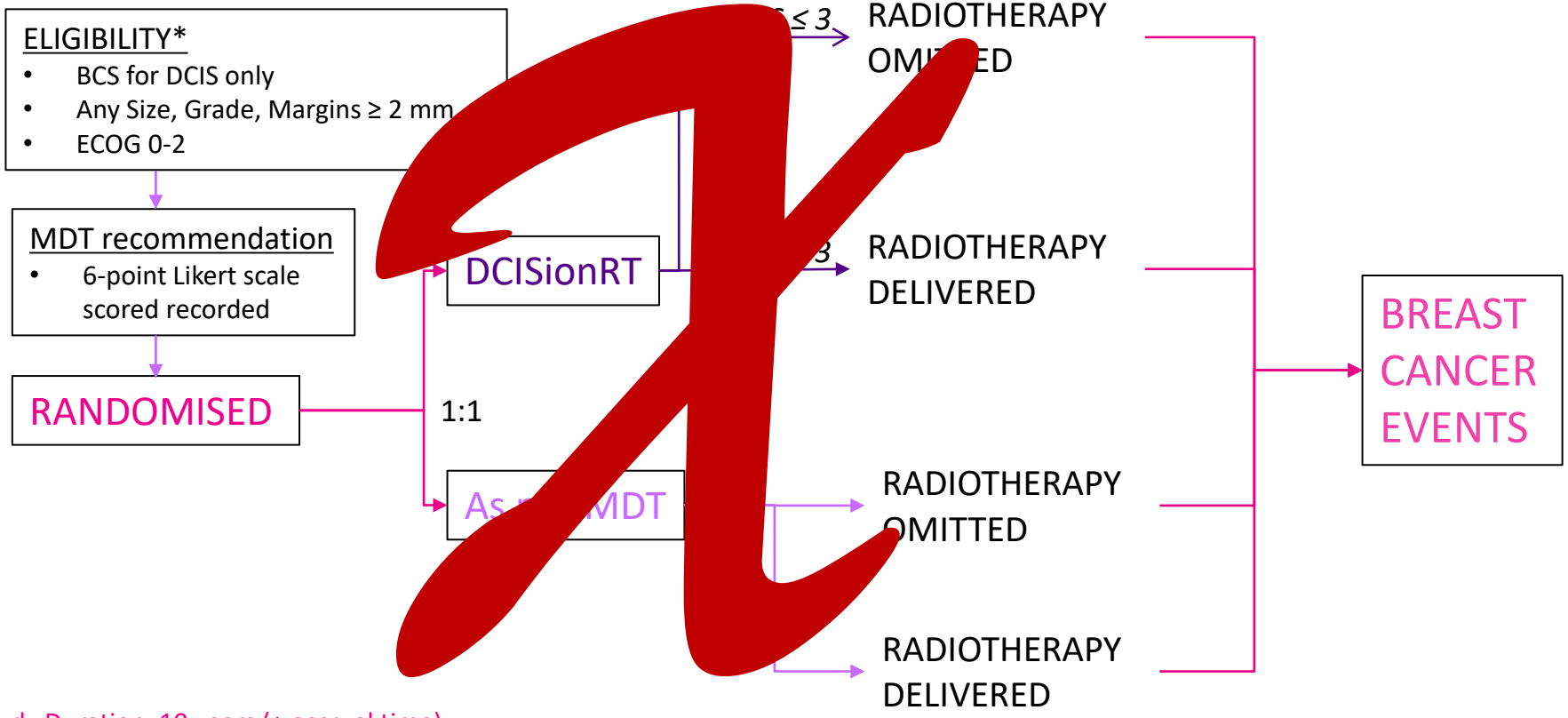
Trials Save Lives
Breastcancertrials.org.au

DECIDER Trial



Study Duration: 10 years (+ accrual time)

DECIDER Trial



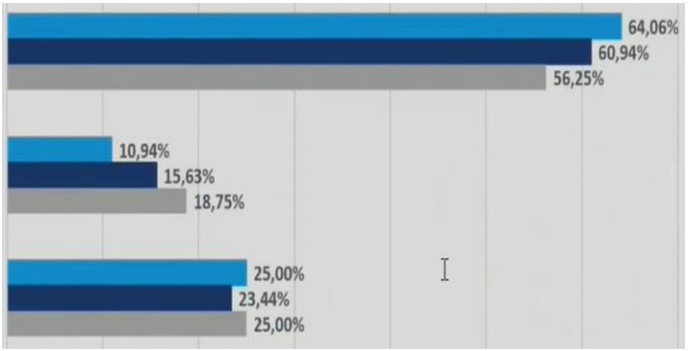
Study Duration: 10 years (+ accrual time)

Radiation therapy for DCIS

- Introduction
- Evidence from the past
- Recent additions
- Discussion
- Conclusions

The preferred radiation schedule for (see below) is:

- ✓ Moderate hypofractionation (15-16 fractions/3 weeks):
- ✓ Ultra-hypofractionation (5 fractions/1 week):
- ✓ Abstain:



Chest wall RT, irrespective of RNI, after mastectomy

WBI, irrespective of RNI, after BCS

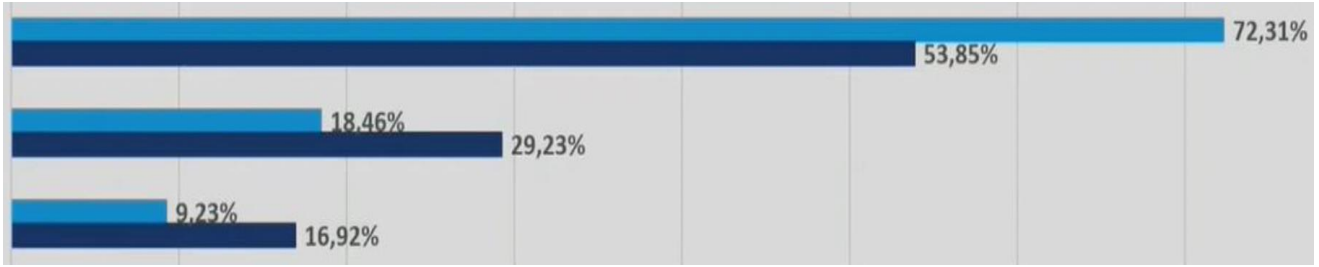
WBI after BCS for DCIS

The preferred RT plan and schedule for lower-risk DCIS after breast conserving surgery:

- ✓ WBI in 25 fractions:
- ✓ WBI in 15-16 fractions:
- ✓ PBI in 5 fractions:
- ✓ Any of those
- ✓ Abstain

A healthy woman has undergone BCS for DCIS. The DCIS is grade 1 to 2, without comedonecrosis, and spans less than 2 cm. Should she receive radiation therapy?:

- ✓ Yes:
- ✓ No:
- ✓ Abstain:



If the same patient will take endocrine therapy for ER+ DCIS, would you recommend RT:

- ✓ Yes:
- ✓ No:
- ✓ Abstain:

GJHGJHJ

Consider patients after BCS for DCIS, with margins > 2 mm. Which require RT:

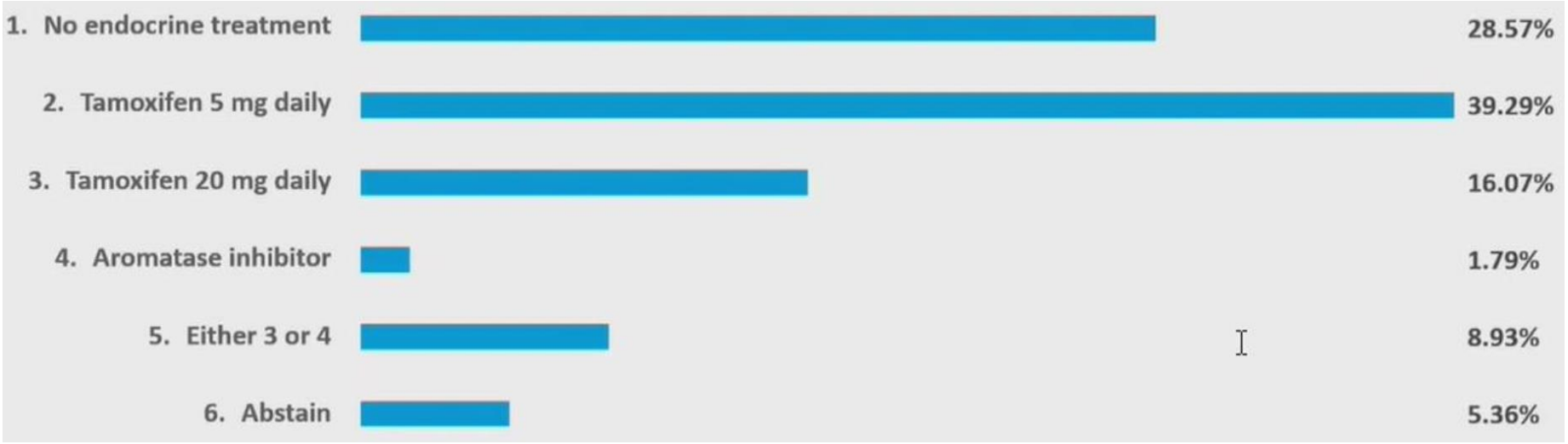
Indicators:

✓ Age (years):	<50	51-70	>70
✓ Tumour size (cm):	>2cm		≤2cm
✓ Comedonecrosis:	yes		no

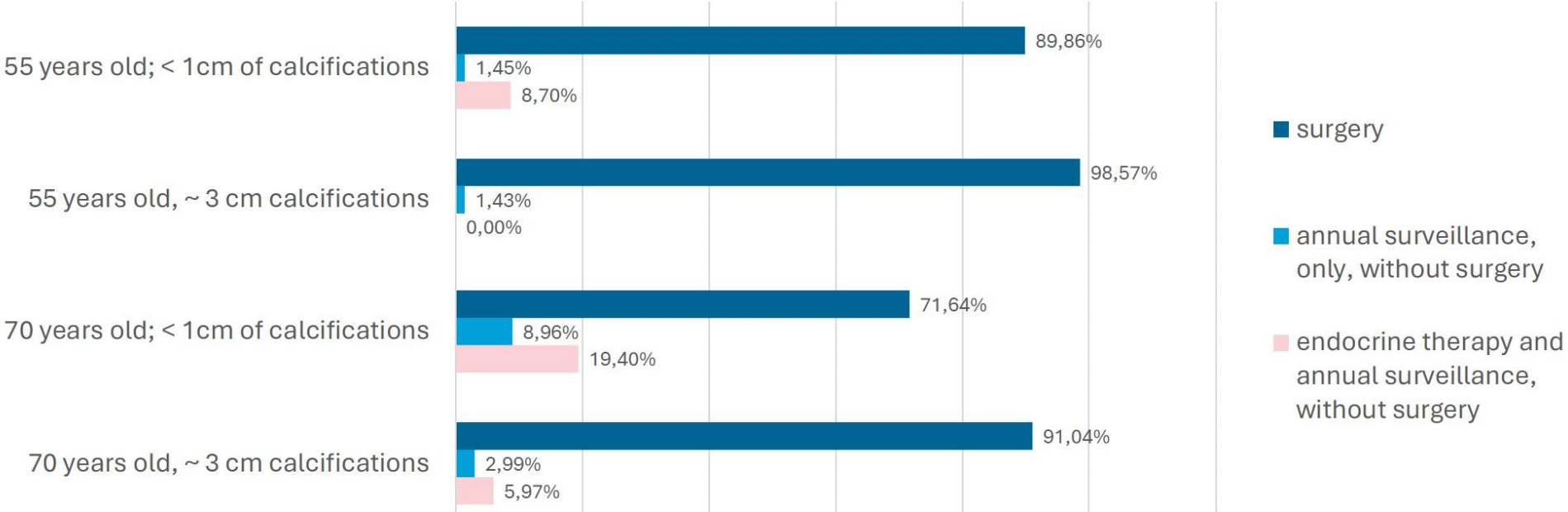
Range of "yes varies between 18% and 98%

Age = strongest driver with cut-off of 50 years

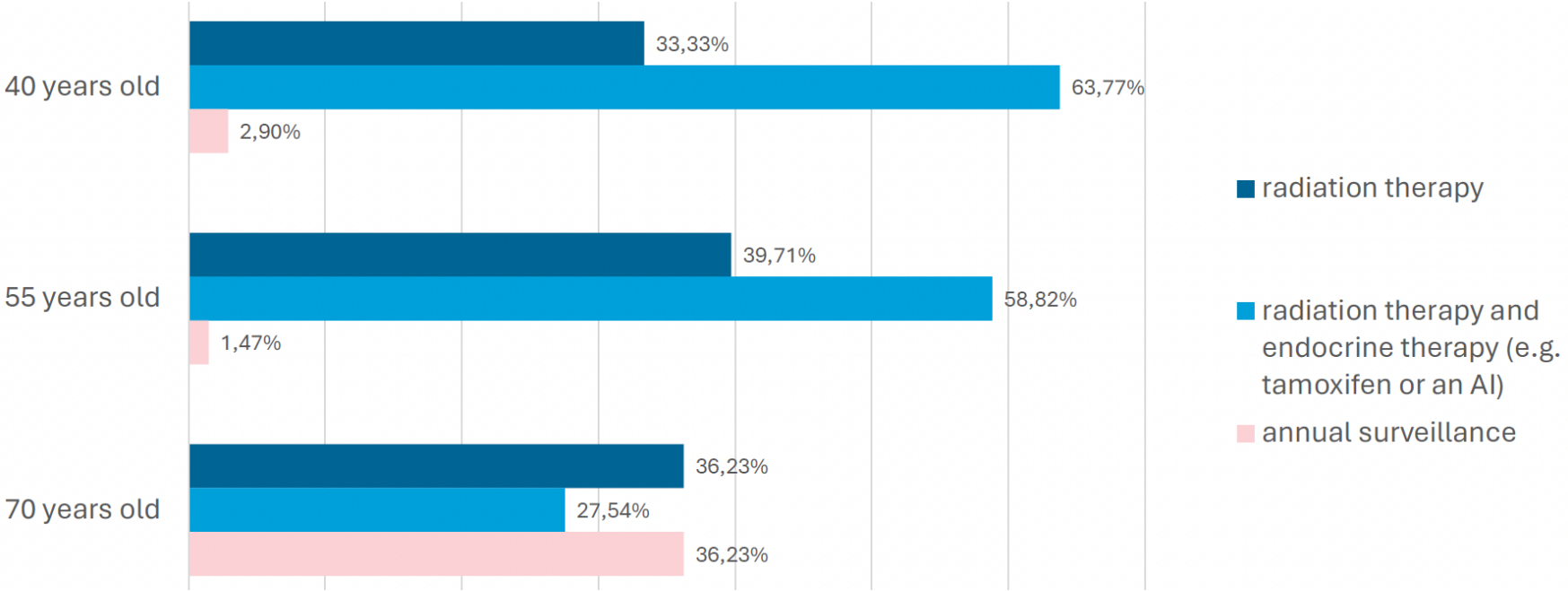
Consider post-MP DCIS patients after BCS+RT, with concerns about IBTR & QoL: which ET?



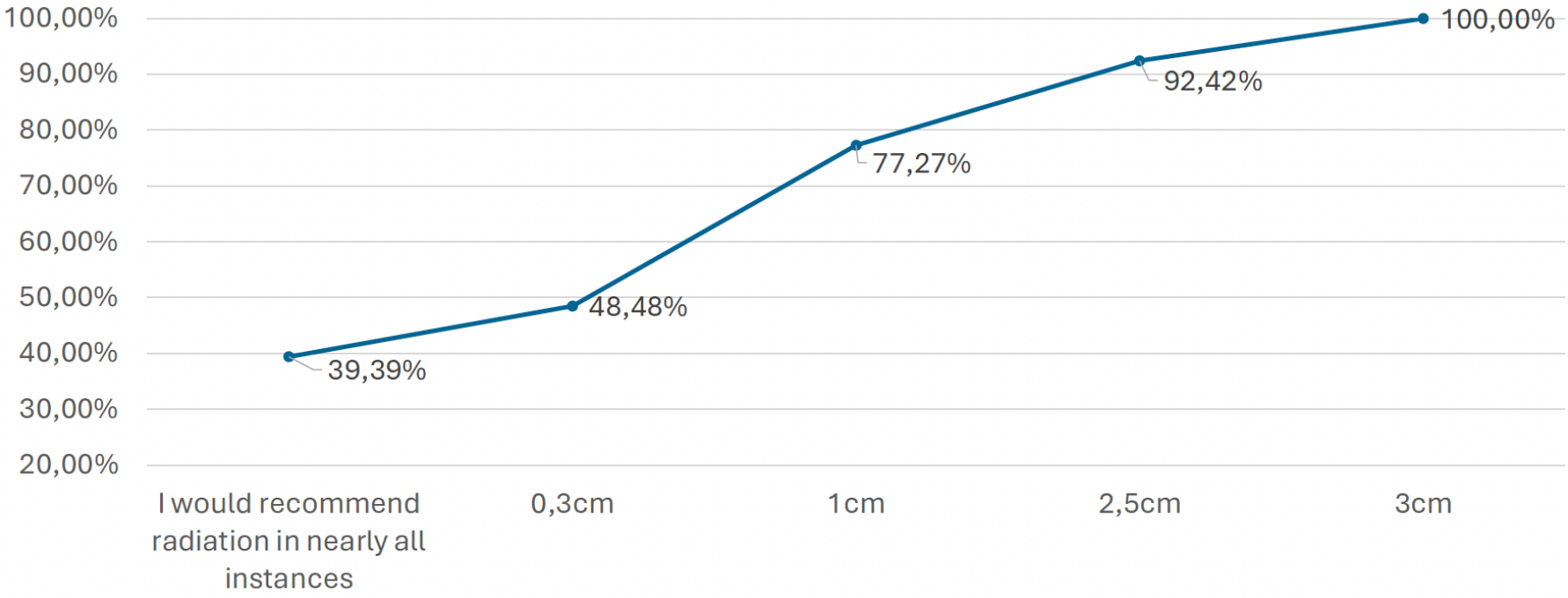
Woman with calcifications on screening mammography. Core biopsy: DCIS, grade 2, ER+, MRI negative. As next treatment steps, you would recommend:



Woman after BCS for DCIS, grade 2, measuring 1-2 cm, ER+. As next treatment you would recommend:

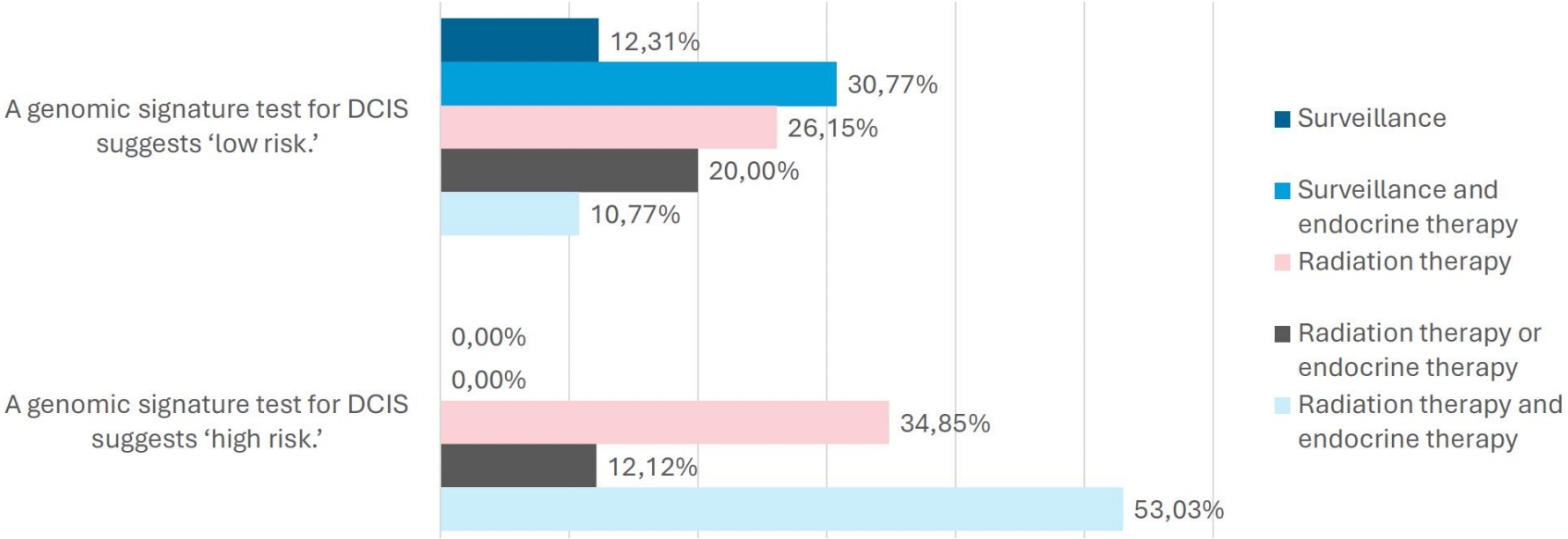


Healthy, non-elderly DCIS patient, grade 2, ER+, DCIS size threshold for radiation therapy:



Should we endorse genomic signatures for DCIS Management?

55 year woman after BCS for DCIS, grade 2, measuring 1-2 cm. As additional treatment, you would recommend:



Radiation therapy for DCIS: *Acknowledgements*

Too many to list…

… risking forgetting people…

Orit Kaidar-Person · Icro Meattini · Philip Poortmans *Editors*

Breast Cancer Radiation Therapy

A Practical Guide for Technical Applications

The book provides, in a comprehensive yet concise way, essential information to improve the knowledge and skills of all healthcare providers involved in the treatment of patients with breast cancer. The content does not focus on general information that is widely available via different sources, but on technical aspects – "hands-on" daily practices and principles of radiation oncology that are not included in other books. Drawing on information taught in courses at e.g. the ESTRO School, as well as the authors' broad clinical experience, the respective contributions reflect and share the expertise of leading experts in breast cancer radiation therapy, supported by sound data and evidence. Each chapter includes a short introduction summarizing the evidence in the literature and "pearls" (a short bullet-point summary), and is enriched by tables, figures and illustrations to provide a concise, easy-to-follow and appealing overview.

The book, containing also useful electronic supplementary material, will be of interest to a wide range of readers, including radiation oncologists, radiation technicians, medical physicists, and others involved in breast cancer care.

ISBN 978-3-030-91169-0

▸ springer.com

Kaidar-Person · Meattini · Poortmans *Eds.*

Breast Cancer Radiation Therapy

Breast Cancer Radiation Therapy

A Practical Guide for Technical Applications

Orit Kaidar-Person
Icro Meattini
Philip Poortmans
Editors

Springer