

Node negative breast cancer:  
Immediate breast reconstruction -  
An option for every patient?

Peer Christiansen

# Barriers to immediate breast reconstruction

- Concerns about the increased risks of local recurrence
- Concerns regarding possible delays in the delivery of adjuvant therapies
- The potential inability to detect tumor recurrence

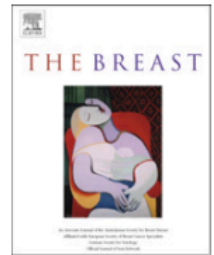


ELSEVIER

Contents lists available at [SciVerse ScienceDirect](http://www.sciencedirect.com)

## The Breast

journal homepage: [www.elsevier.com/brst](http://www.elsevier.com/brst)



### Review

## Local breast cancer recurrence after mastectomy and immediate breast reconstruction for invasive cancer: A meta-analysis

M. Gieni, R. Avram, L. Dickson, F. Farrokhyar, P. Lovrics, S. Faidi, N. Sne\*

*Department of Surgery, McMaster University, 237 Barton Street East, Room 604 North, Hamilton, ON L8L 2X2, Canada*

# Local recurrence

Study or Subgroup	IBR		Mastectomy		Weight	Odds Ratio
	Events	Total	Events	Total		IV, Fixed, 95% CI
Brien 1993	1	113	16	289	5.0%	0.15 [0.02, 1.16]
Gerber 2009	12	108	15	130	32.1%	0.96 [0.43, 2.15]
Huang 2006	3	82	2	109	6.3%	2.03 [0.33, 12.45]
Lim 2010	4	87	20	810	17.3%	1.90 [0.64, 5.70]
Murphy 2003	2	158	9	1262	8.8%	1.78 [0.38, 8.34]
Newman 1999	5	50	9	72	15.5%	0.78 [0.24, 2.48]
Noguchi 1992	0	83	0	153		Not estimable
Yoshimura 1996	5	112	7	92	14.9%	0.57 [0.17, 1.85]
<b>Total (95% CI)</b>		<b>793</b>		<b>2917</b>	<b>100.0%</b>	<b>0.98 [0.62, 1.54]</b>

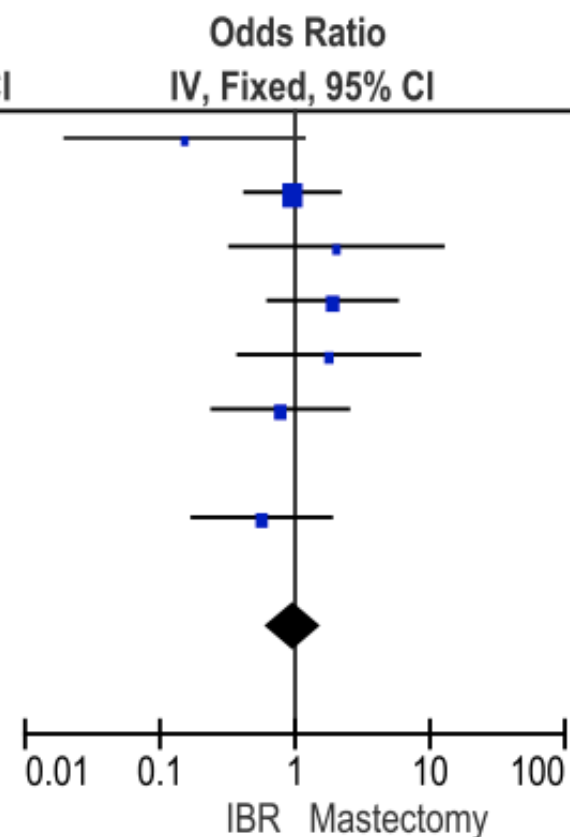
Total events

32

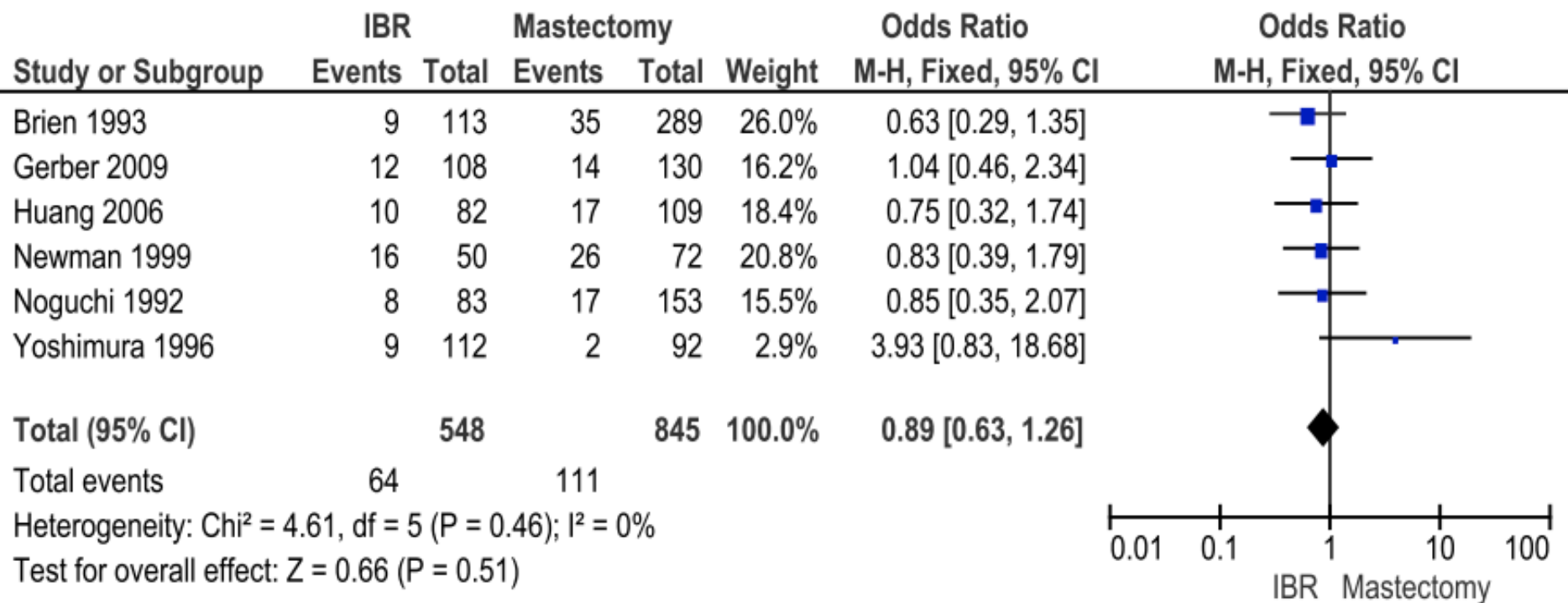
78

Heterogeneity:  $\text{Chi}^2 = 6.81$ ,  $\text{df} = 6$  ( $P = 0.34$ );  $I^2 = 12\%$

Test for overall effect:  $Z = 0.11$  ( $P = 0.92$ )



# Breast cancer recurrence



Breast Cancer Res Treat (2008) 112:545–549

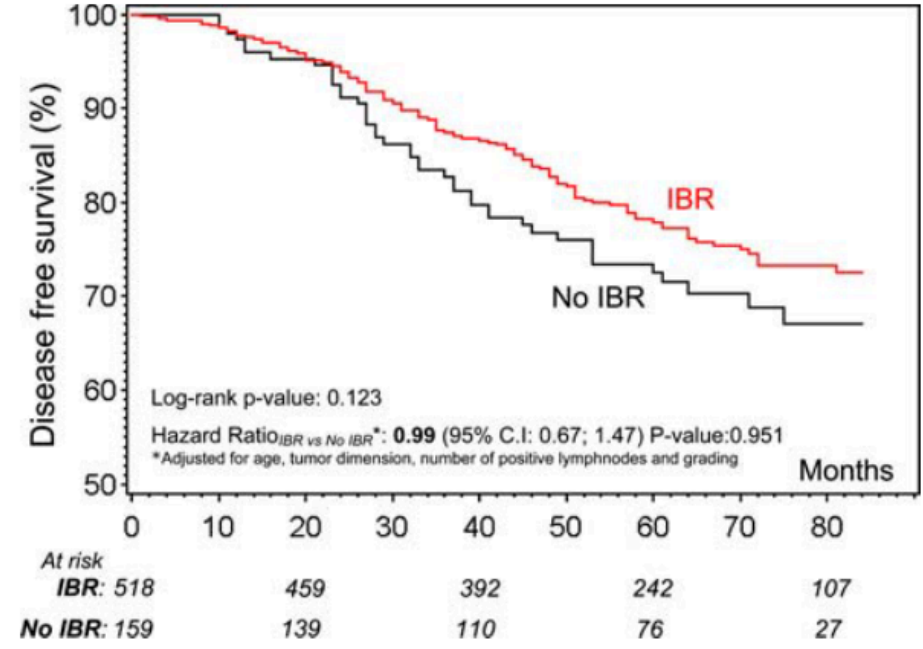
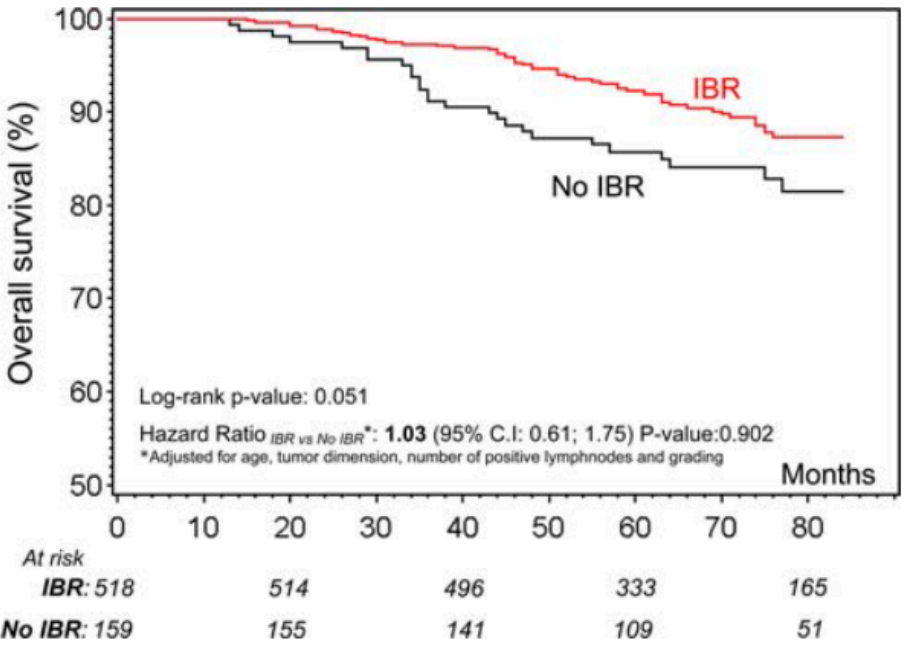
DOI 10.1007/s10549-008-9891-x

---

CLINICAL TRIAL

# **Oncological results of immediate breast reconstruction: long term follow-up of a large series at a single institution**

**J. Y. Petit · O. Gentilini · N. Rotmensz · P. Rey · M. Rietjens ·  
C. Garusi · E. Botteri · F. De Lorenzi · S. Martella · R. Bosco ·  
D. K. Khuthaila · A. Luini**





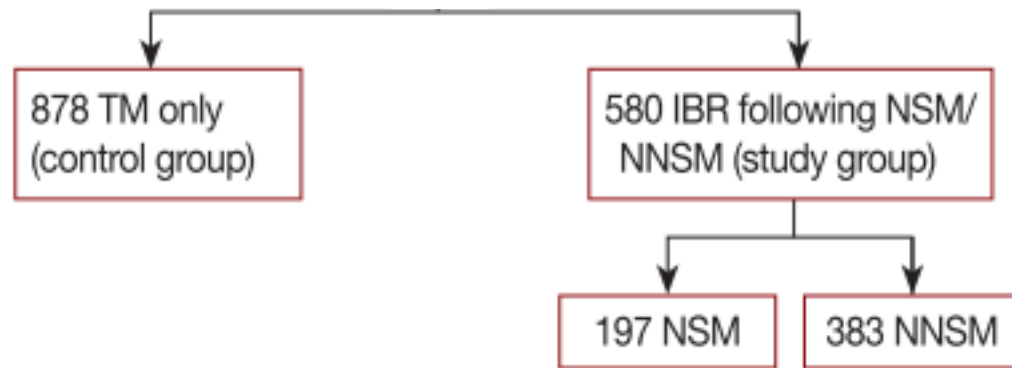
**ORIGINAL ARTICLE**

# **Oncologic Outcomes after Immediate Breast Reconstruction Following Total Mastectomy in Patients with Breast Cancer: A Matched Case-Control Study**

Jai Min Ryu, Hyun-June Paik, Sungmin Park, Ha Woo Yi, Seok Jin Nam, Seok Won Kim, Se Kyung Lee, Jonghan Yu, Soo Youn Bae, Jeong Eon Lee

Division of Breast and Endocrine Surgery, Department of Surgery, Samsung Medical Center, Sungkyunkwan University School of Medicine, Seoul, Korea





Period 2008 - 2014

Matched variables:

- Age at operation
- Year of operation
- Pathologic stage
- ER/PR status
- HER2 status

Variable	Control group (n=878) No. (%)	Study group (n=580) No. (%)	p-value
Type of TM			NA
NSM	0	197 (34.0)	
NNSM	0	383 (66.0)	
TM only	878 (100.0)	0	
Axillary surgery			0.003
SLNB	448 (51.0)	380 (65.5)	
ALND	430 (49.0)	200 (34.5)	
Type of IBR			NA
TEI		380 (65.5)	
DIEP		146 (23.5)	
ELD		44 (7.6)	
Others		20 (3.5)	
Adjuvant treatment			
Chemotherapy	525 (60.0)	293 (50.5)	0.379
Hormonal therapy	673 (76.9)	461 (79.9)	0.203
Radiotherapy	167 (19.1)	78 (13.5)	0.115

TM=total mastectomy; NA=not-analysis; NSM=nipple-sparing mastectomy; NNSM=non-nipple-sparing mastectomy; SLNB=sentinel lymph node biopsy; ALND=axillary lymph node dissection; IBR=immediate breast reconstruction; TEI=tissue expander insertion; DIEP=deep inferior epigastric perforator flap; ELD=extended latissimus dorsi flap.

**Table 3.** Oncologic outcomes between the study and the control group

Patient group	Total No.	Locoregional recurrence No. (%)	Distant metastasis No. (%)	Any recurrence No. (%)	Expire No. (%)
Study group	580	18 (3.1)	14 (2.4)	37 (6.7)	4 (0.7)
NSM	197	8 (4.1)	2 (1.0)	9 (4.6)	1 (0.5)
NNSM	383	10 (2.6)	12 (3.1)	28 (7.3)	3 (0.8)
Control group	878	16 (1.8)	32 (3.6)	47 (5.4)	11 (1.3)

NSM = nipple-sparing mastectomy; NNSM = non-nipple-sparing mastectomy.

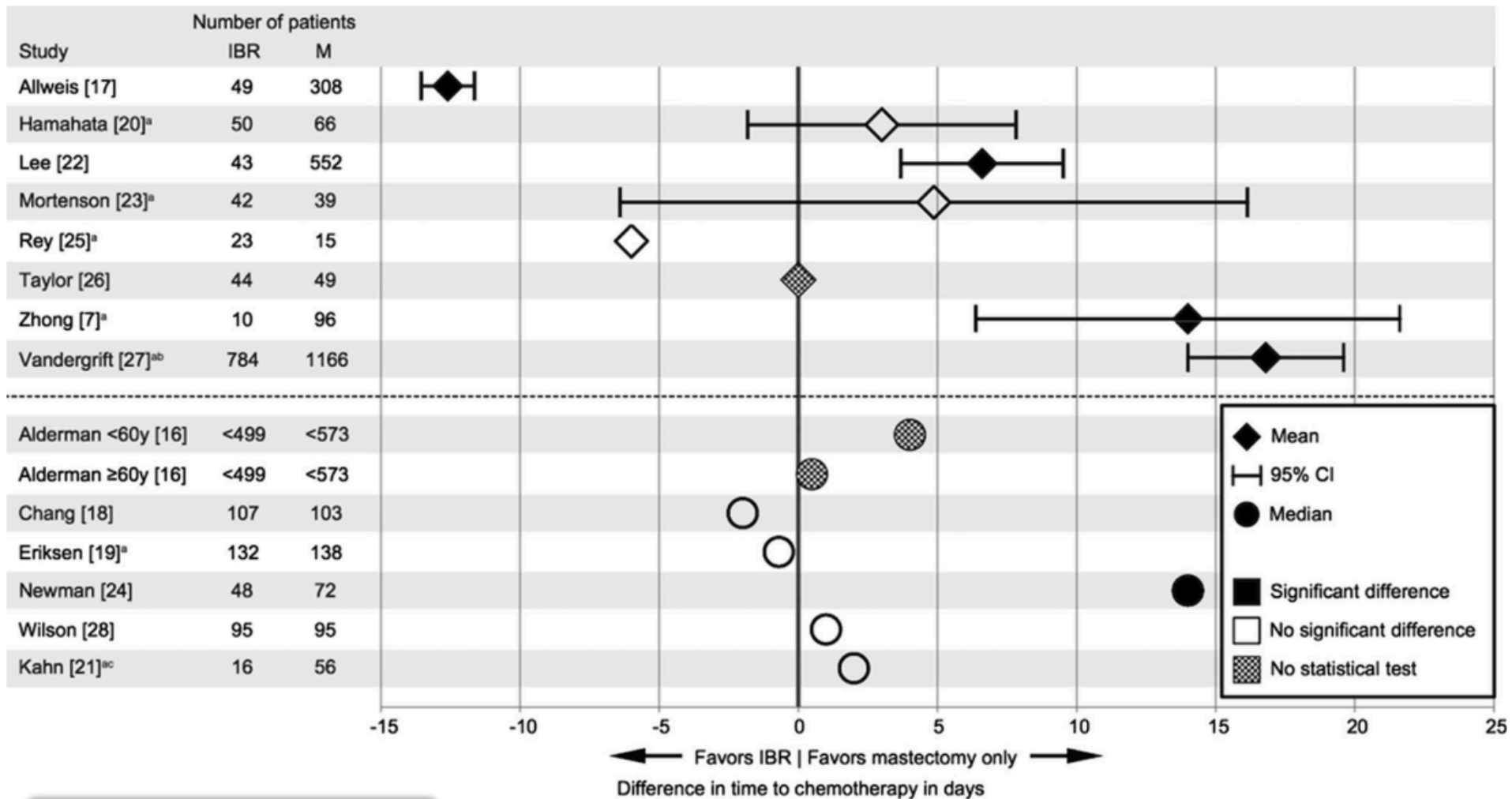
The median follow-up duration was 43.4 months (range, 11–100 months) for the control group and 41.3 months (range, 12–100 months) for the study group (p=1.000).



REVIEW

# **The effect of immediate breast reconstruction on the timing of adjuvant chemotherapy: a systematic review**

**J. Xavier Harmeling<sup>1</sup> · Casimir A. E. Kouwenberg<sup>1</sup> · Eveline Bijlard<sup>1</sup> · Koert N. J. Burger<sup>2</sup> · Agnes Jager<sup>3</sup> · Marc A. M. Mureau<sup>1</sup>**



Time to chemotherapy  
 IBR            29-61 days  
 Mast.         21-60 days

# BREAST

## Predicting Complications following Expander/Implant Breast Reconstruction: An Outcomes Analysis Based on Preoperative Clinical Risk

Colleen M. McCarthy, M.D.,  
M.S.

Babak J. Mehrara, M.D.

Elyn Riedel, M.A.

Kristen Davidge, M.D.

Akili Hinson, M.D.

Joseph J. Disa, M.D.

Peter G. Cordeiro, M.D.

Andrea L. Pusic, M.D., M.H.S.

*New York, N.Y.*

*From the Plastic and Reconstructive Surgery Service, Department of Surgery, and the Department of Epidemiology and Biostatistics, Memorial Sloan-Kettering Cancer Center.*

*Received for publication May 16, 2007; accepted August 23, 2007.*

*Presented at the 85th Annual Meeting of the American Association of Plastic Surgeons, in Hilton Head, South Carolina, May 6 through 9, 2006.*

*Copyright ©2008 by the American Society of Plastic Surgeons*

DOI: 10.1097/PRS.0b013e31817151c4

**Table 3. Incidence of Complications following Tissue Expander/Implant Reconstruction\***

<b>Complications</b>	<b>No.</b>	<b>Percentage of Reconstructions</b>
Mastectomy flap necrosis	102	8.7
Seroma/hematoma	38	3.2
Infection treated without implant removal	40	3.4
Infection necessitating implant removal†	17	1.5
Failed expansion†	2	<1
Expander/implant exposure†	7	<1
Total	206	17.6

\* $n = 1170$  reconstructions.

†Complications that resulted in reconstructive failure ( $n = 22$ ).

**Table 5. Final Model of Multivariate Analysis for the Development of a Complication**

<b>Variable</b>	<b>Adjusted OR (95% CI)*</b>	<b><i>p</i></b>
Age $\geq$ 65 years	2.5 (1.3–5.0)	0.008
Hypertension	1.8 (1.1–3.0)	0.02
Smoker	2.2 (1.4–3.5)	$<0.001$
Obese (BMI $>30$ )	1.8 (1.1–3.0)	0.02

\*OR, odds ratio; CI, confidence interval; BMI, body mass index.

\*In a multivariate analysis, the OR is adjusted for the level of all other risk factors included in the model.

# Does timing of adjuvant chemotherapy influence the prognosis after early breast cancer? Results of the Danish Breast Cancer Cooperative Group (DBCG)

**S Cold<sup>\*,1</sup>, M Düring<sup>2</sup>, M Ewertz<sup>3</sup>, A Knoop<sup>1</sup> and S Møller<sup>2</sup>**

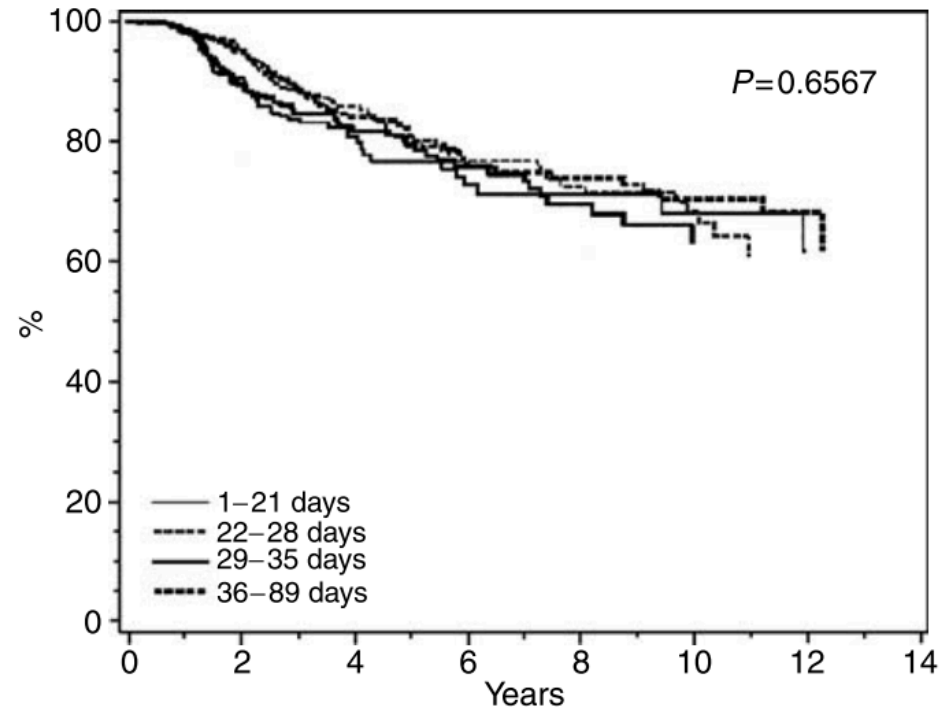
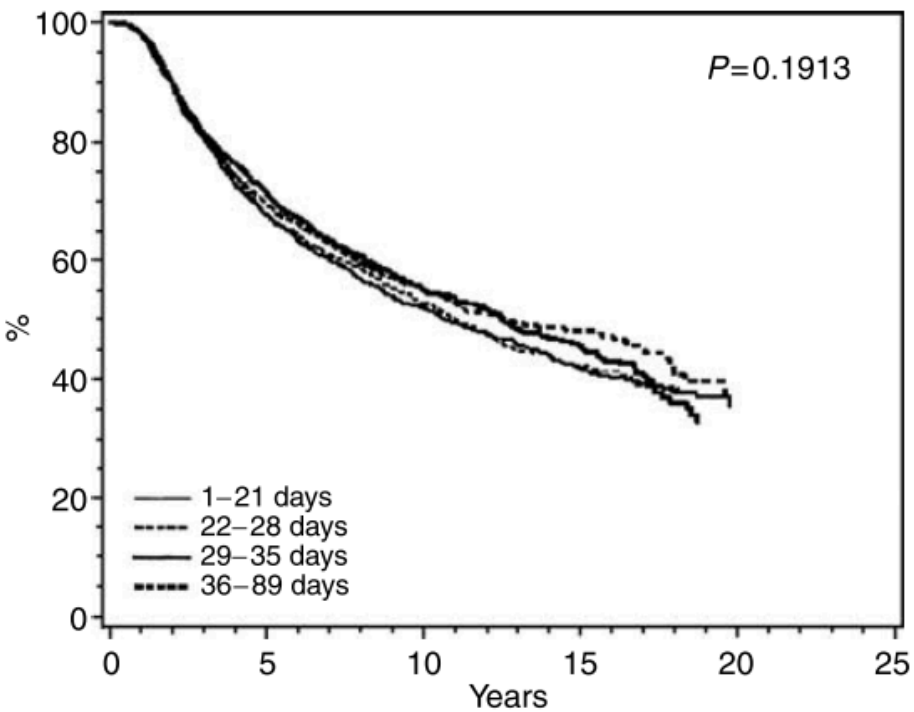
<sup>1</sup>Oncology Department R, Odense University Hospital, Sdr. Boulevard 29, DK-5000 Odense C, Denmark; <sup>2</sup>Danish Breast Cancer Cooperative Group, Blegdamsvej 9, 2100 København Ø, Denmark; <sup>3</sup>Department of Oncology, Aalborg Hospital, Aarhus University, Hobrovej 18-22, PO Box 365, DK-9100 Aalborg, Denmark



# Overall survival

**CMF**  
**N=6065**

**CEF**  
**N=1084**





**Guideline 17-10**

**A Quality Initiative of the  
Program in Evidence-Based Care (PEBC), Cancer Care Ontario (CCO)**

**Breast cancer reconstruction surgery  
(immediate and delayed) across Ontario:  
Patient indications and appropriate surgical options**

*T. Zhong, K. Spithoff, S. Kellett, K. Boyd, M. Brackstone, R. Hanrahan, T. Whelan  
and the Breast Reconstruction Expert Panel*

**Report Date: January 5, 2016**

# Relative contraindications (non-cancer-related)

1. Morbid obesity (body mass index [BMI]  $\geq 40$  kg/m<sup>2</sup>)
2. Current smoking status

Advanced age is not a contraindication to breast reconstruction.

# Immediate reconstruction in women who are not expected to require postoperative RT

- Prophylactic mastectomy
- In situ disease (ductal)
- Tumour size or multifocality preclude the use of BCT
- RT not recommended, i.g.:
  - Hodgkin disease
  - Severe collagen vascular disease
  - Tp53 mutation
- Small invasive cancers with extensive microcalcifications (DCIS) or atypia
- Positive margins following breast-conserving surgery opting for completion mastectomy
- Recurrent disease following failed initial BCT

# Skin-sparing/nipple-sparing mastectomy and reconstruction

- SSM or NSM with immediate breast reconstruction is a reasonable option for women with early breast cancer who are believed to be likely lymph node negative.
- NSM are not recommended for women with Paget disease of the breast or women with a retro-areolar tumour.
- NSM with immediate reconstruction is reserved for patients with minimal ptosis and do not require skin reducing incisions.
- Women with multicentric DCIS or early invasive cancer within 2 cm of the NAC who are contemplating NSM may consider a sampling taken from the base of the nipple for pathological assessment.
- Women found to have tumour involvement in the NAC either intraoperatively or postoperatively should have the nipple resected.

# Axillary staging before reconstruction

- When immediate reconstruction is required, for women with invasive breast cancer and clinically negative nodes, a standalone sentinel lymph node biopsy may evaluate lymph node status prior to definitive mastectomy.

- Women treated by mastectomy should be made aware that autologous tissue reconstruction and implant-based reconstruction are options for immediate or delayed reconstruction.

# Implant vs. autologous reconstruction

- Reconstruction methods should be selected based on patient and surgeon factors.
- If women are candidates for either reconstruction, then they should be informed that TE/I reconstruction may be accompanied by a higher risk of reconstructive failure or soft tissue infection and that there is a trend toward decreased esthetic satisfaction with TE/I reconstruction over time.
- For women who have received prior RT to their breast as part of BCT, mastectomy with immediate autologous tissue reconstruction is the recommended option.



# Follow-up after mastectomy and reconstruction

- There is insufficient evidence to support the use of post-mastectomy surveillance mammography in the reconstructed breast.
- Women should be followed with clinical examination of the chest wall and reconstructed breast as per the regular breast cancer follow-up regimen.
- Diagnostic mammography, ultrasound, and magnetic resonance imaging may be helpful in the evaluation of symptomatic women with a reconstructed breast (e.g., lumps, skin changes).

# Conclusions

- IBR is oncological safe regarding recurrence and survival in node negative breast cancer
- IBR should be considered in every clinical node negative patient with invasive breast cancer where mastectomy is indicated
- SNB should be done before definitive surgery
- Relative contraindications to IBR include:
  - Overweight
  - Smoking
  - Hypertension
  - Old age