

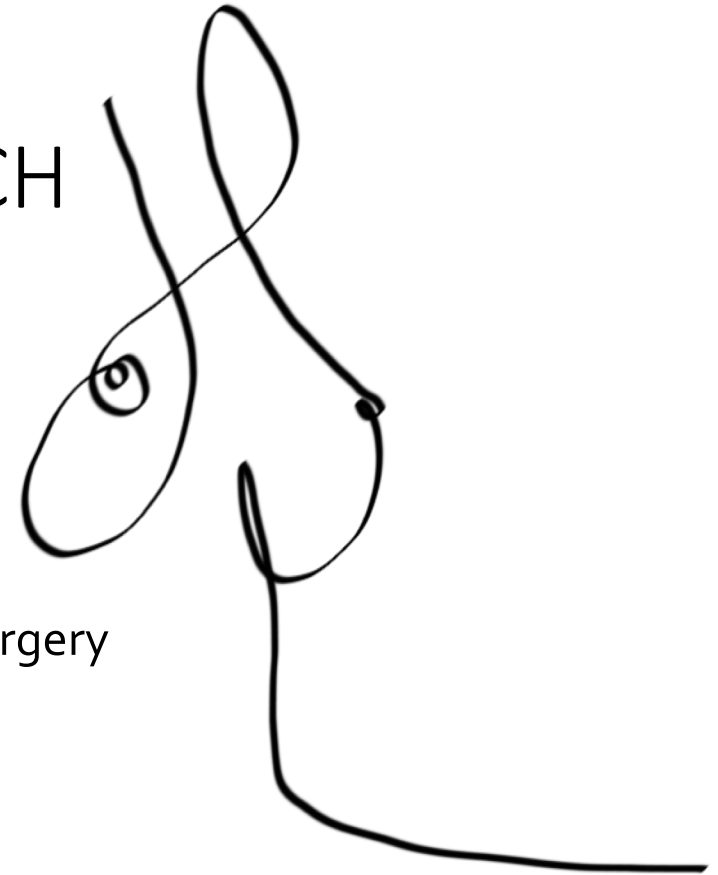
Repræsentantskabsmøde 2022

# A COMPREHENSIVE APPROACH FOR QUALITY ASSESSMENT OF BREAST CANCER CARE

Erik Heeg, MD PhD

Resident in training, Plastic Reconstructive and Hand Surgery

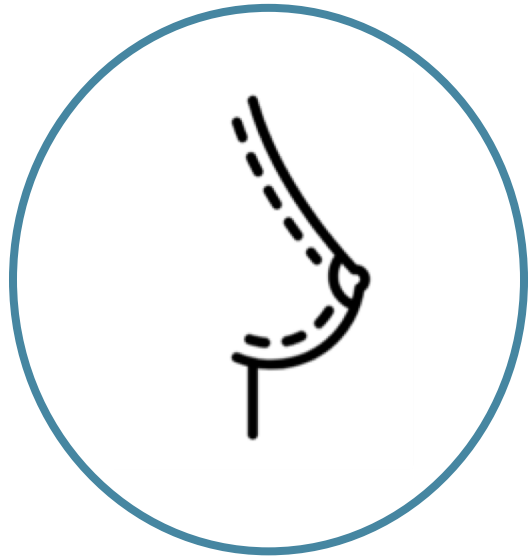
Department of Surgery, Ikazia hospital  
Rotterdam, the Netherlands



# Conflict of interest

No financial conflicts of interest  
in relation to this presentation

# Background

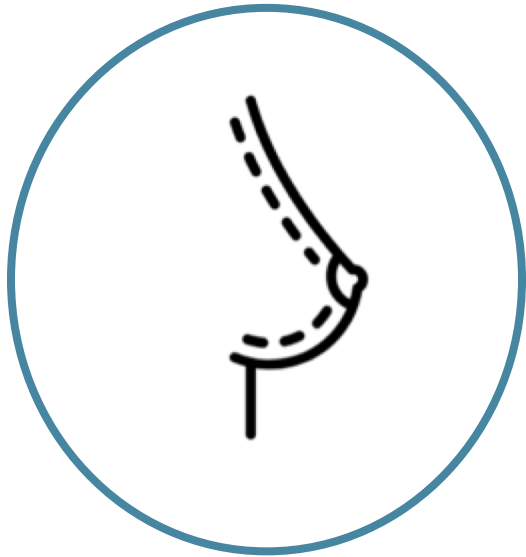


- Interest healthcare quality assessment<sup>1</sup> ↑
- Improved quality associated with<sup>2</sup>
  - Patient satisfaction
  - Outcomes
  - Productivity
  - Ultimately with lower healthcare costs

<sup>1</sup> Sun G.H. *et al. Am J Med Qual.* 2014;29(5):403-7.

<sup>2</sup> McCalman J. *Front Public Health.* 2018;6:76

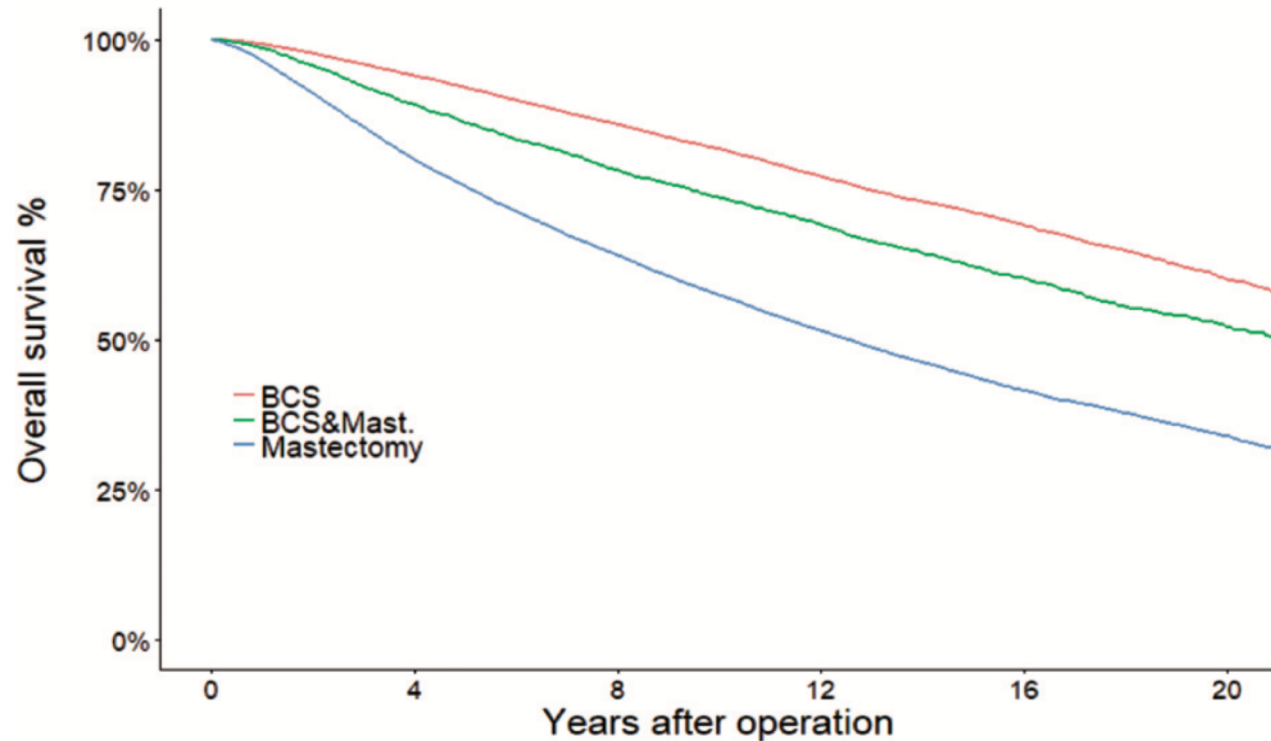
# Background



- Defining healthcare quality is complicated
  - Subjective perspectives
  - Multi-dimensional components
  - Changing cultural expectations.
- Quality of breast cancer care even more challenging
  - Multidisciplinary setting
  - Heterogeneity in tumor and patients
  - Multitude of treatment pathways
  - Evolving diagnostic and treatment modalities.

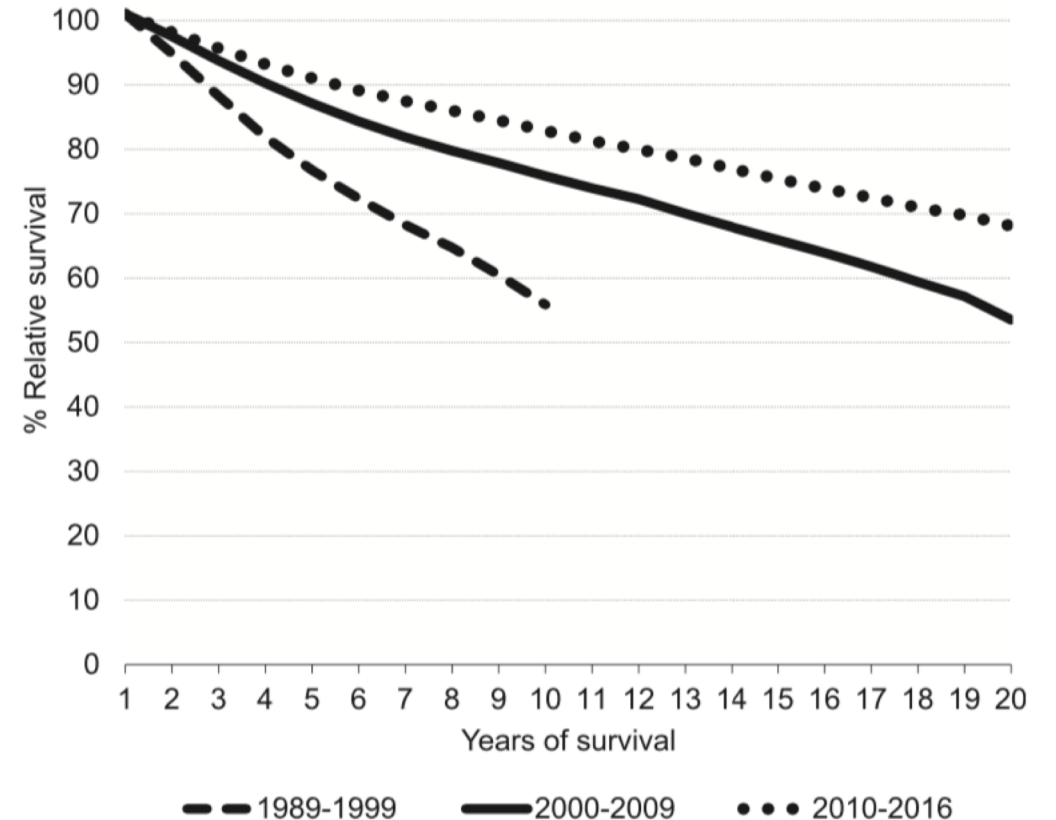
# Background

Overall survival breast cancer patient assigned to breast-conserving surgery, mastectomy, breast-conserving surgery followed by mastectomy



P. Christiansen *et al.* Acta Oncologica (2018)

Relative survival of first primary invasive breast cancer between 1989 and 2017

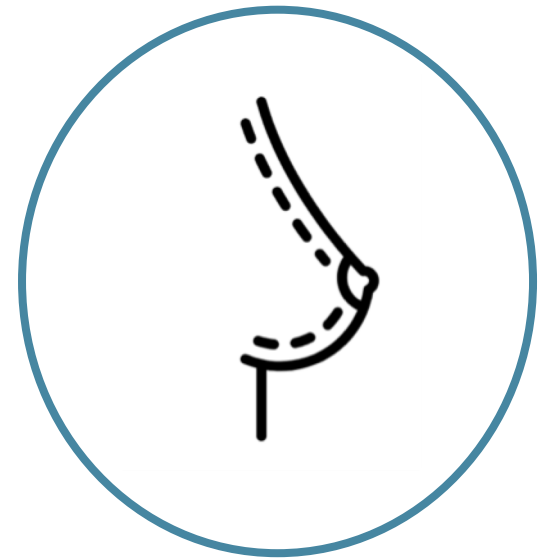


D.J. Van der Meer *et al.* Int. J. Cancer (2021)

# Background

- Increased attention towards 'Quality of life'<sup>1</sup>
- Loss of breast mound -> Quality of life<sup>2</sup> ↓

How can we preserve the breast mound?



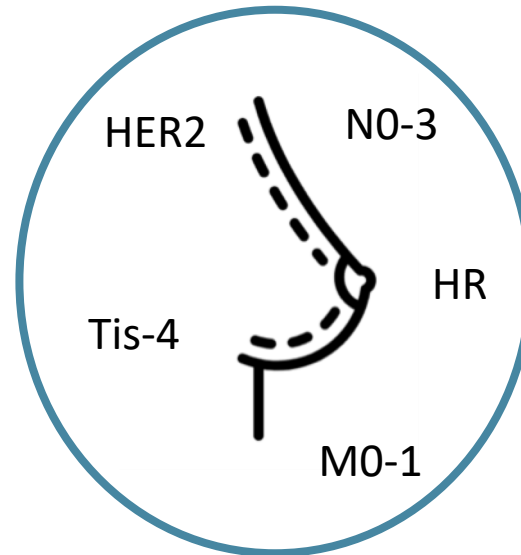
# Background

Shared-decision making

Neoadjuvant chemotherapy

Experience physician

Postmastectomy immediate breast reconstruction

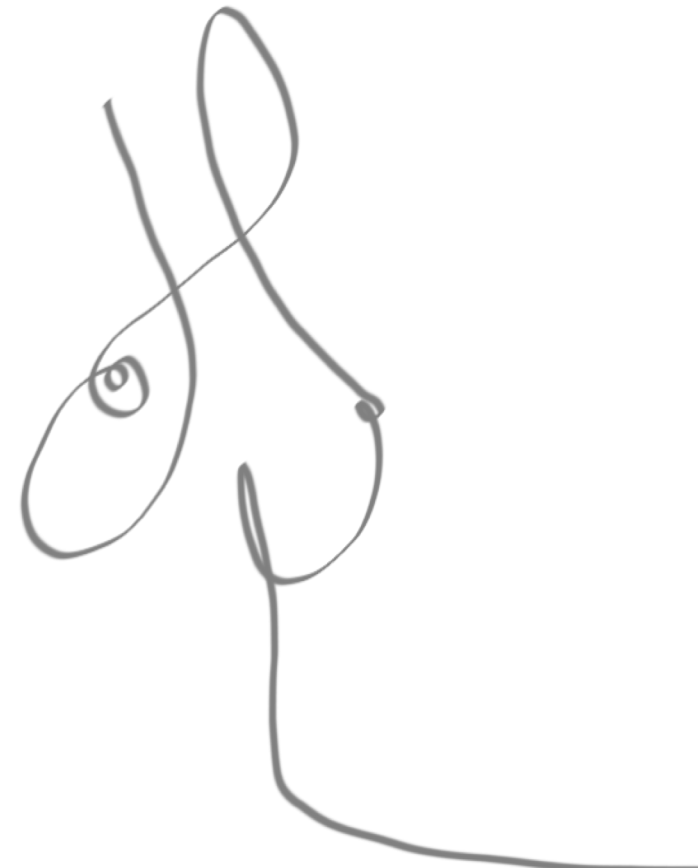


Radiotherapy

Oncoplastic surgery

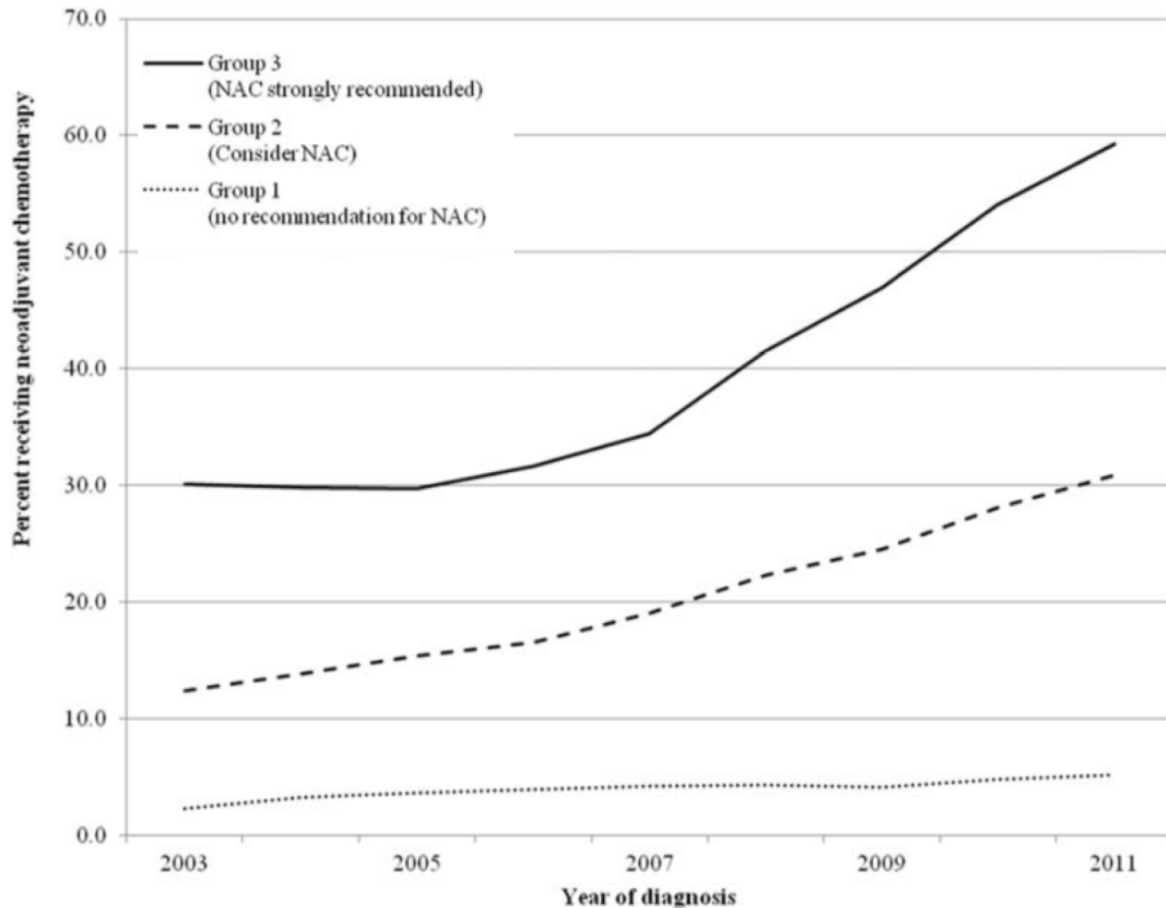
Comorbidities

# Quality assessment of different breast preservation strategies



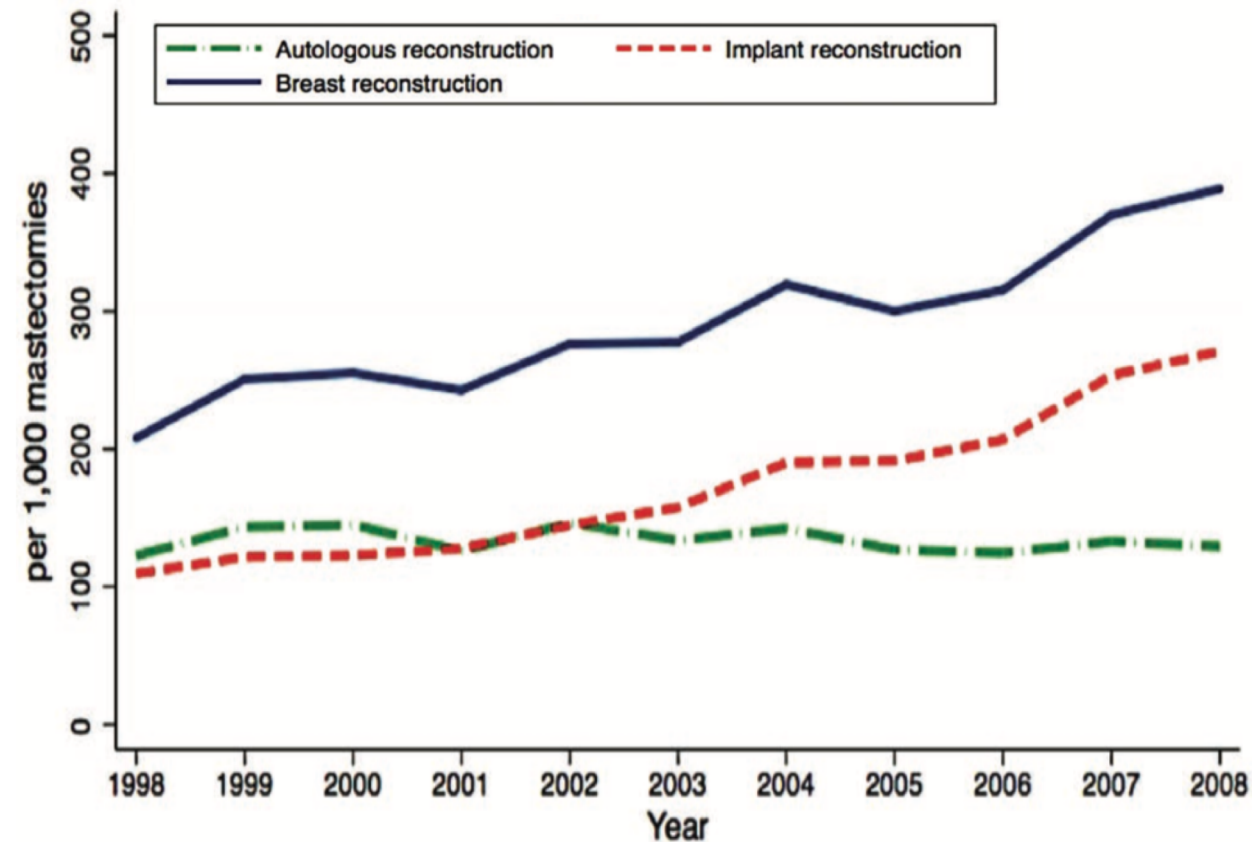


## Use of neoadjuvant chemotherapy by year of diagnosis and NCCN group (n=395,486)



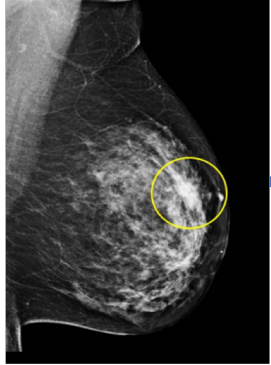
S. Mougalian *et al. Cancer*, 2015

## Use of an immediate breast reconstruction and method of reconstruction (n=178,603)



C. Albornoz *et al. Plastic and Reconstructive Surgery*, 2013

**Diagnosis**



**Breast-contour preservation**



- Primary breast-conserving surgery (BCS)
- Neoadjuvant chemotherapy + BCS
- Postmastectomy breast reconstruction

Or



**Breast-contour loss**



- Mastectomy only

Why not look beyond our borders?



# Why not look beyond our borders?



# DBC

## Danish Breast Cancer Group

- Population-based registry
- Prospectively registered since 1977
- Primary invasive breast cancer



# NBCA

## NABON BREAST CANCER AUDIT

- Population-based registry
- Prospectively registered since 2011
- Primary invasive breast cancer and DCIS

Early-stage breast cancer (T1-2 N0-1 M0)

Operated between 2012-2017

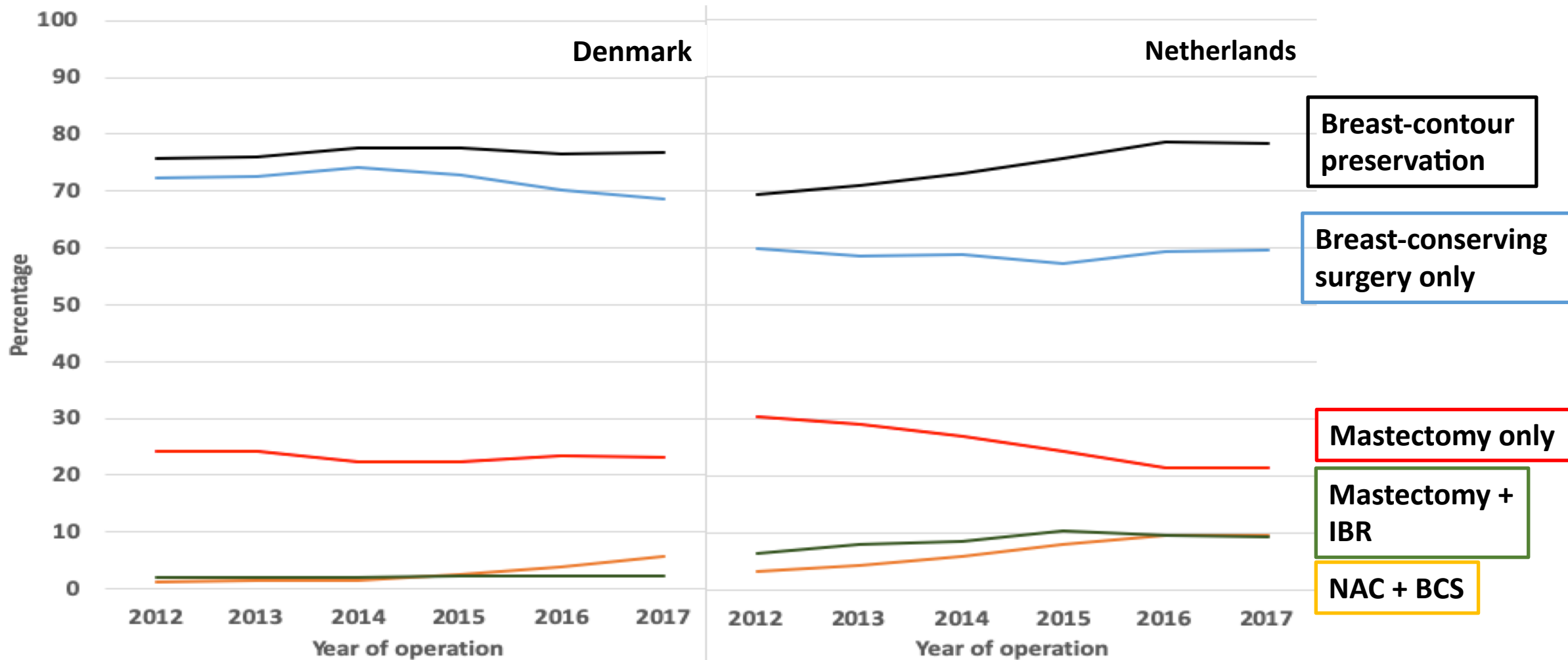
N=92,881

Denmark (n=21,288)

Netherlands (n=71,593)

# Breast-contour preserving procedures for early-stage breast cancer: a population-based study of the trends, variation in practice and predictive characteristics in Denmark and the Netherlands

Heeg E, Jensen MB, Mureau M, Ejlertsen B, Tollenaar R, Christiansen P, Vrancken-Peeters MJ  
*Breast Cancer Research and Treatment*, 2020 Aug;182(3):709-718



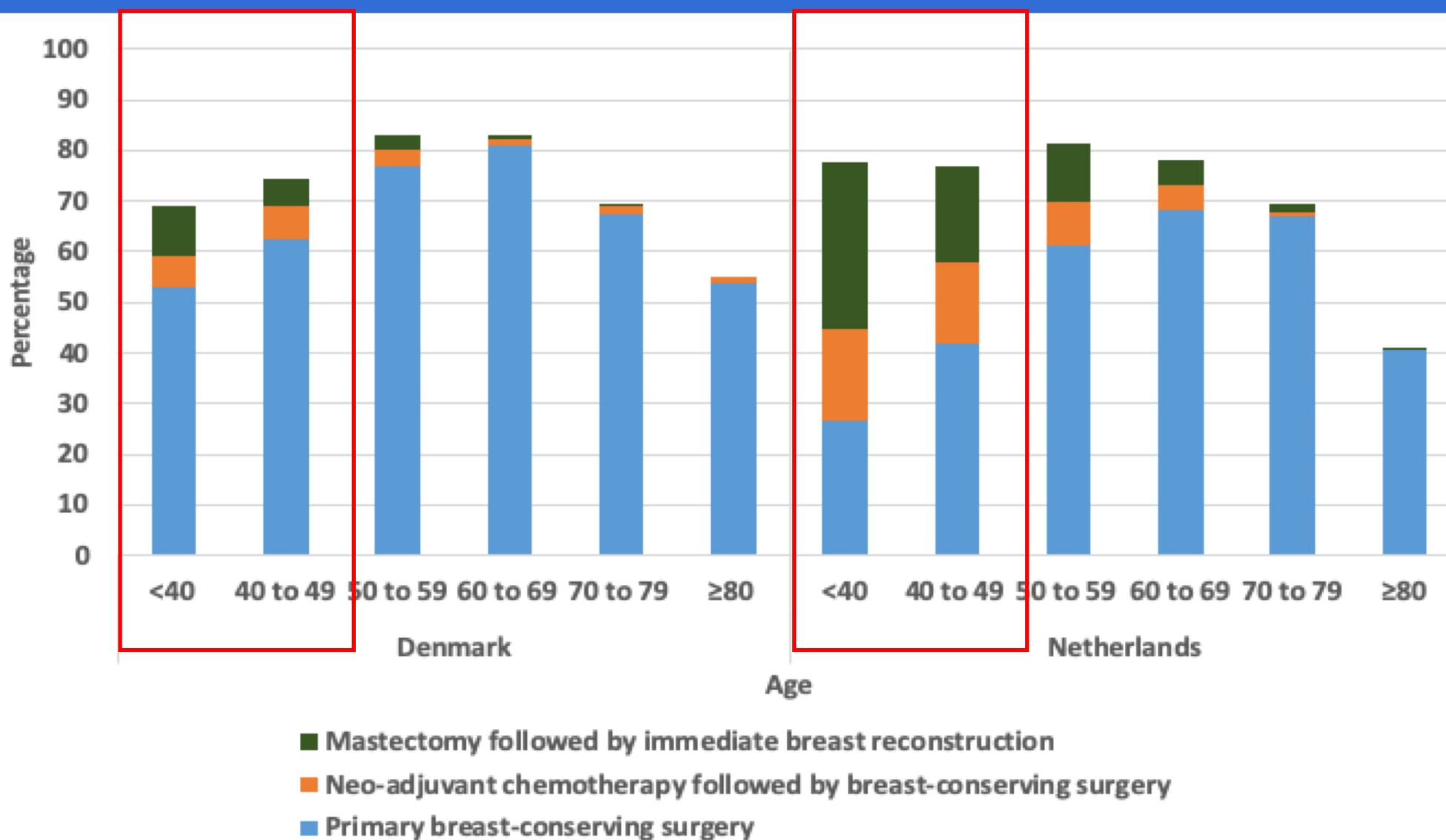
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- **Breast-contour preservation achieved in >75% of early-stage breast cancer**
- **Different strategies (Denmark vs. Netherlands)**
  - Denmark -> use of breast-conserving surgery
  - Netherlands -> use of NAC and immediate breast reconstruction

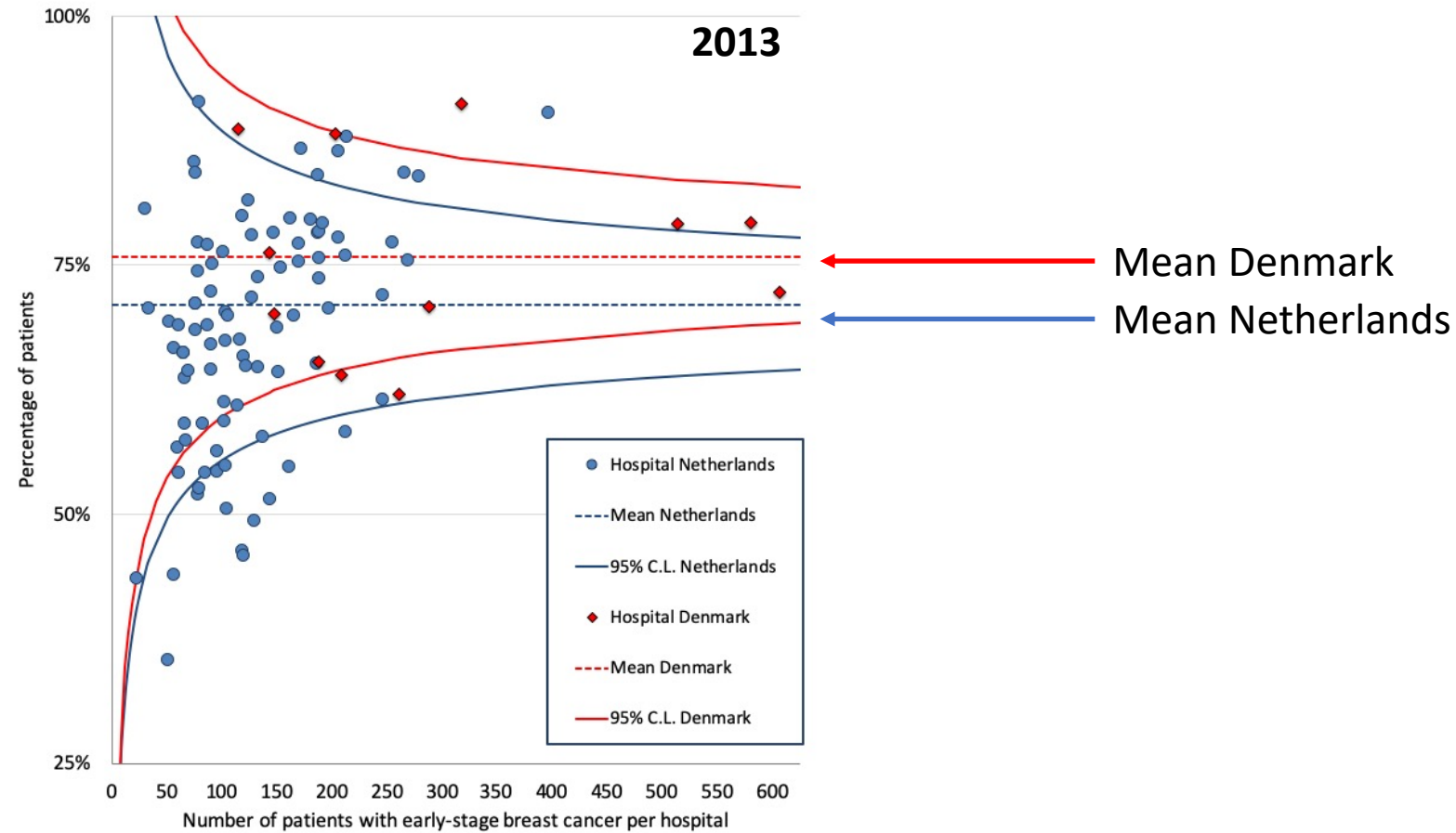
# Strategies according to age-groups?





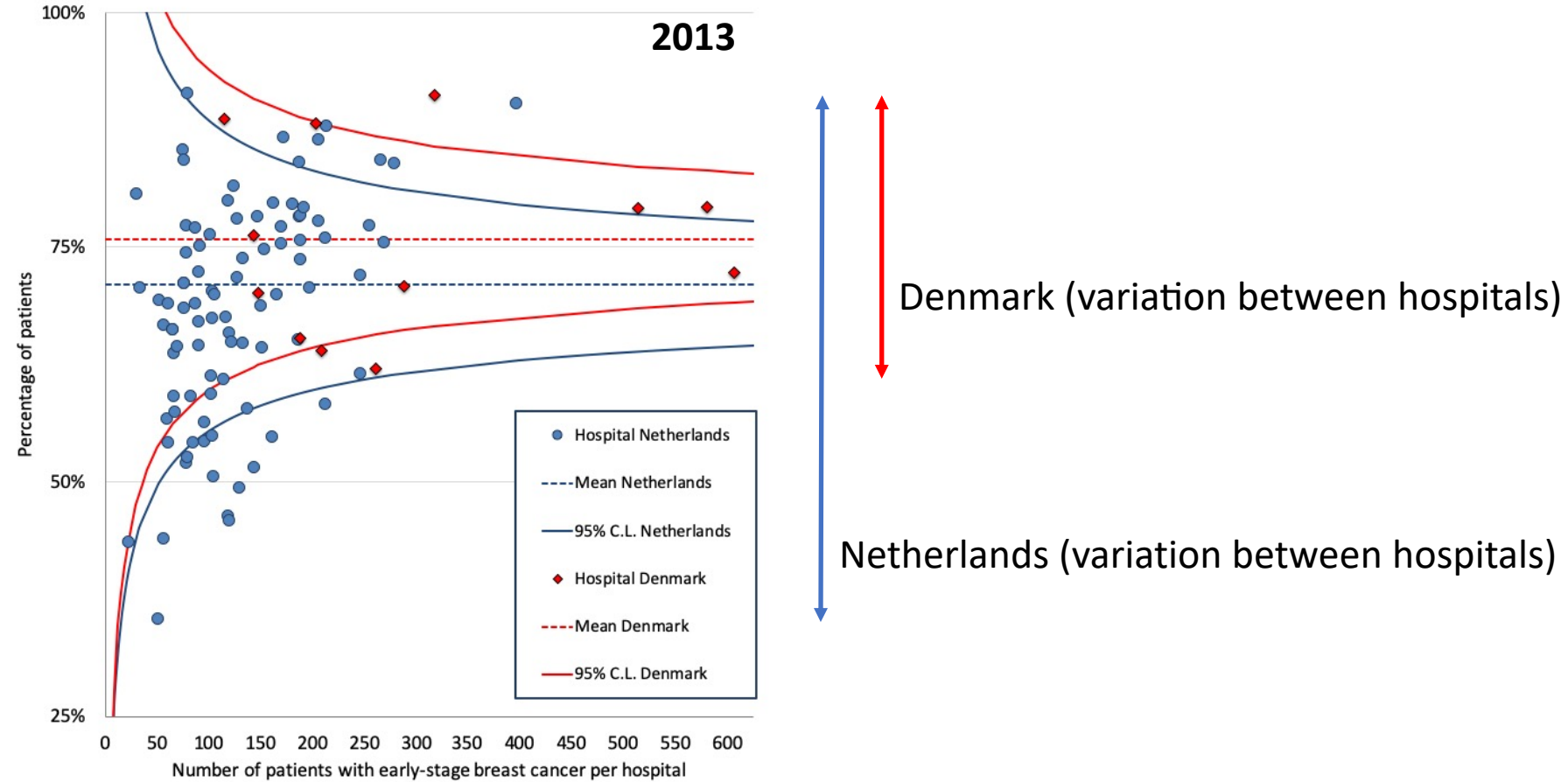
# Variation among hospitals?

## Funnelplot of breast contour preservation in different hospitals



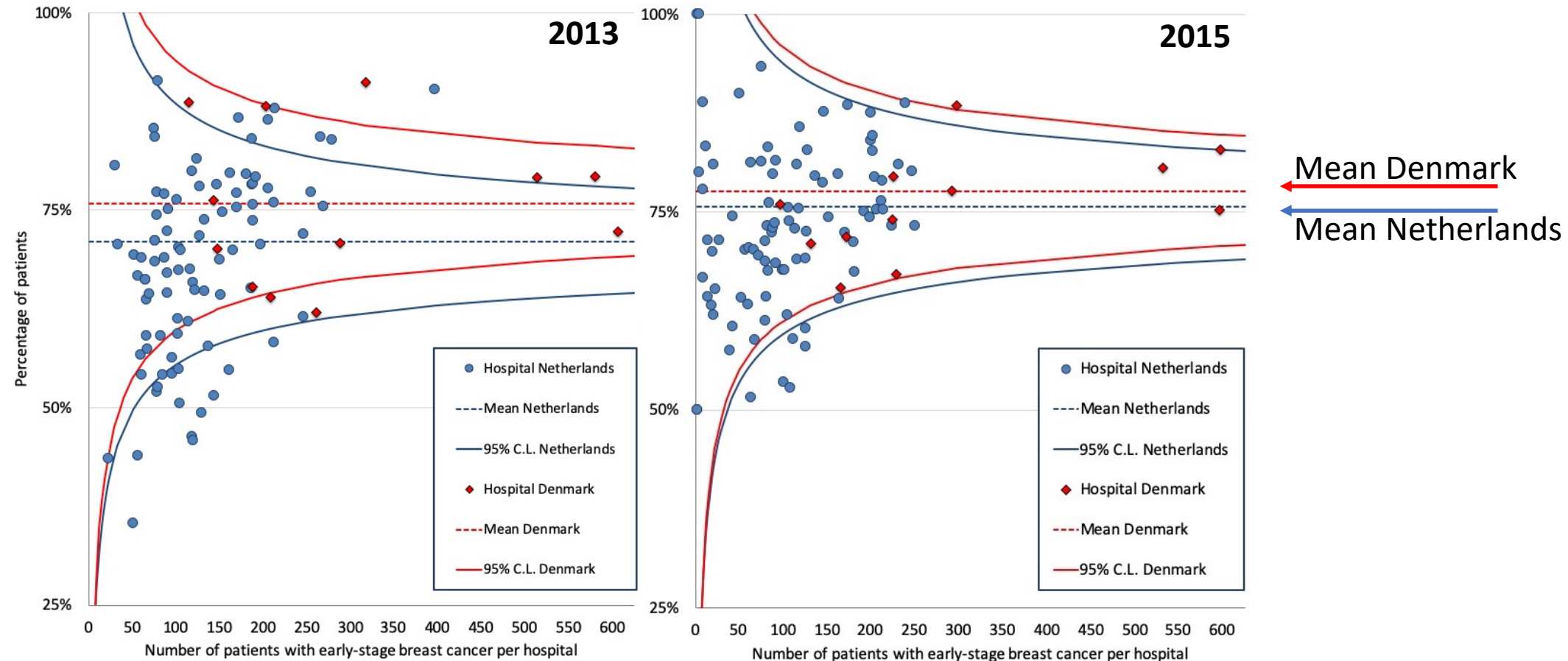
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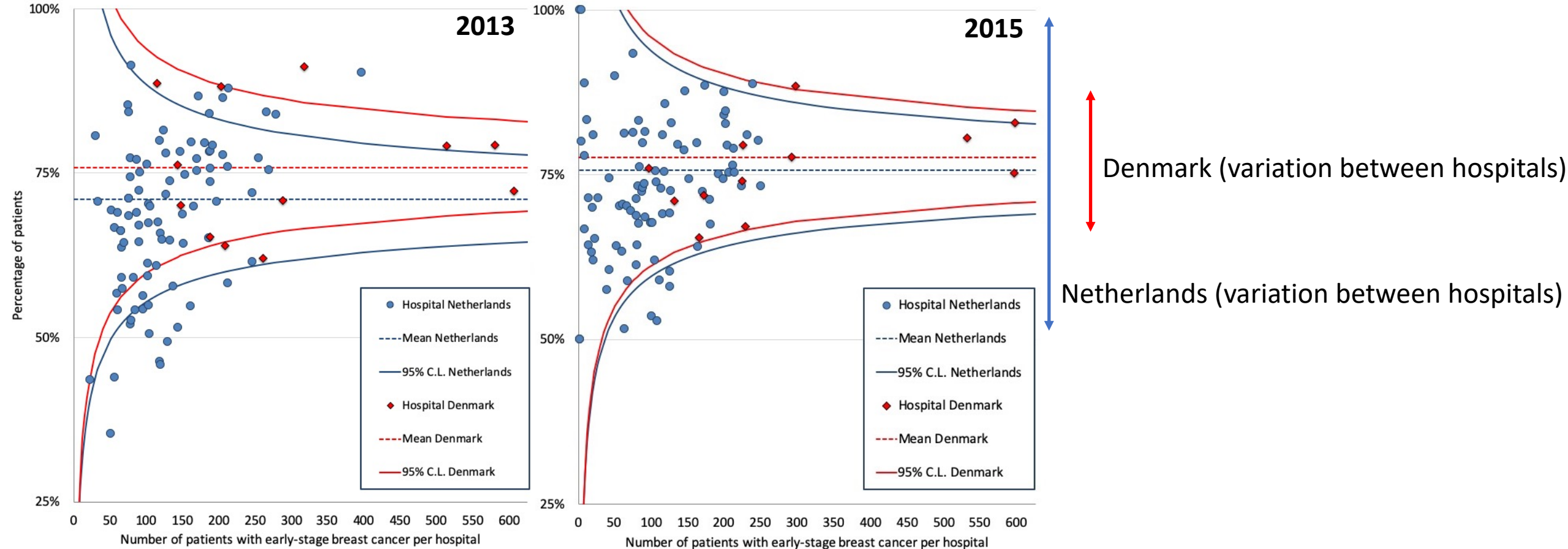
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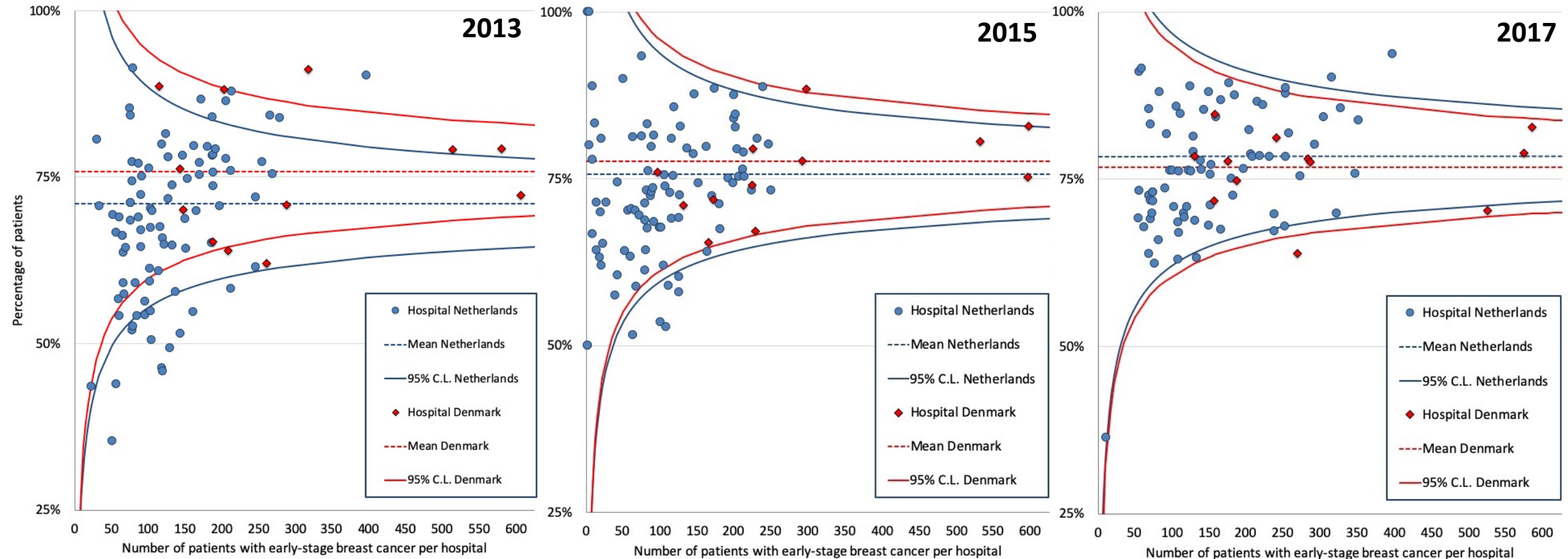
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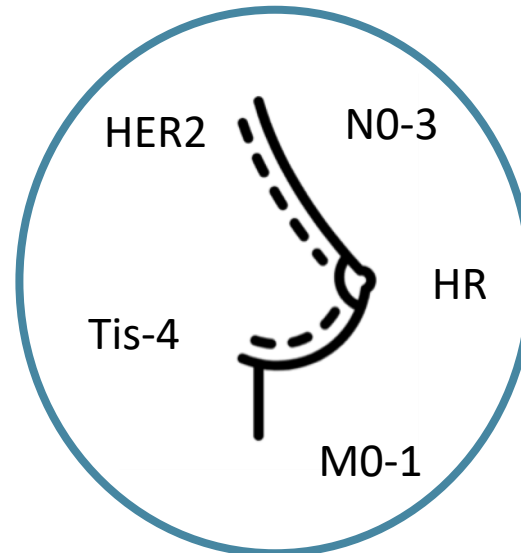
# Background

Shared-decision making

Neoadjuvant chemotherapy

Experience physician

Postmastectomy immediate breast reconstruction



Radiotherapy

Oncoplastic surgery

Comorbidities

# Focusing on breast-conserving surgery

- Challenge between **complete resection** vs. **favorable cosmetic result**
- **Up to 34%** of breast-conserving surgery uses oncoplastic surgery<sup>1-4</sup>

<sup>1</sup> M. Jonczyk *et al. Breast Cancer Res Treat* (2019)

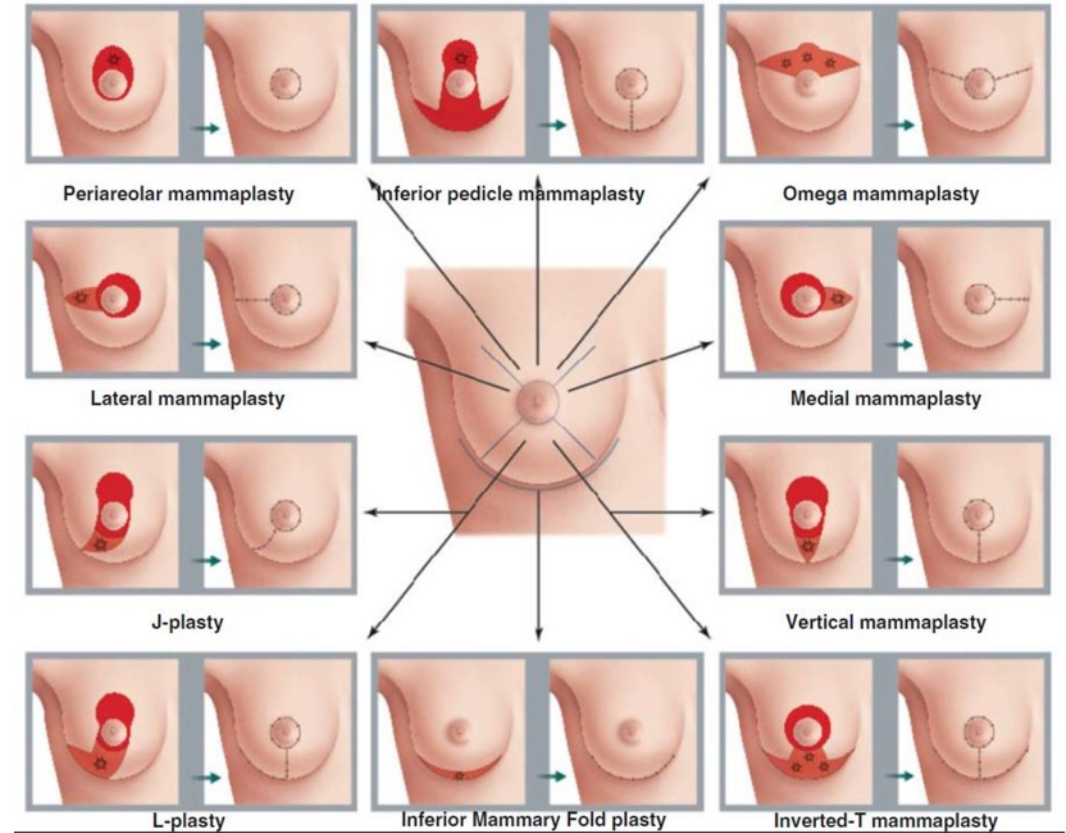
<sup>2</sup> E. Palsdottir *et al. Scand J Surg* (2018)

<sup>3</sup> E. Morrow *et al. Eur J Surg Oncol* (2019)

<sup>4</sup> L. Niinikoski *et al. Eur J Surg Oncol* (2019)

# Focusing on breast-conserving surgery

- Oncoplastic surgery
  - Results in **larger tumor resections**<sup>1,2</sup>
  - **May reduce the number of re-exisions**<sup>2,3</sup>
- Secondary mastectomy undesired end result



R.V. Pérez, Incision patterns in breast oncoplastic surgery (2015)

<sup>1</sup> A. Losken *et al. Ann Plas Surg* (2014)

<sup>2</sup> L. De La Cruz *et al. Ann Surg Oncol* (2016)

<sup>3</sup> J. Chen *et al. J. Breast Cancer* (2018)



# DBC

Danish Breast Cancer  
Group

## Volume displacement

Local rearrangement of near tissue to close defect



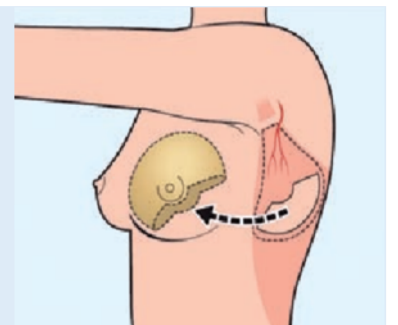
## Volume reduction

Remove tumor and improve shape at same time



## Volume replacement

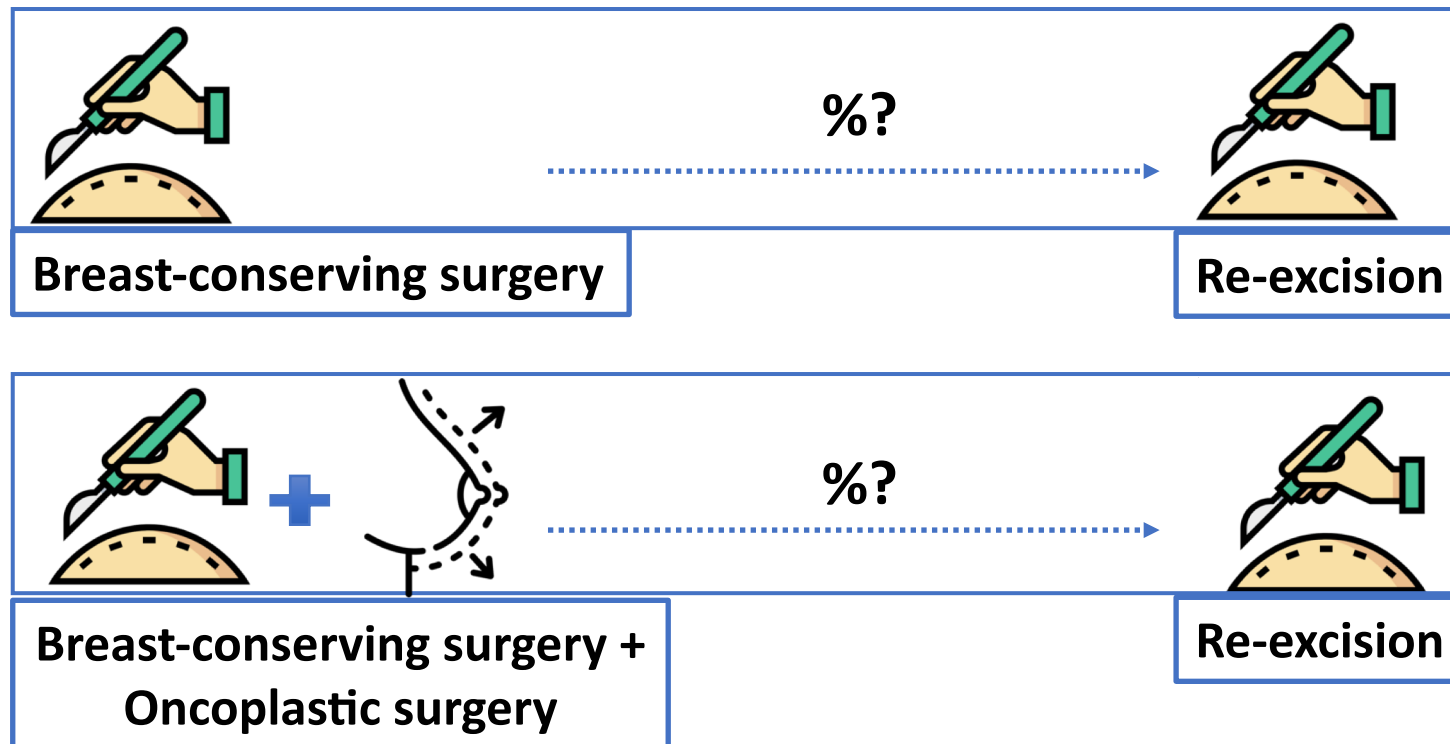
Tissue transfer from outside into the breast



# Rates of re-excision and conversion to mastectomy after breast-conserving surgery with or without oncoplastic surgery: a nationwide population-based study

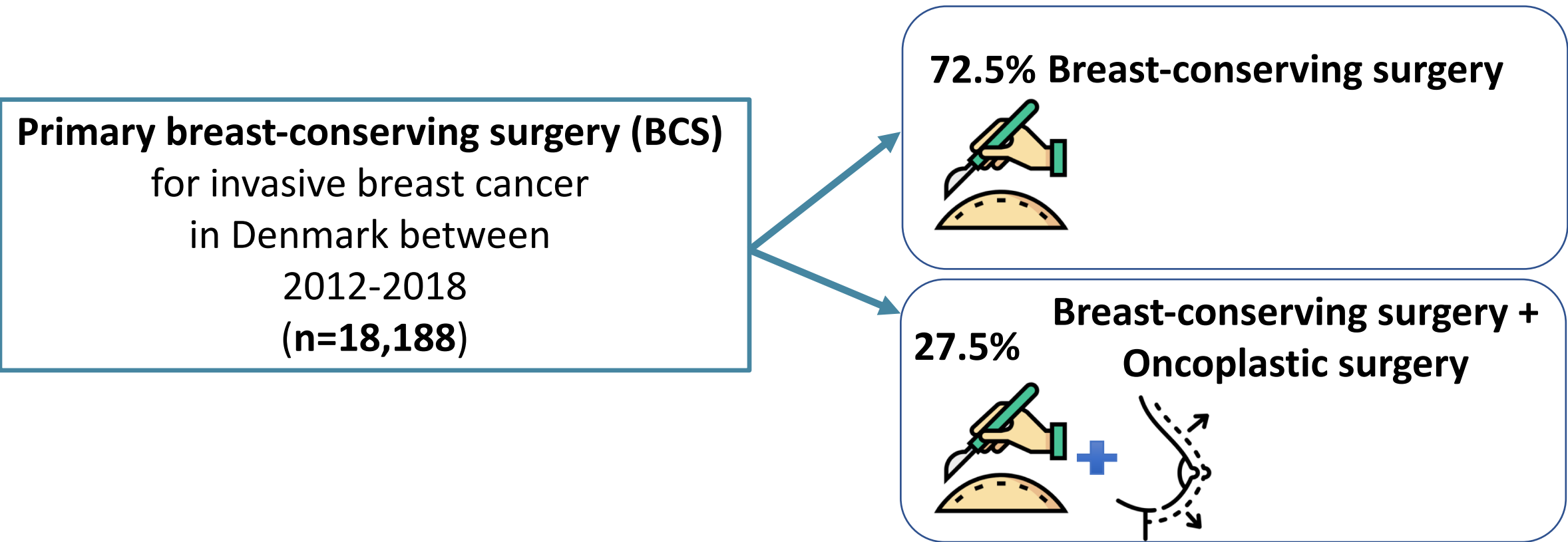
Heeg E, Jensen MB, Hølmich LR, Bodilsen A, Tollenaar REAM, Laenkholm AV, Offersen BV, Ejlersen B, Mureau MAM, Christiansen PM  
British Journal of Surgery, 2020;107(13):1762-1772

What is the **impact of oncoplastic surgery** on **re-excision** and **conversion to mastectomy** rates?



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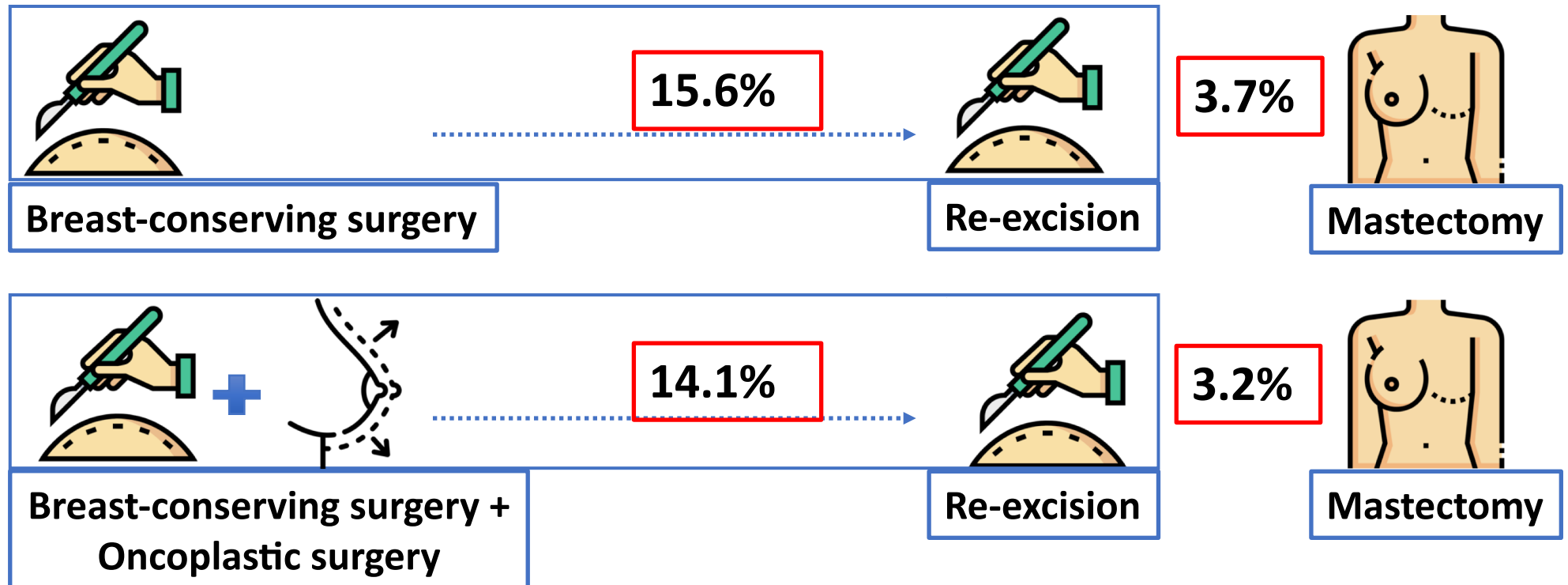
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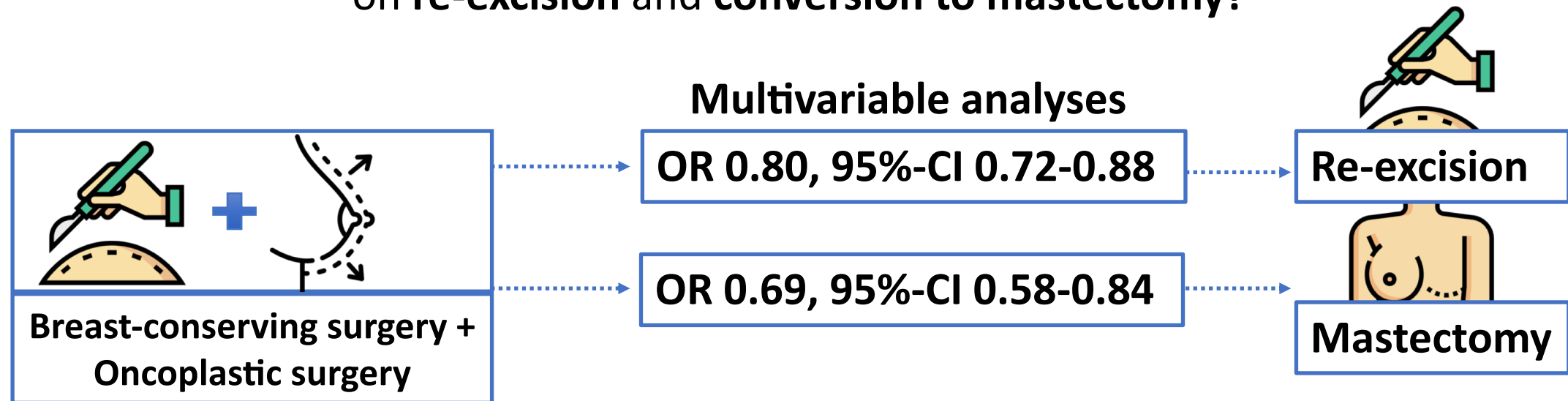


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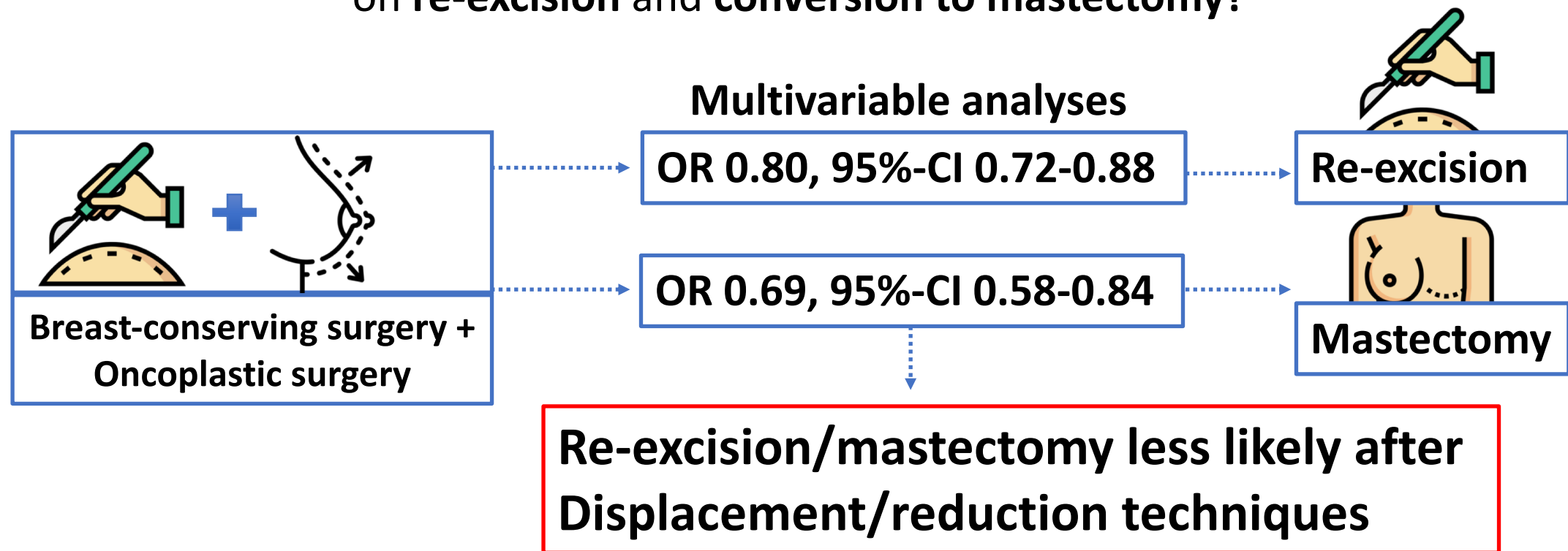


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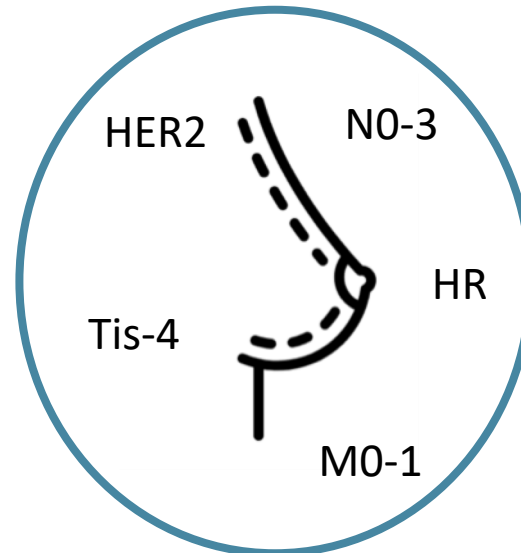


# Background

Shared-decision making

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Postmastectomy immediate breast reconstruction

# Conclusions

- Breast cancer registries/databases essential for quality assessment
- Improving quality of care requires holistic and multidisciplinary approach
- (Inter)national variation in strategies for breast-contour preservation
- Room for improvement
  - Denmark: using NAC and immediate breast reconstruction
  - Netherlands: lowering overall mastectomy rate
- Consider oncoplastic surgery and one-stage more frequent





# Thank you for your attention!

## Any questions?

### Acknowledgements (co-authors):

#### Denmark

Dr. M.B. Jensen (Danish Breast Cancer Cooperative Group, Copenhagen University Hospital, Rigshospitalet)

Prof. dr. L. Rosenkrantz Hölmich (Department of Plastic Surgery, Herlev Gentofte Hospital)

Dr. A. Bodilsen (Department of Surgery, Aarhus University Hospital)

Dr. A.V. Lænkholm (Department of Surgical Pathology, Zealand University Hospital, Slagelse)

Prof. dr. B.V. Offersen (Department of Oncology, Aarhus University Hospital, Aarhus)

Prof. dr. B. Ejlersen (Department of Oncology, Copenhagen University Hospital, Rigshospitalet)

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#### Netherlands

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Prof. dr. M.T.F.D. Vrancken Peeters (Department of Surgery, Netherlands Cancer Institute)

Dr. H.A. Rakhorst (Department of Plastic, Reconstructive and Hand Surgery, Twente Medical Center, Enschede)

Dr. D.A. Young-Afat (Department of Plastic and Reconstructive Surgery, Amsterdam University Medical Centers)

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