# SENT BRYSTKRÆFT RECIDIV

## RISIKO, PROGNOSE OG FOREBYGGELSE

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DBCGS REPRÆSENTANTSSKABSMØDE | RIKKE PEDERSEN
17 JANUAR 2022 | PHD

Danish Cancer Society

# STUDIE I-IV

I.    **Pedersen RN**, Öztürk B, Mellemkjær L, Friis S, Tramm T, Nørgaard M, Cronin-Fenton D. **Validation of an Algorithm to Ascertain Late Breast Cancer Recurrence Using Danish Medical Registries.** *Clin Epidemiol.* 2020;12:1083-1093. https://doi.org/10.2147/CLEP.S269962

II.   **Pedersen RN**, Esen BÖ, Mellemkjær L, Christiansen P, Ejlertsen B, Lash TL, Nørgaard M, Cronin-Fenton DP. **The incidence of breast cancer recurrence 10-32 years after primary diagnosis.** 2021, *JNCI: Journal of the National Cancer Institute*, 2021; djab202, https://doi.org/10.1093/jnci/djab202

III.  **Pedersen RN**, Mellemkjær L, Ejlertsen B, Nørgaard M, Cronin-Fenton DP. **Mortality after late breast cancer recurrence in Denmark.** *2022, JCO: Journal of Clinical Oncology* [ACCEPTERET].

IV.   **Pedersen RN**, Mailhac A, Mellemkjær L, Friis S, Ejlertsen B, Ahern TP, Nørgaard M, Cronin-Fenton DP. **Statins and breast cancer recurrence: A Danish nationwide cohort study with up to 23 years of follow-up.**
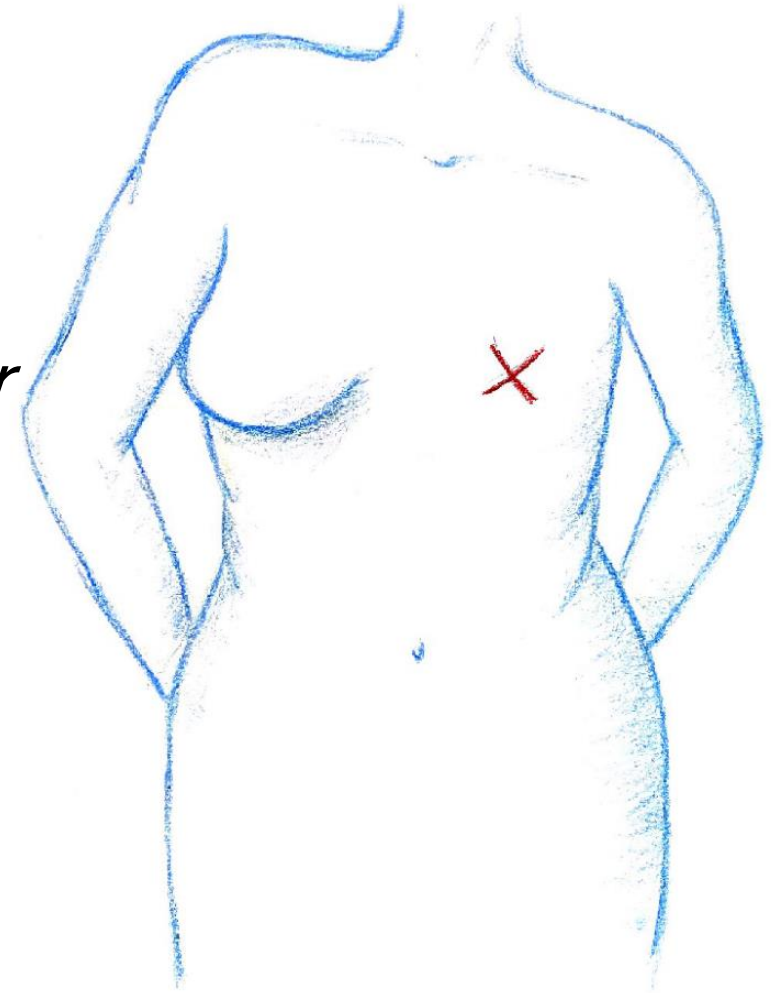
# BRYSTKRÆFT RECIDIV
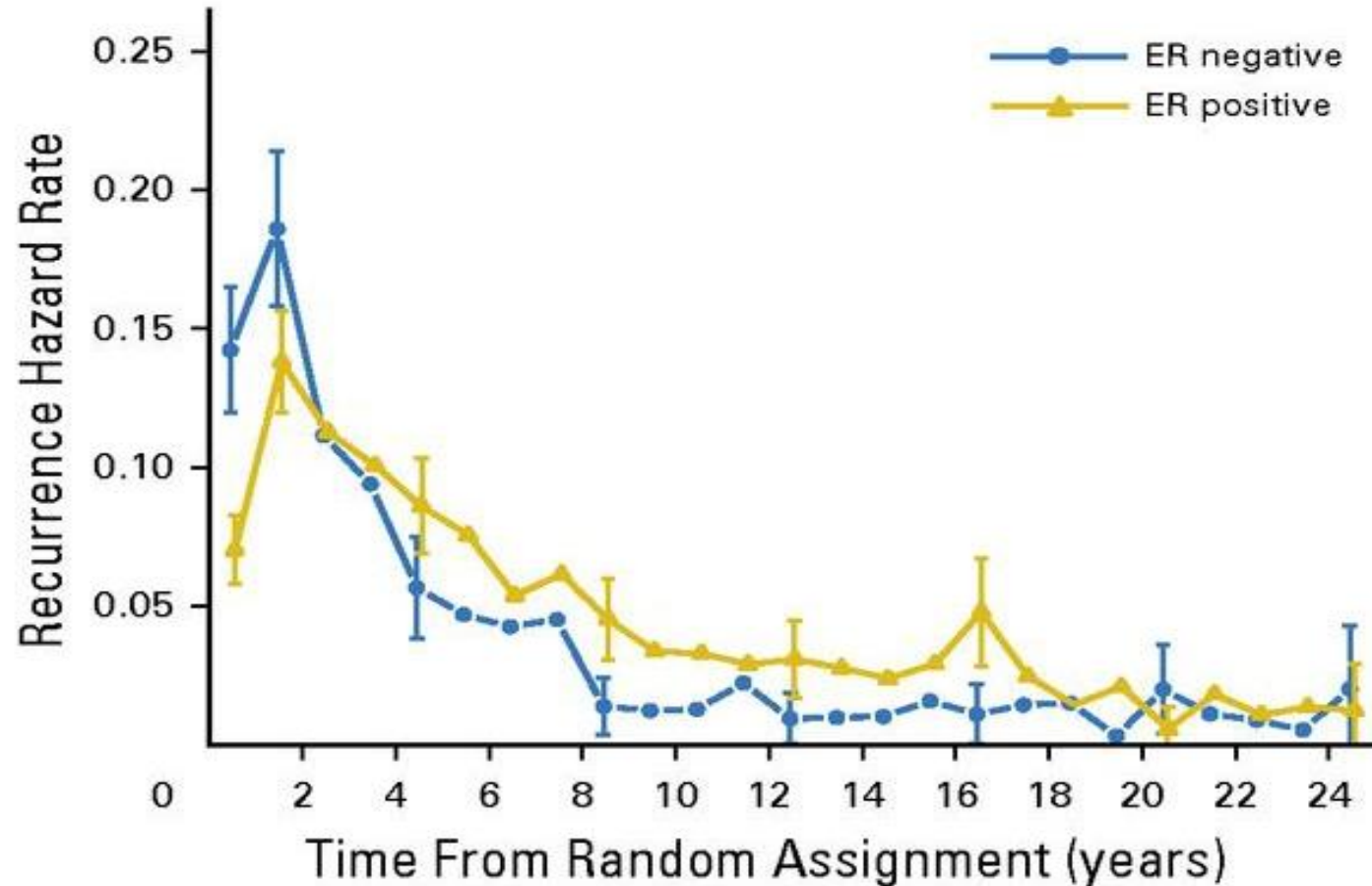
Colleoni M, Sun Z, Price KN, et al. Annual Hazard Rates of Recurrence for Breast Cancer During 24 Years of Follow-Up: Results From the International Breast Cancer Study Group Trials I to V. *J Clin Oncol.* 2016;34(9):927-935. doi:10.1200/JCO.2015.62.3504
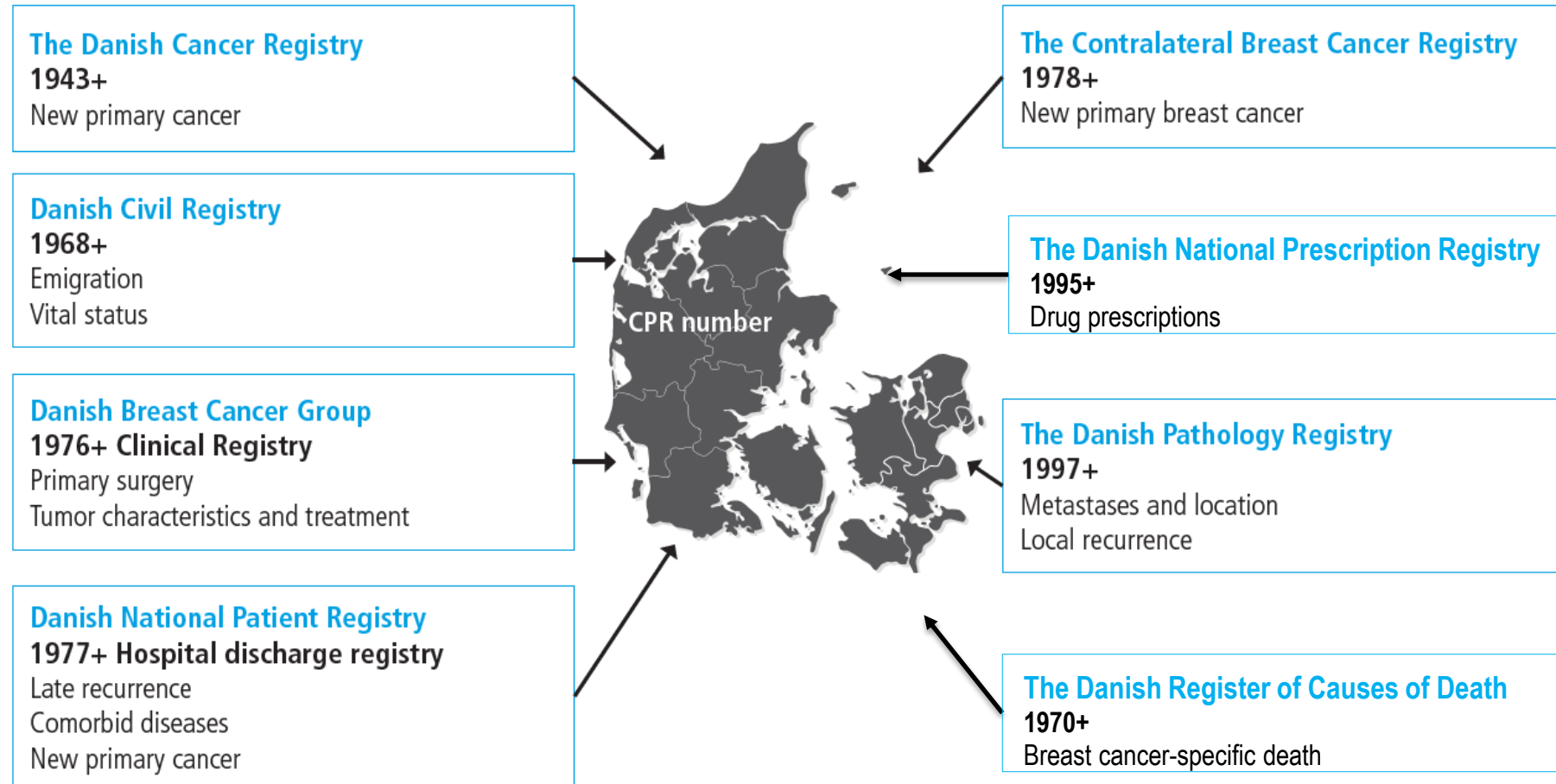
# FORMÅL FOR AFHANDLINGEN

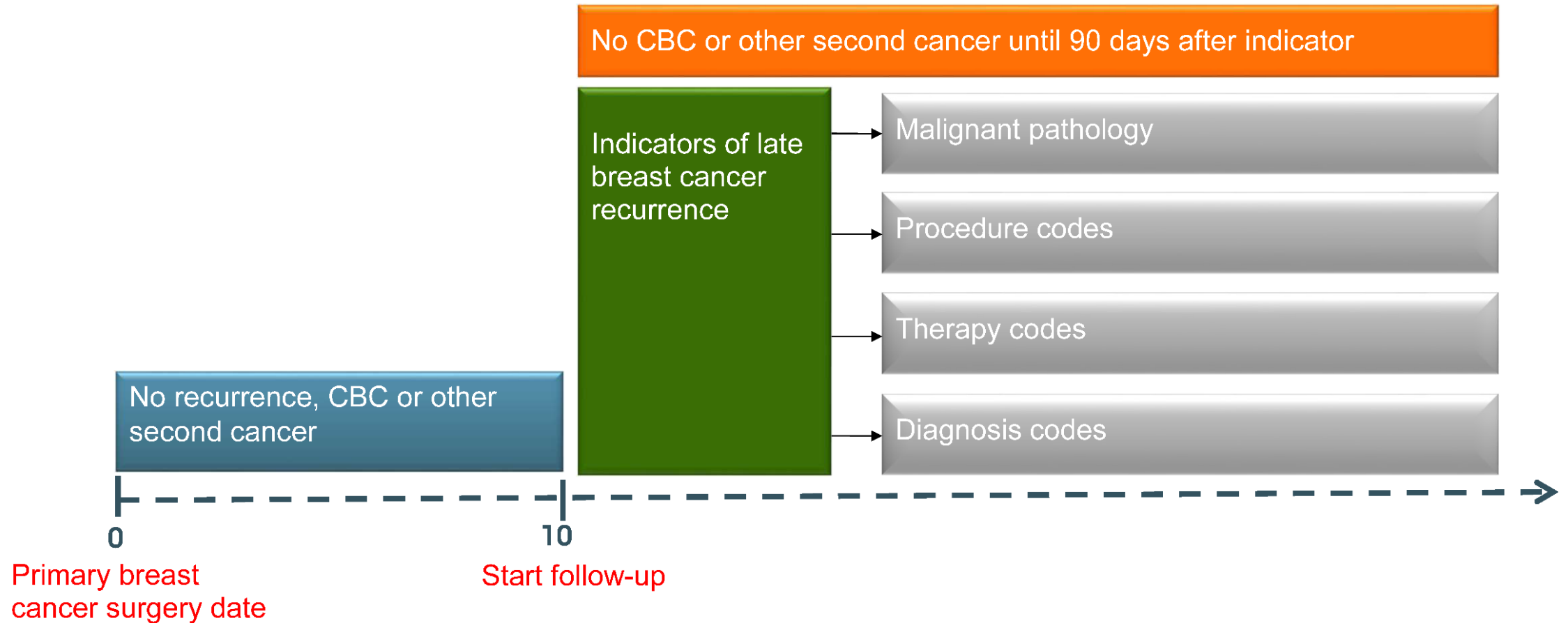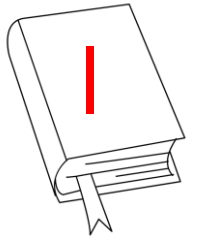At opnå viden omkring

**sent brystkræft recidiv** i

Danmark – defineret som *recidiv ≥10 år efter*

*den primære diagnose* – med fokus på

incidens, prognose og potentielle risiko- og
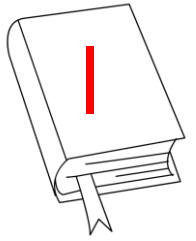
forebyggende faktorer.

# DATA

**The Danish Cancer Registry**
**1943+**
New primary cancer

**Danish Civil Registry**
**1968+**
Emigration
Vital status

**Danish Breast Cancer Group**
**1976+ Clinical Registry**
Primary surgery
Tumor characteristics and treatment

**Danish National Patient Registry**
**1977+ Hospital discharge registry**
Late recurrence
Comorbid diseases
New primary cancer

CPR number

**The Contralateral Breast Cancer Registry**
**1978+**
New primary breast cancer

**The Danish National Prescription Registry**
**1995+**
Drug prescriptions

**The Danish Pathology Registry**
**1997+**
Metastases and location
Local recurrence

**The Danish Register of Causes of Death**
**1970+**
Breast cancer-specific death

# SENT RECIDIV ALGORITME



No CBC or other second cancer until 90 days after indicator

Indicators of late breast cancer recurrence

Malignant pathology

Procedure codes

Therapy codes

Diagnosis codes

No recurrence, CBC or other second cancer

0
Primary breast cancer surgery date

10
Start follow-up

Figur fra Pedersen RN, et al. Validation of an Algorithm to Ascertain Late Breast Cancer Recurrence Using Danish Medical Registries. *Clin Epidemiol*. 2020;12:1083-1093.[97] Original publisher Dove Medical Press. Abbreviations: CBC, contralateral breast cancer

# RESULTATER-VALIDERING



**Validation of an Algorithm to Ascertain Late Breast Cancer Recurrence Using Danish Medical Registries**

- PPV= 86% (95% CI; 77%-91%).

- PPV= 90% hvis CBC var inkluderet.

- Sensitivitet= 100% (95% CI; 40%-100%).

- Specificitet=97% (95% CI; 92%-99%).

- NPV= 100% (97%-100%).

# STUDIE II

At opnå viden omkring

sent brystkræft recidiv i Danmark – defineret

som *recidiv ≥10 år efter den primære*

*diagnose* – med fokus på **incidens,**

prognose og potentielle **risiko**- og

forebyggende faktorer.
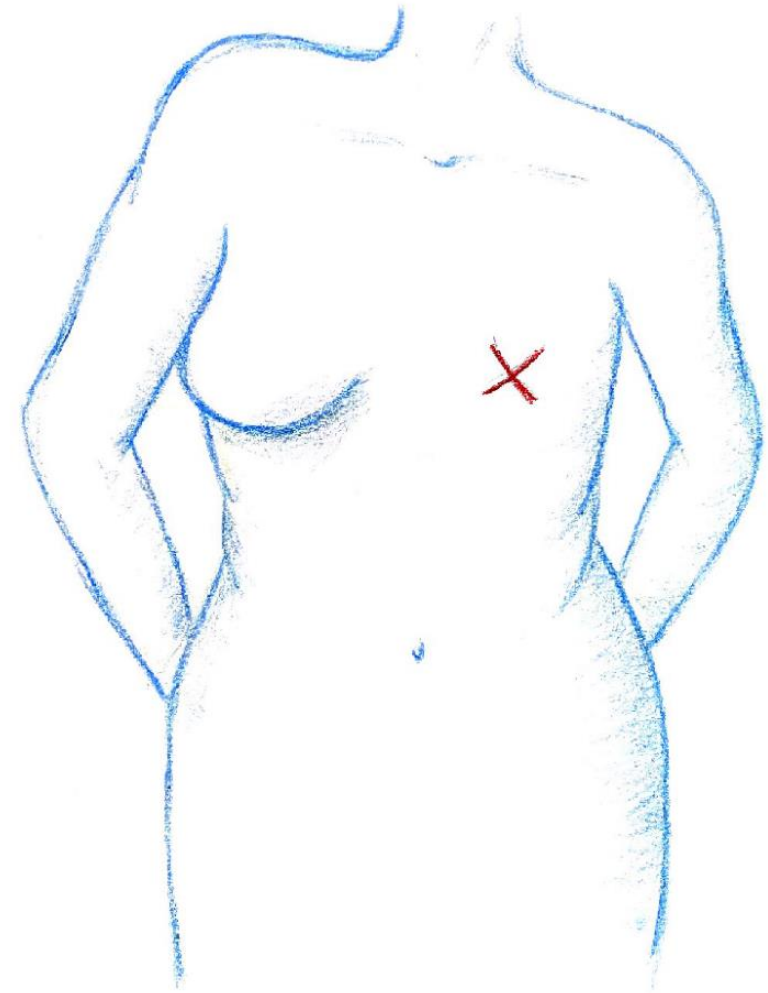
# STATISTISKE ANALYSER
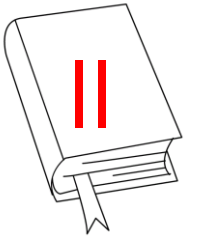
**Studie design:** Kohorte studie

**Eksponering:** Primær karakteristika på diagnosetidspunktet fra DBCG

**Follow-up:**
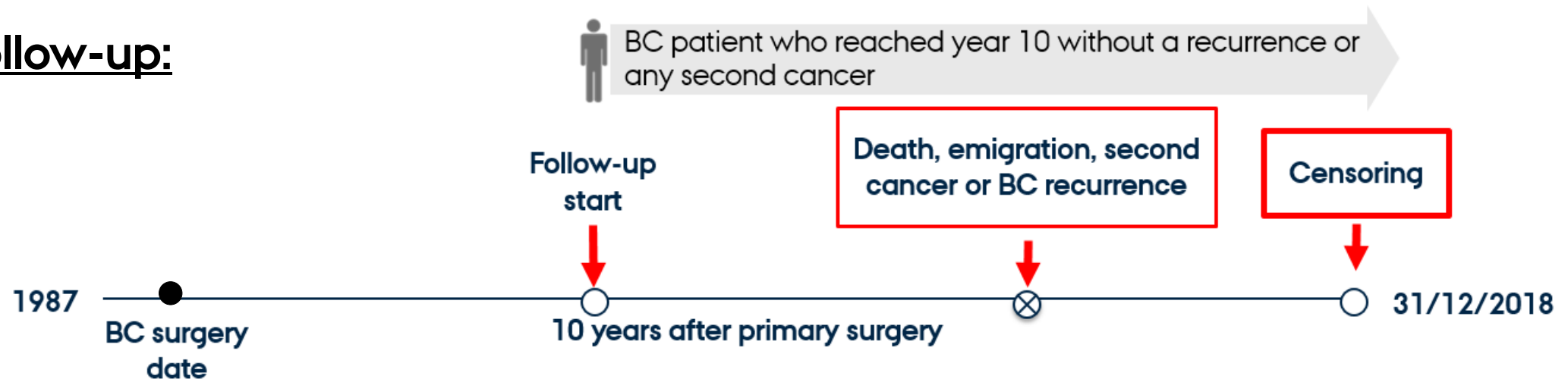


**Analyser:** Incidens rater (IRs) for sent recidiv, stratificerede kumulerede incidenser, stratificerede Cox regression modeller, sensitivitetsanalyser

# RESULTATER



Source population
36,924
Women with an incident early stage operable breast cancer diagnosed during 1987-2004 and registered in the DBCG

21,684
Women diagnosed during 1996-2004

STUDY IV

3,824 women
Developed a CBC or other new cancer within the first ten years

9,072
Women were registered with an early recurrence in DBCG or a metastasis in DNPR within the first ten years

1,528
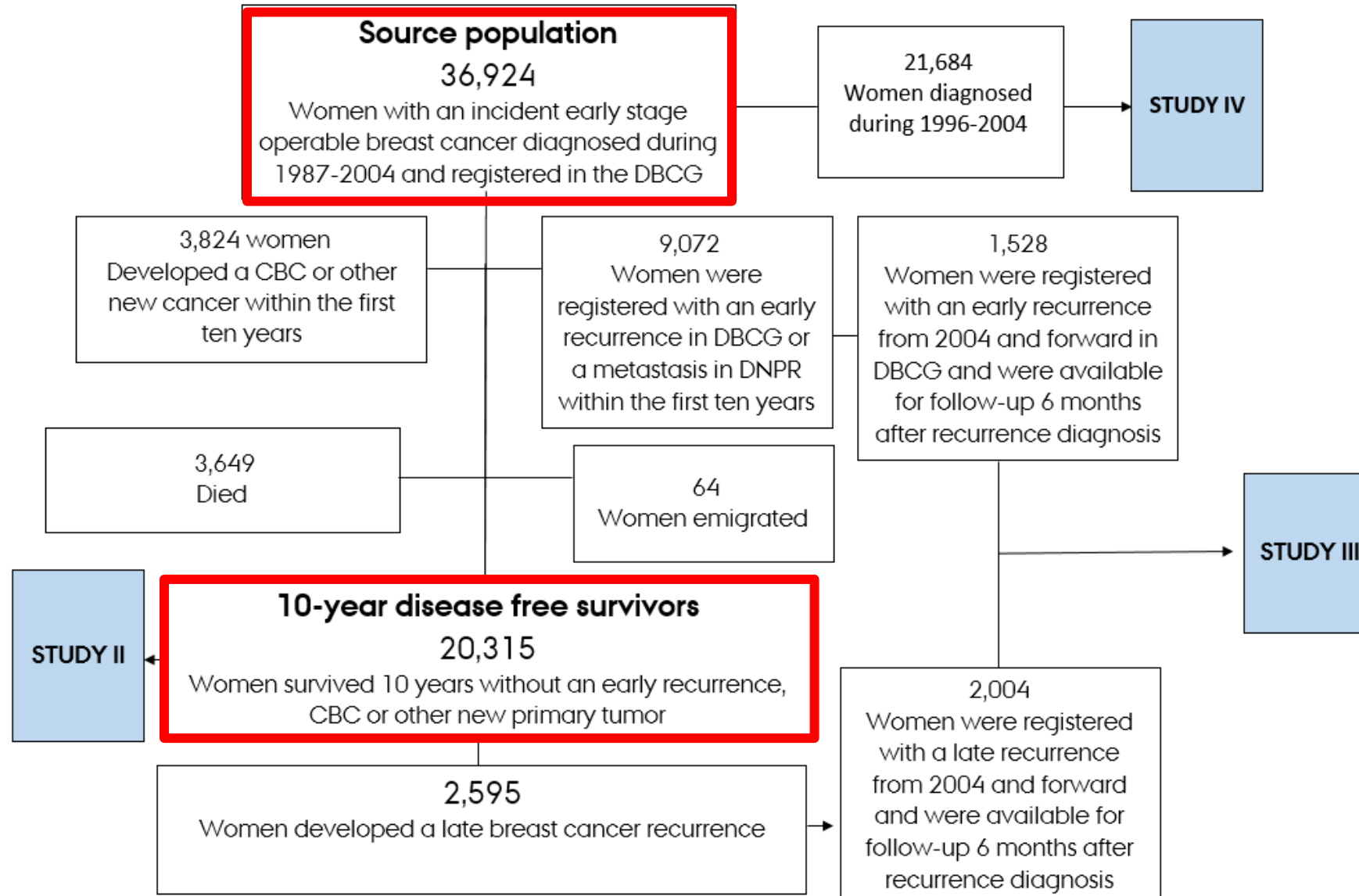Women were registered with an early recurrence from 2004 and forward in DBCG and were available for follow-up 6 months after recurrence diagnosis

3,649
Died

64
Women emigrated

STUDY III

STUDY II

10-year disease free survivors
20,315
Women survived 10 years without an early recurrence, CBC or other new primary tumor

2,595
Women developed a late breast cancer recurrence

2,004
Women were registered with a late recurrence from 2004 and forward and were available for follow-up 6 months after recurrence diagnosis

# RESULTATER

- 167,091 person-år.

- Median follow-up: 7 år (*i.e.,* 17 år efter den primære diagnose)

- 2,595 udviklede et sent recidiv

- IR: 15.5 (95% CI, 14.9-16.1) per 1,000 person-år.
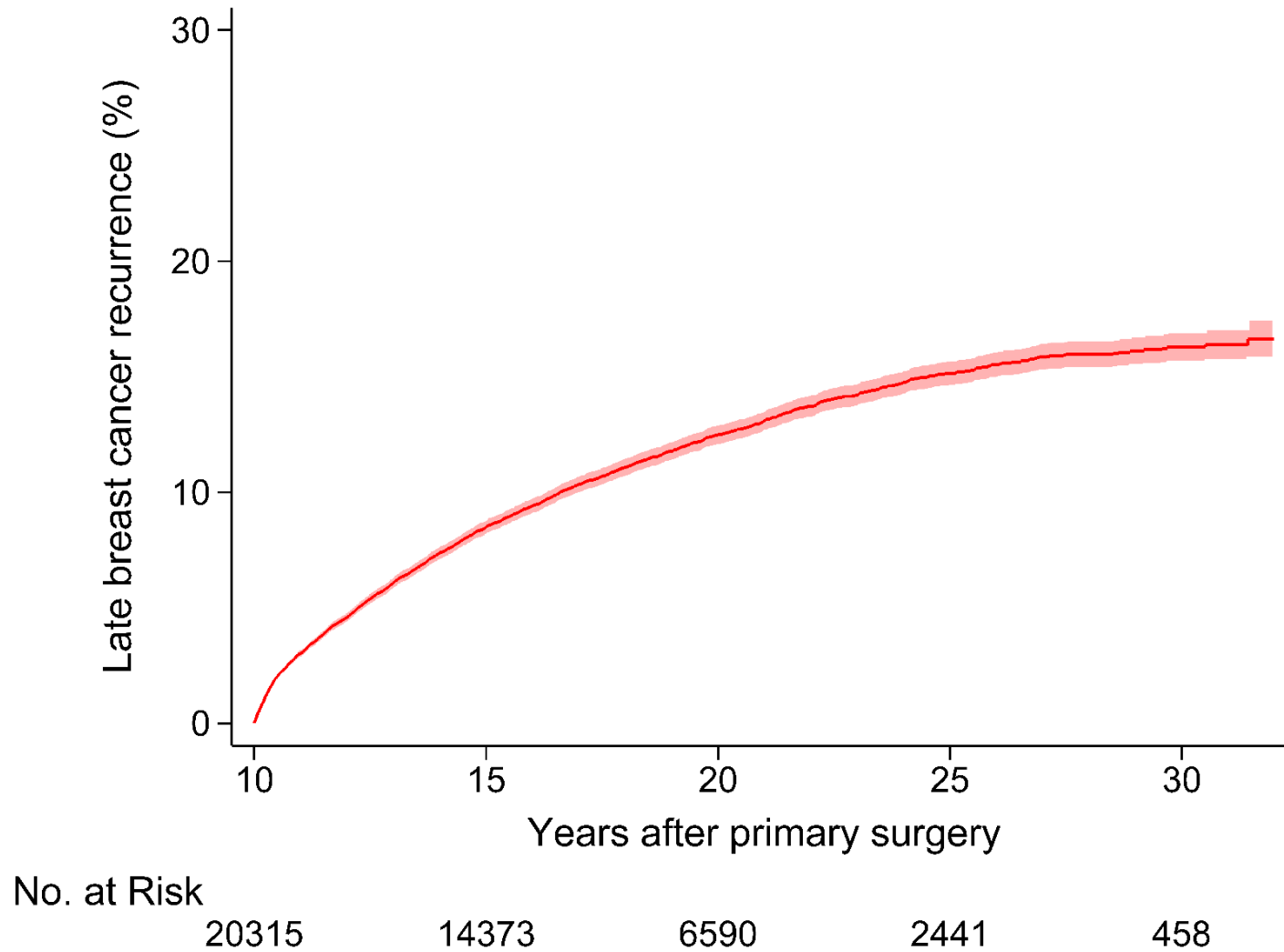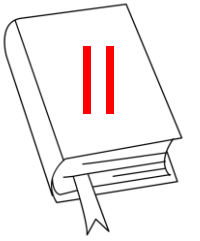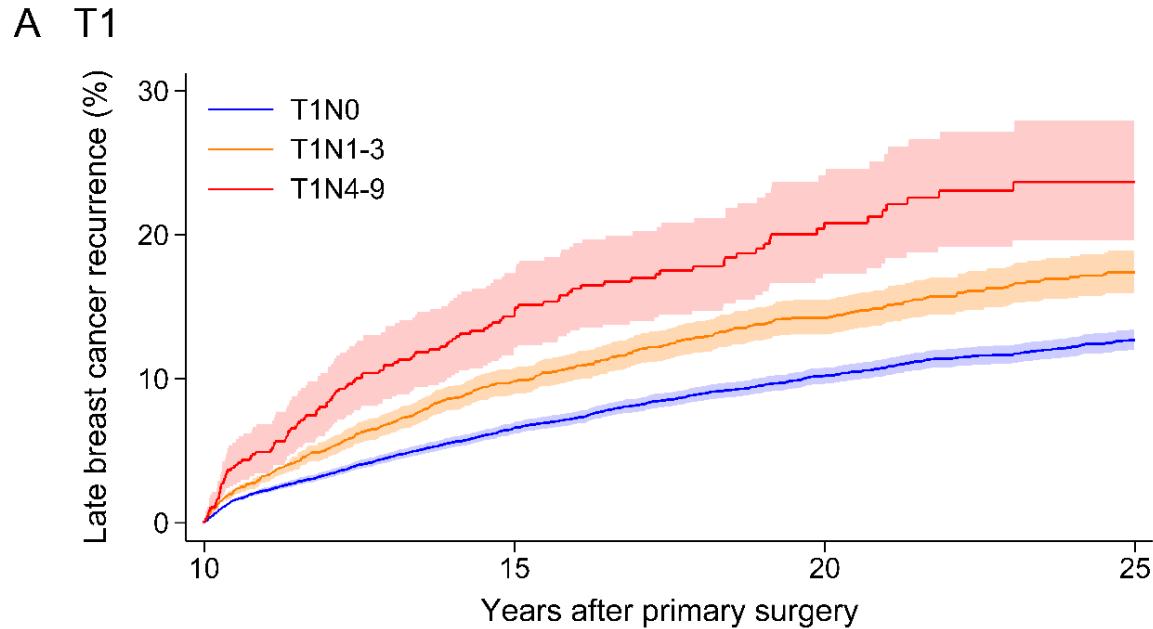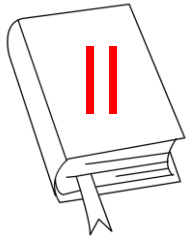
# RESULTATER



Figur fra Pedersen RN et al. The incidence of breast cancer recurrence 10-32 years after primary diagnosis. 2021, *JNCI: Journal of the National Cancer Institute*, 2021; djab202, https://doi.org/10.1093/jnci/djab202

# RESULTATER



A   T1

B   T2

Figure fra Pedersen RN et al. The incidence of breast cancer recurrence 10-32 years after primary diagnosis. 2021, *JNCI: Journal of the National Cancer Institute*, 2021; djab202, https://doi.org/10.1093/jnci/djab202

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## D  Estrogen receptor status
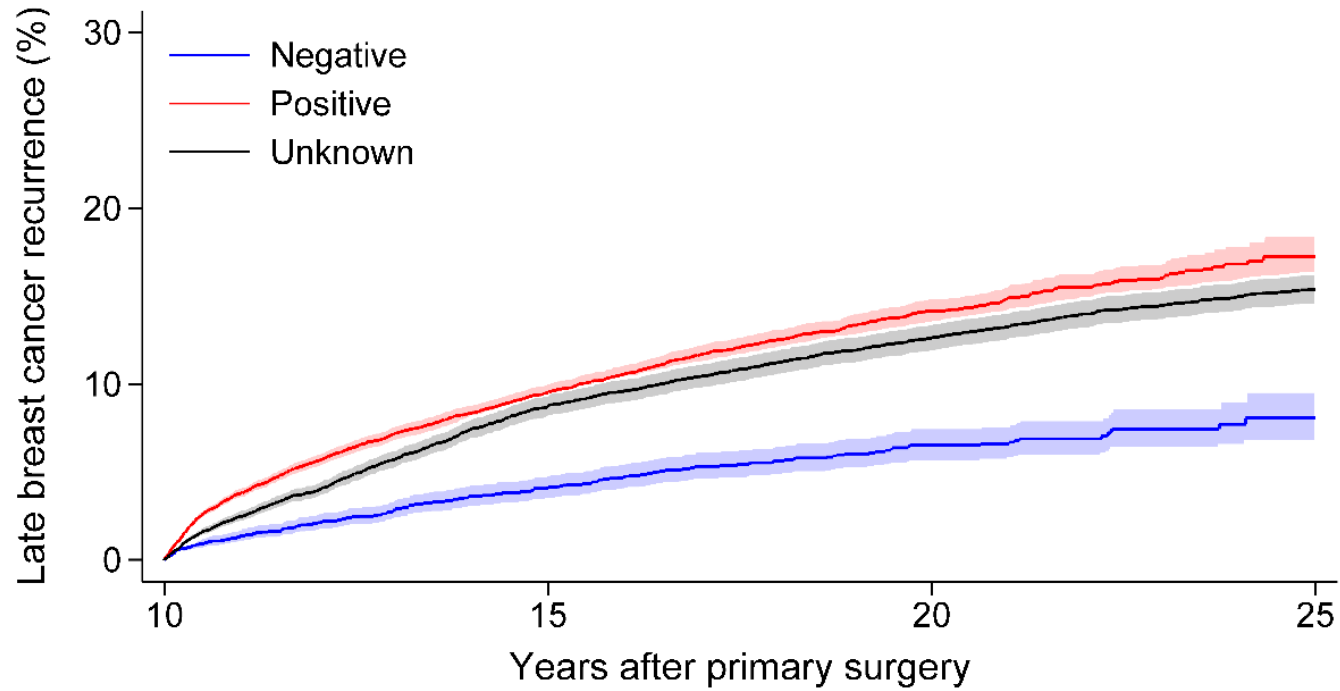


No. at Risk

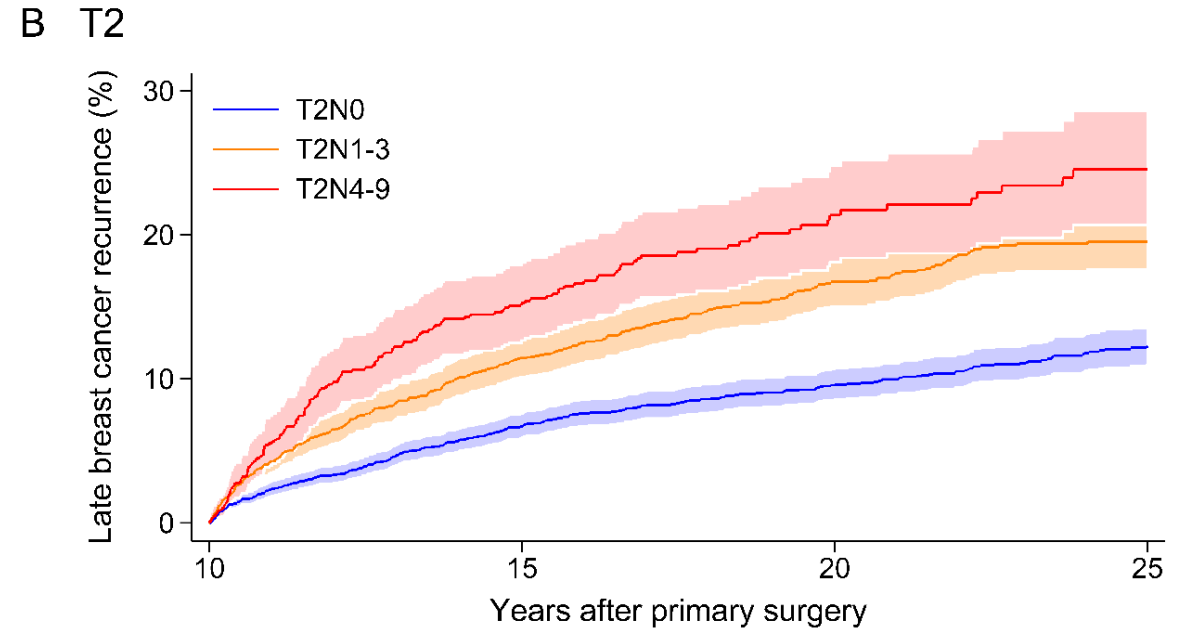| | | | | |
|---|---|---|---|---|
| Negative | 2982 | 2275 | 889 | 72 |
| Positive | 10963 | 7205 | 2007 | 84 |
| Unknown | 6370 | 4893 | 3694 | 2285 |

Figur fra Pedersen RN et al. The incidence of breast cancer recurrence 10-32 years after primary diagnosis. 2021, *JNCI: Journal of the National Cancer Institute*, 2021; djab202, https://doi.org/10.1093/jnci/djab202
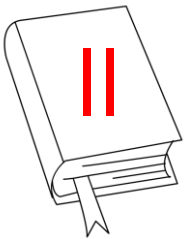
# STUDIE III

At opnå viden omkring

sent brystkræft recidiv i Danmark – defineret

som *recidiv ≥10 år efter den primære diagnose*
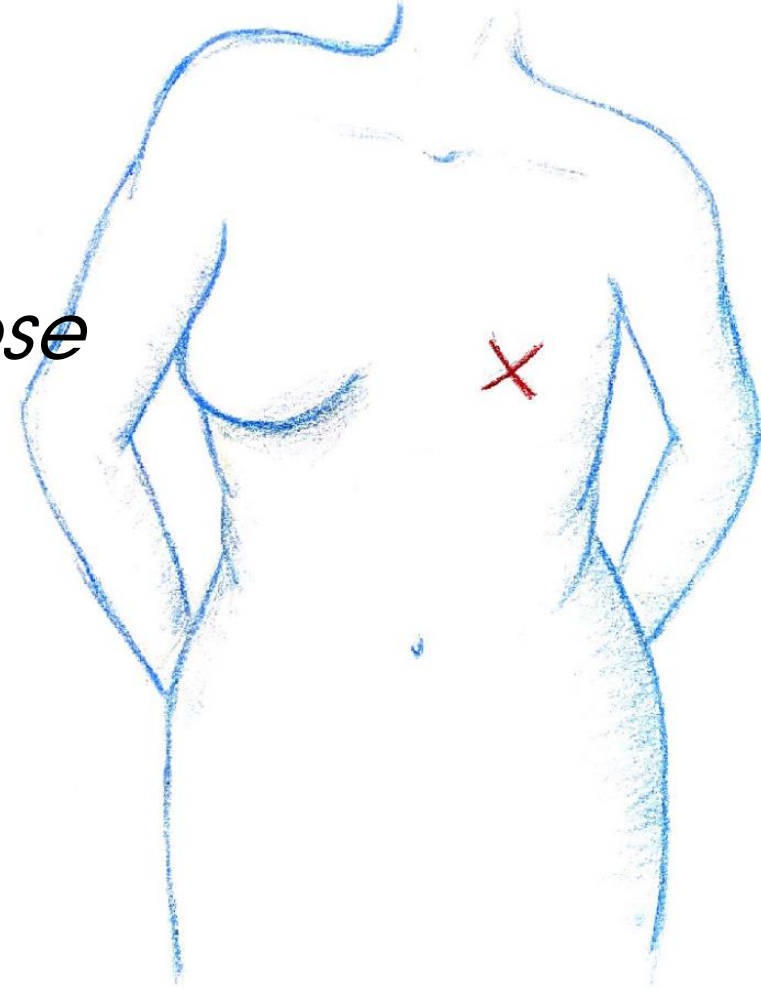
– med fokus på incidens, **prognose** og

potentielle risiko- og forebyggende faktorer.

# STUDIE POPULATION
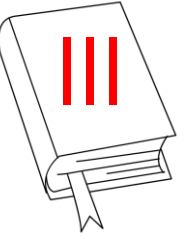
Alle kvinder diagnosticeret med brystkræft mellem 1987 og 2004 som:

- Udviklede tidlig (indenfor de første 10 år) eller sen recidiv mellem 2004 og 2018.

- Og som var I live 6 måneder efter brystkræft recidiv datoen.

# STATISTISKE ANALYSER

**Studie design:** kohorte studie

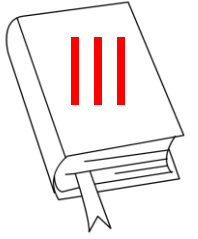**Eksponering:** tumor, behandling og patient karakteristika på tidspunktet for den primære diagnose og for tidspunktet for recidiv

**Follow-up:**



BC patient who developed a recurrence and were alive 6 months after the recurrence date

Follow-up start

Outcome: Death (due to BC or other causes)

Censoring

2004 — Recurrence date — 6 months after recurrence — Outcome: Death — 31/12/2018
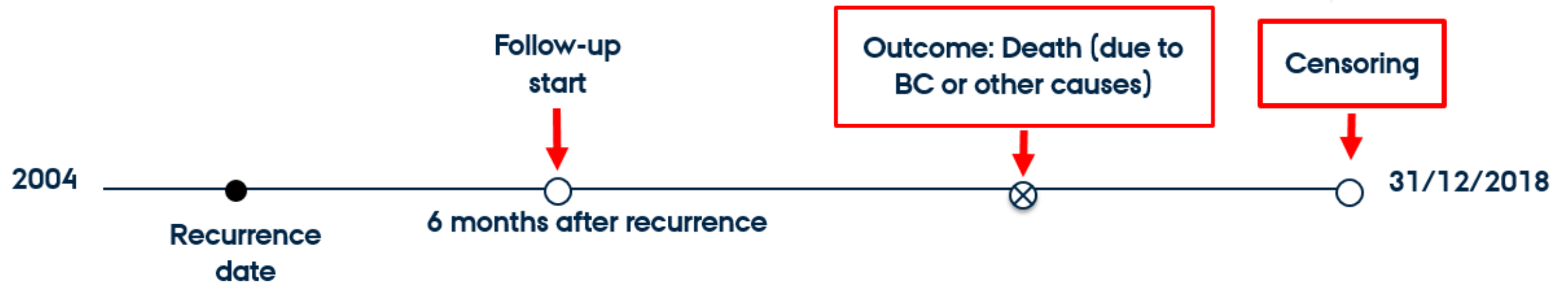
**Analyser:** Mortalitets rater, kumuleret mortalitet, Cox regression modeller.

# RESULTS

**Source population**
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Women with an incident early stage operable breast cancer diagnosed during 1987-2004 and registered in the DBCG

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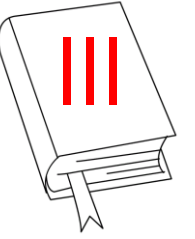Women diagnosed during 1996-2004

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**STUDY II**

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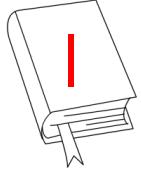
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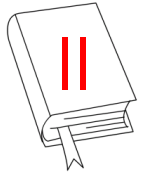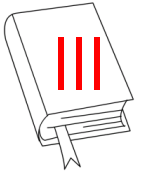
# RESULTATER – TIDLIG VERSUS SENT

# KONKLUSION

**Validering**
- Vi udviklede en sen brystkræftrecidiv algoritme med **moderate PPV og høj NPV, sensitivitet og specificitet** – hvilket kan være brugbar I fremtidige studier.

**Incidens**
- Vi fandt at **recidiv af brystkræft kan ses lang tid efter den primære brystkræft diagnose** og med højest incidens blandt patienter med en stor ER+ tumor med lymfeknude involvering.

# ACKNOWLEDGEMENTS

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DEPARTMENT OF CLINICAL MEDICINE

DBCG DANISH BREAST CANCER GROUP

Danish Cancer Society

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