

Cancer control plans and improved survival -

Studies in Denmark on improvement in survival after introducing a National Cancer Control Plan.

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Cancer control programmes - why

Aimed at low-ressource and developing countries:

- Rational concept of existing knowledge
- Effect if right strategies and priorities
- Integrated action from prevention to death
- Collaboration for optimal allocation and use of resources
- Basis
 - Tobacco control and legislation
 - Access to oral morphine
 - Situation analysis
 - Cancer
 - Risk factors
 - Social parameters
 - Treatment and care facilities



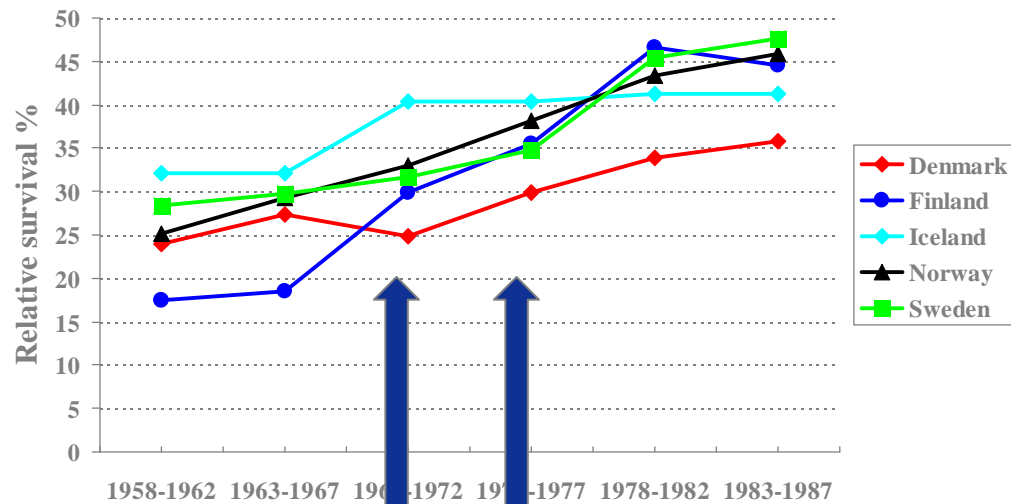
Is cancer control programmes relevant for the Nordic countries?

- In 1980's-1990's:
 - We are among the richest societies in the world.
 - We can afford even the most costly treatments.
 - We have free access and free treatment for all.
 - We have superb social security systems.
 - We have excellent science on cancer treatment.
 - We are (were) among countries with the longest life expectancy.
 - We have demonstrated steady improvement in cancer survival over decades!

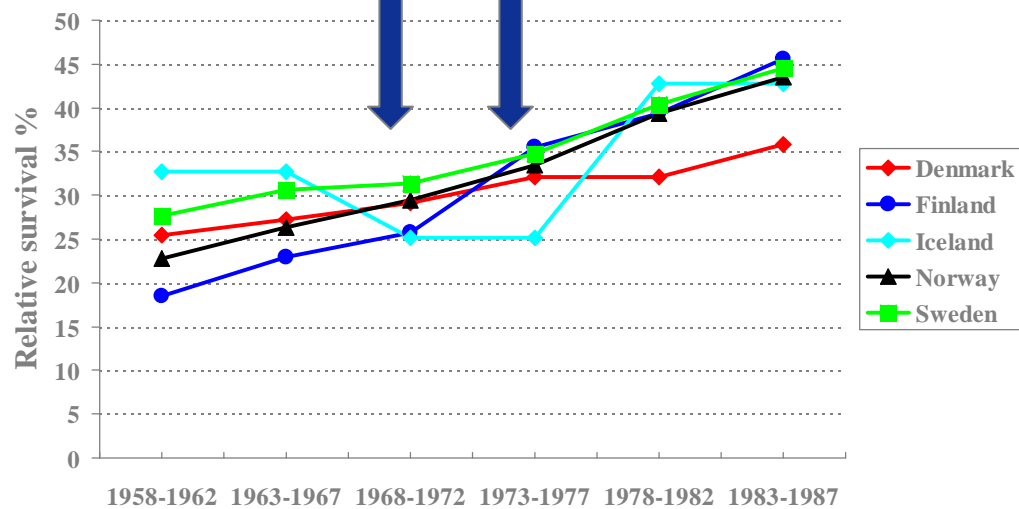


5 year relative survival – Nordic countries: Colon and rectum cancer, men.

Colon cancer



Rectum cancer



5 year relative survival after cancer in the Nordic countries Denmark vs other Nordic- selected cancers

| Cancer | Last period where Denmark ~ "Nordic" | Danish "gap" (% point) to best survival 1983-87 |
|------------|--------------------------------------|---|
| Oesophagus | 1978-82 | 9 |
| Stomach | 1968-82 | 9-13 |
| Colon | 1963-67 | 12 |
| Lung | 1963-67 | 5-6 |
| Breast | 1963-67 | 9 |
| Ovary | < 1958 | 13 |
| Kidney | 1958-62 | 12-13 |

OOPS - Denmark needs to re-consider!



Committee
formed 1998

Rep. from
Government

Natl Board of
Health

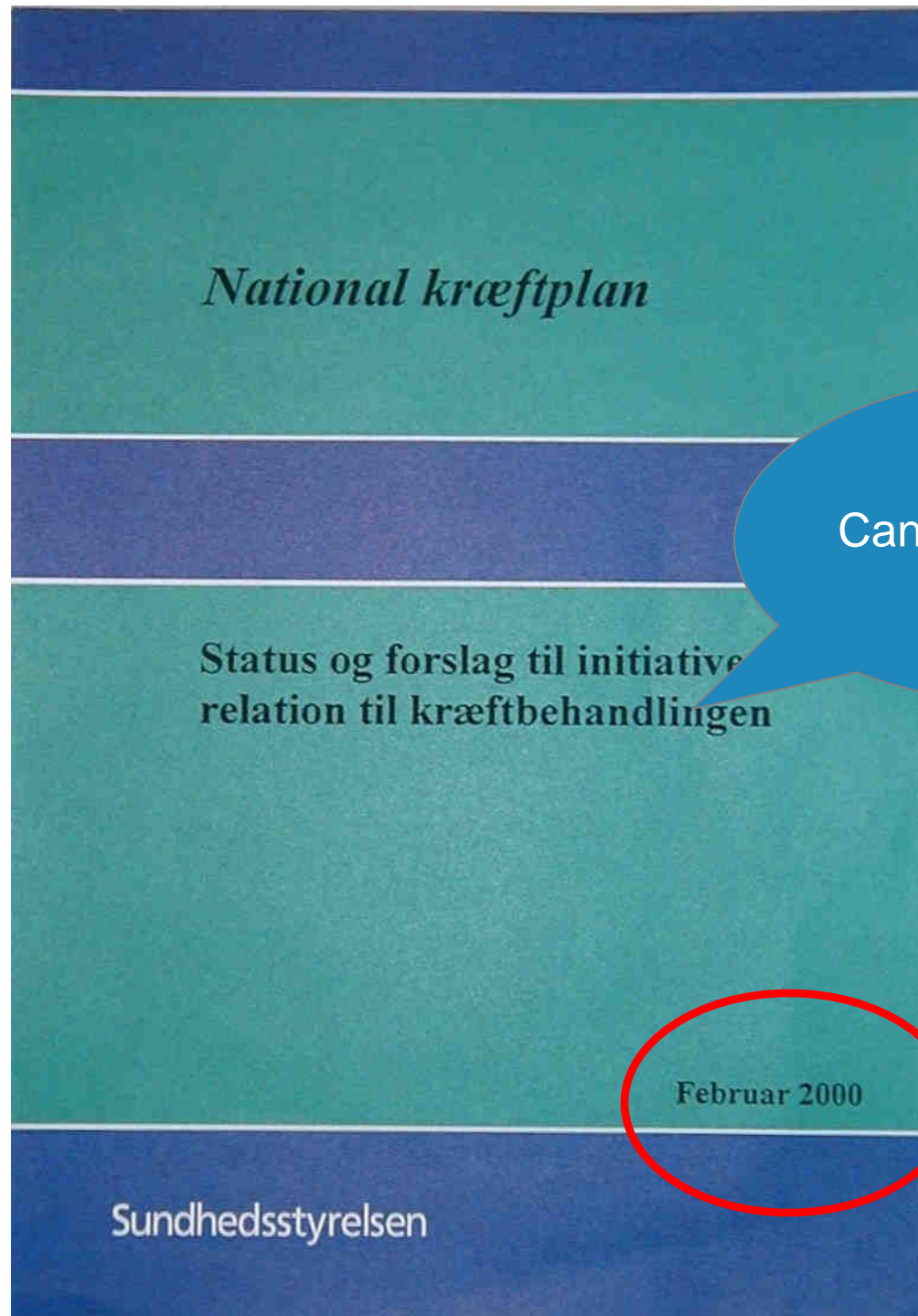
Counties

Medical, Surgical
& other specialist
societies

Cancer Society

CPH Hospitals

Inst of the Natl
Board of Health



National kræftplan

Status og forslag til initiativer
relation til kræftbehandlingen

Februar 2000

Sundhedsstyrelsen

Cancer treatment !!



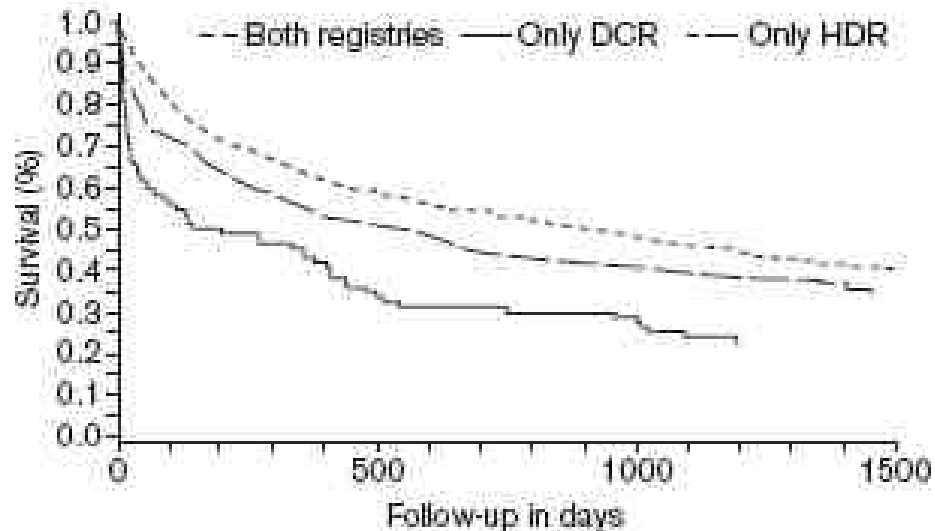
Monitoring of the Cancer Plan

- Cancer Registry – at the time severely delayed!
- Cancer Mortality – at the time severely delayed!
- Clinical databases – not complete, biased?, quality?
- Hospital Discharge Registry – administrative registry, only patients admitted to hospitals, quality?
- What happens from suspicion to diagnosis and referral? Time, bottlenecks etc.
- What happens “within” the system? Internal waiting times?



Hospital Discharge Registry survival studies

Fig. 2

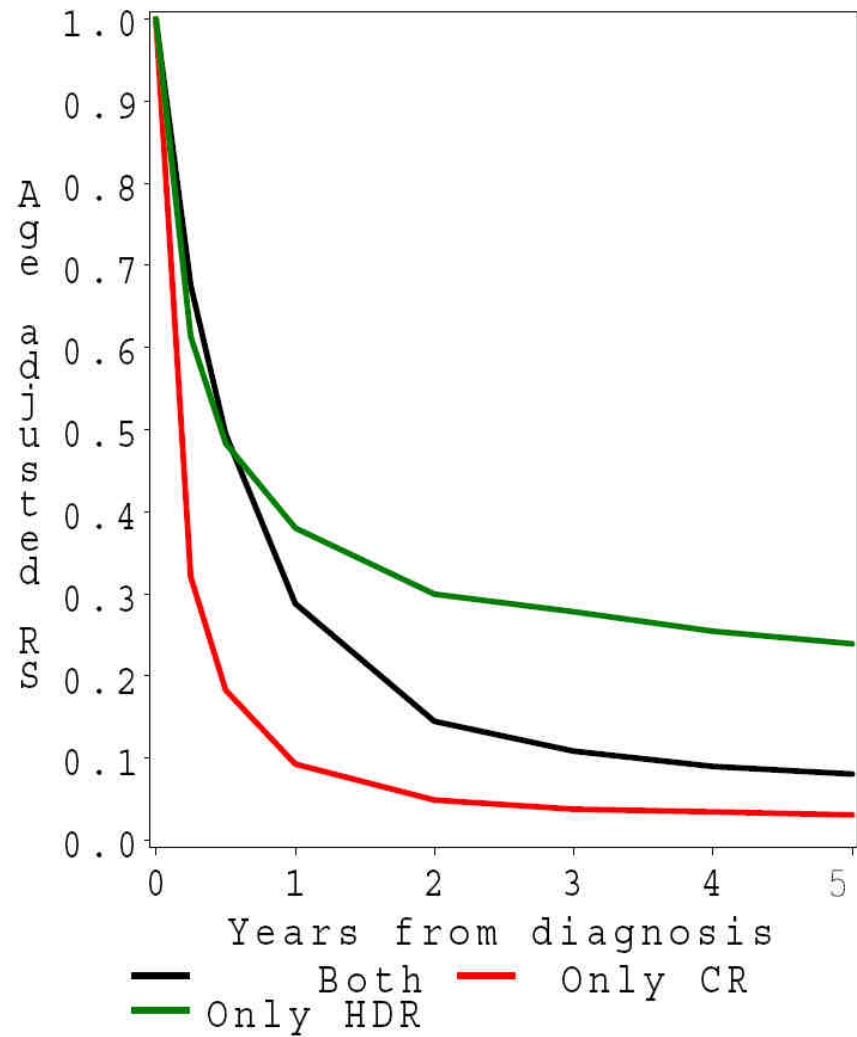


Survival of patients who were registered with a haematological malignancy diagnosis in both registries ($n=908$) compared with those who were registered only in either the Hospital Discharge Registry (HDR) in North Jutland County, Denmark, ($n=167$) or Danish Cancer Registry ($n=84$).

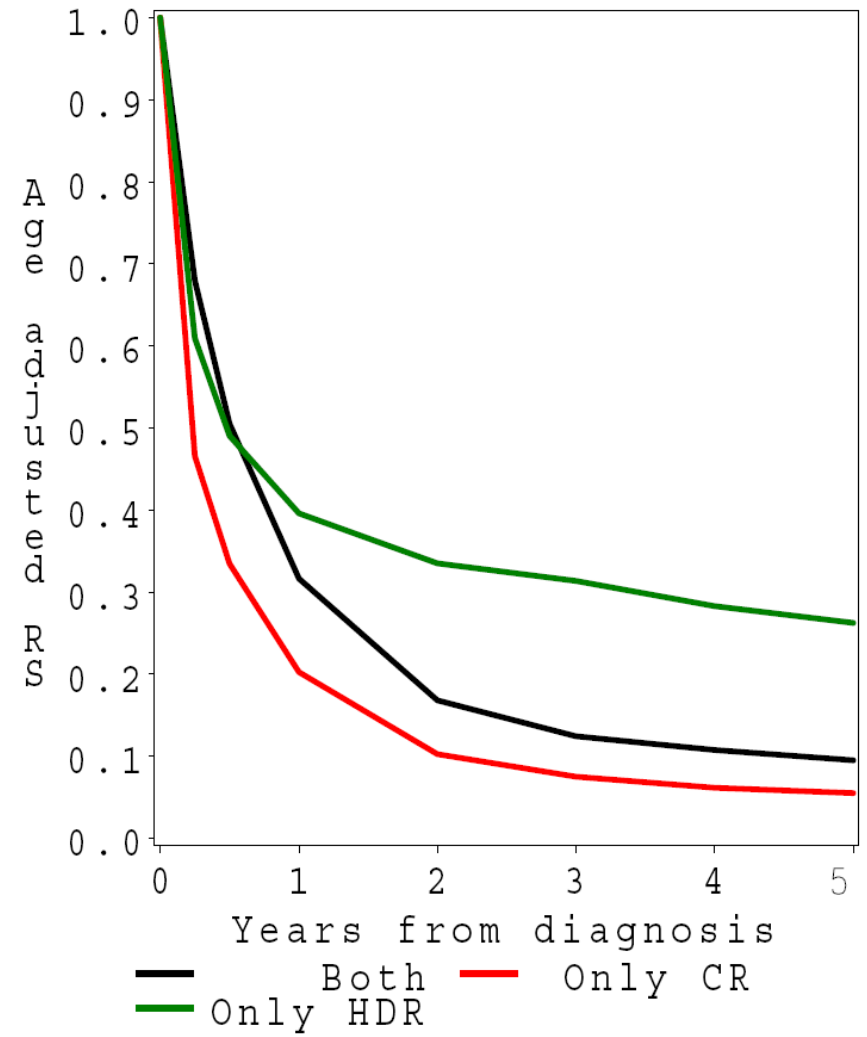
From Nørgaard et al.
Europ. J. Can. Prev
2005 14:201-6



Lung cancer 1997–2000. Rel. survival. Denmark
Sex=Male



Lung cancer 1997–2000. Rel. survival. Denmark
Sex=Female



Relative survival (%) before and after Cancer Plan 1. in Denmark**

| * | 1 yr relative survival | | 3 yr relative survival | |
|-------|------------------------|---------|------------------------|---------|
| | 1995-97 | 2001-03 | 1995-97 | 2001-03 |
| Men | 59 % | 65 % | 44 % | 51 % |
| Women | 67 % | 70 % | 55 % | 59 % |

* Age adjusted, period survival

** Population based, Danish Cancer Registry, updated to 31/12 2003, Follow-up to 31/12 2006; Non-melanoma skin cancer excluded.

Cancers with improved survival: Oesophagus, Colon, Rectum, Pancreas, Lung, Larynx, Breast, Ovary, Prostate, Lymphoma, Myeloma,



Conclusions of 2008 study.

- **Positive:**
- The improvement in survival larger than "expected" based on Eurocare 2 and Eurocare 3 (i.e. 5 yr).
- The improvement is seen for sites where surgery is essential – and where attention was given (i.e. CRC, breast; ovary, lung), and where CTX could be improved.
- **Negative:**
- Case mix – i.e. screening/PSA influence the total.
- Too short follow-up period?
- International comparison missing.



2009 study on survival before and after the 1. cancer plan – data and methods

- All cancer cases 1995-2006 from the DCR
- Classification according to NORDCAN
- Vital status as of 31/12 2008 added and date of death (if dead), by linkage to CPR
- All DCO and autopsy only excluded
- Stratification in 4, 3 year periods 1995-7 to 2004-6
- Age standard adapted from Eurocare – 90+ years given weight “0”
- Excess mortality
- For the period 2004-6 Hybrid analysis combining period and cohort for 5 yr RSR



Relative survival (%) before and after Cancer Plan 1. in Denmark**

| * | 1 yr relative survival | | 5 yr relative survival | |
|-------|------------------------|---------|---|---------|
| | 1995-97 | 2001-03 | 1995-97 | 2001-03 |
| Men | 59 % | 65 % | 38 % 8% | 46 % |
| Women | 67 % | 70 % | 50% 4% | 54 % |

* Age adjusted, period survival

** Population based, Danish Cancer Registry, updated to 31/12 2006
Non-melanoma skin cancer excluded

Cancers with improved survival: Oesophagus, Colon, Rectum, Pancreas,
Lung, Larynx, Breast, Ovary, Prostate, Lymphoma, Myeloma,



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Excl. skin

| * | 1 yr relative survival | | 5 yr relative survival | |
|-------|------------------------|---------|------------------------|---------|
| | 1995-97 | 2001-03 | 1995-97 | 2001-03 |
| Men | 55 % | 59% | 37 % | 41 % |
| Women | 59 % | 62 % | 41% | 44 % |

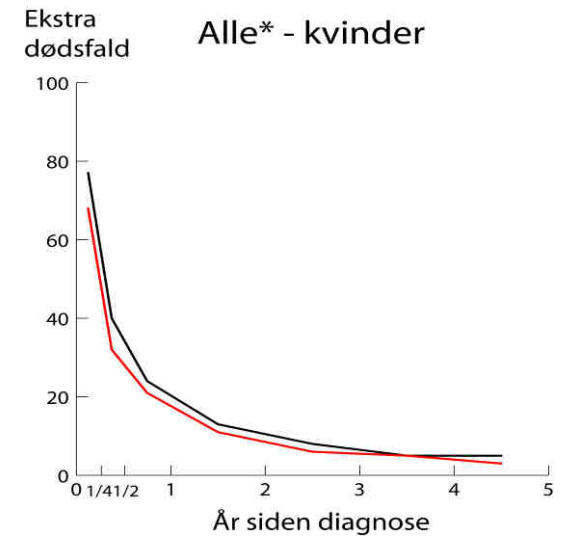
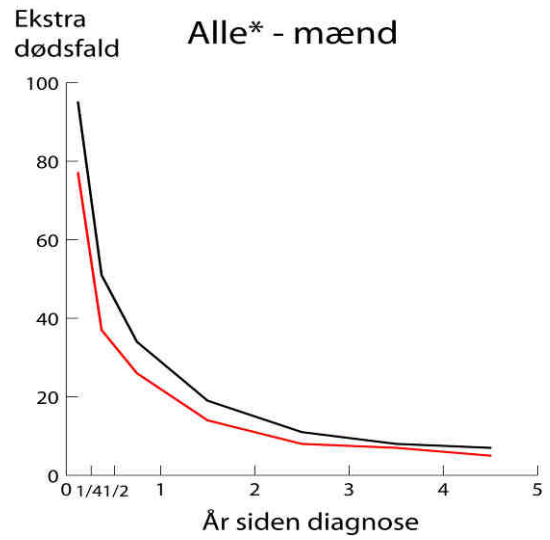
Excl. skin, prostate & breast

* Age adjusted, period survival

Storm et al UFL submitted

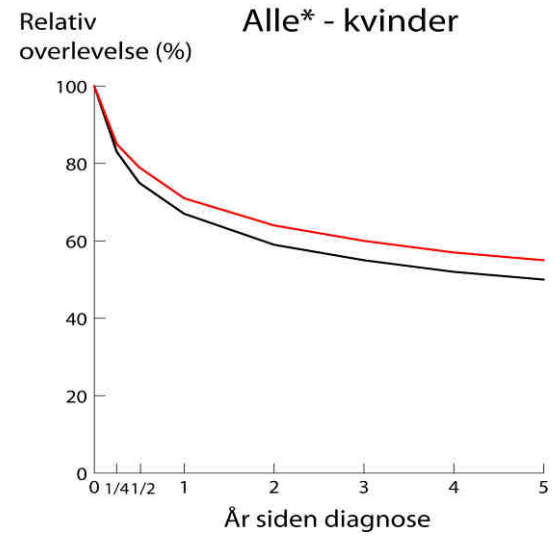
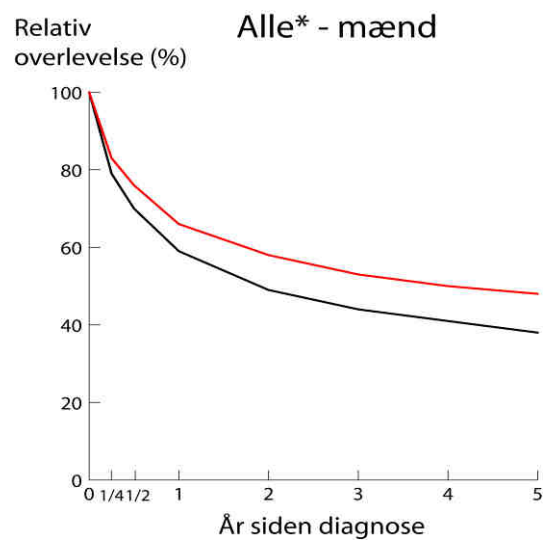


Excess mortality



— 1995-1997 — 2004-2006

Relative survival



Conclusions

- The poor survival expressed as excess mortality is predominant during the 1. year.
- Changes also in longer term survival stems from the 1. year of follow-up.
- 1 year survival can be used to monitor the effect of changes related to a cancer control plan on diagnosis and treatment.
- Proper adjustment for case-mix is necessary
- Adjustment for "new diagnostics" needed when studying "all cancers combined"
- **Monitoring of incidence and mortality is needed for comprehensive cancer control.**
- **International benchmarking is needed to fully assess the effect of cancer control.**

