Improvement in cancer survival in the Nordic countries 2001-2015

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NORDCAN – database with Nordic cancer statistics, www.ancr.nu

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For most cancers, 5-year net survival remains among the highest in the world in USA and Canada, in Australia and New Zealand, and in Finland, Iceland, Norway, and Sweden. **For many cancers, Denmark is closing the survival gap with the other Nordic countries**

Allemani et al Lancet. 2018

NORDCAN

- A Nordic tool of cancer statistics for information, planning, quality control and research (www.ancr.nu)
- Updated 1 time per year
- Overview in **cancer fact sheets**
- **Online analysis** in tables, graphs and maps
  - Populations-based time series of cancer incidence, mortality, prevalence and survival distributed by
    - 7 countries and regions within a country (up to 6)
    - Sex and age
    - Calendar year
    - Nearly 50 diagnosis groups
- **Animated cancer maps**
- **Prediction** of incidence and mortality

The NORDCAN database (Version 8.1, 06.2018)

Data availability

Country	Incidence	Mortality	Prevalence	Survival
Nordic countries	1960-2015	1953-2015	1980-2015	-
Denmark, national	1943-2015	1951-2015	1963-2015	1966-2015
Denmark, regional	1971-2015	1971-2015	1991-2015	-
Faroe Islands	1960-2015	1983-2013	-	-
Finland, national	1953-2015	1953-2015	1973-2015	1966-2015
Finland, regional	1953-2015	1953-2015	1973-2015	-
Greenland	1968-2015	1983-2015	-	-
Iceland, national	1955-2015	1951-2015	1975-2015	1966-2015
Iceland, regional	1971-2015	1971-2015	1991-2015	-
Norway, national	1953-2015	1953-2015	1973-2015	1966-2015
Norway, regional	1953-2015	1953-2015	1973-2015	-
Sweden, national	1960-2015	1952-2015	1980-2015	1966-2015
Sweden, regional	1970-2015	1970-2015	1990-2015	-

Data are converted to an international standard using **IARCcrgTools** and use **IARC/IACR rules** for multiple cancers. Number of cases might thus deviate slightly from those reported nationally

Survival calculations in NORDCAN

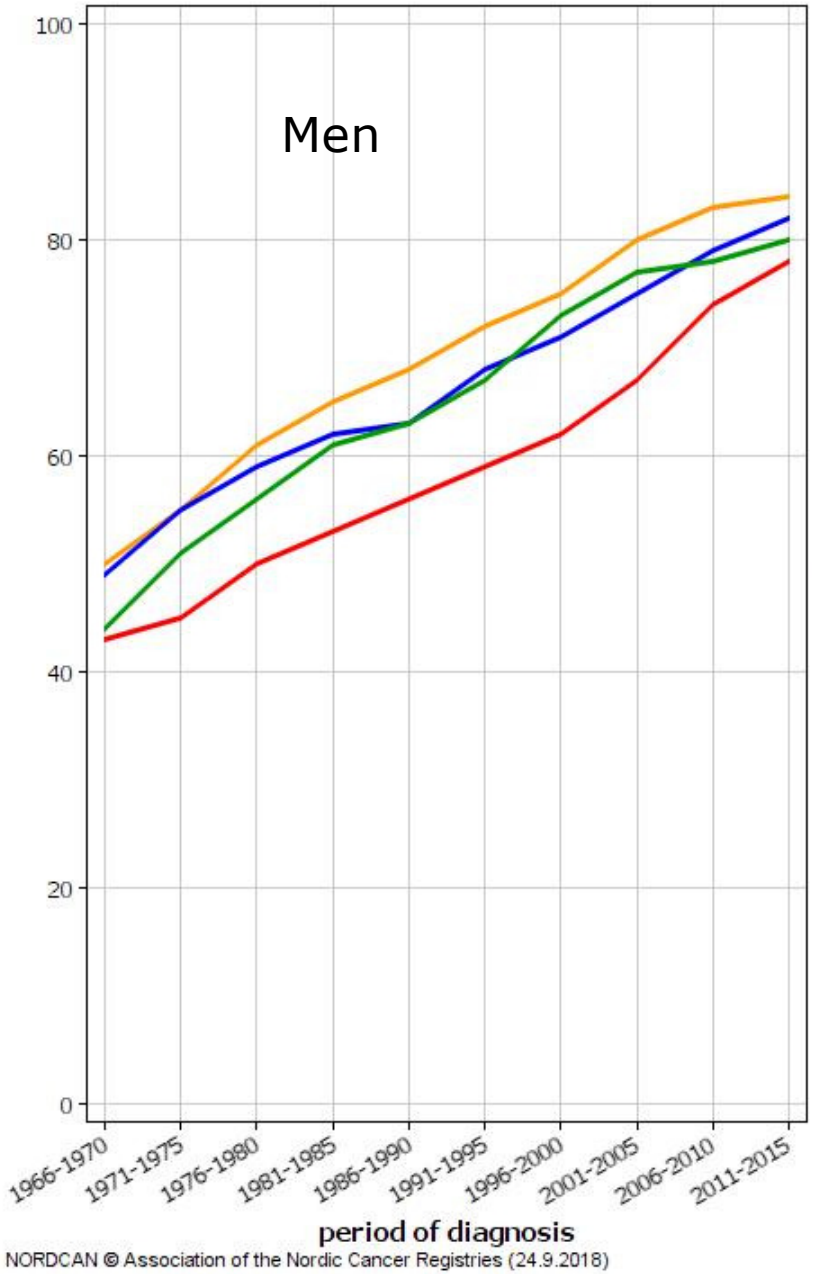
Data

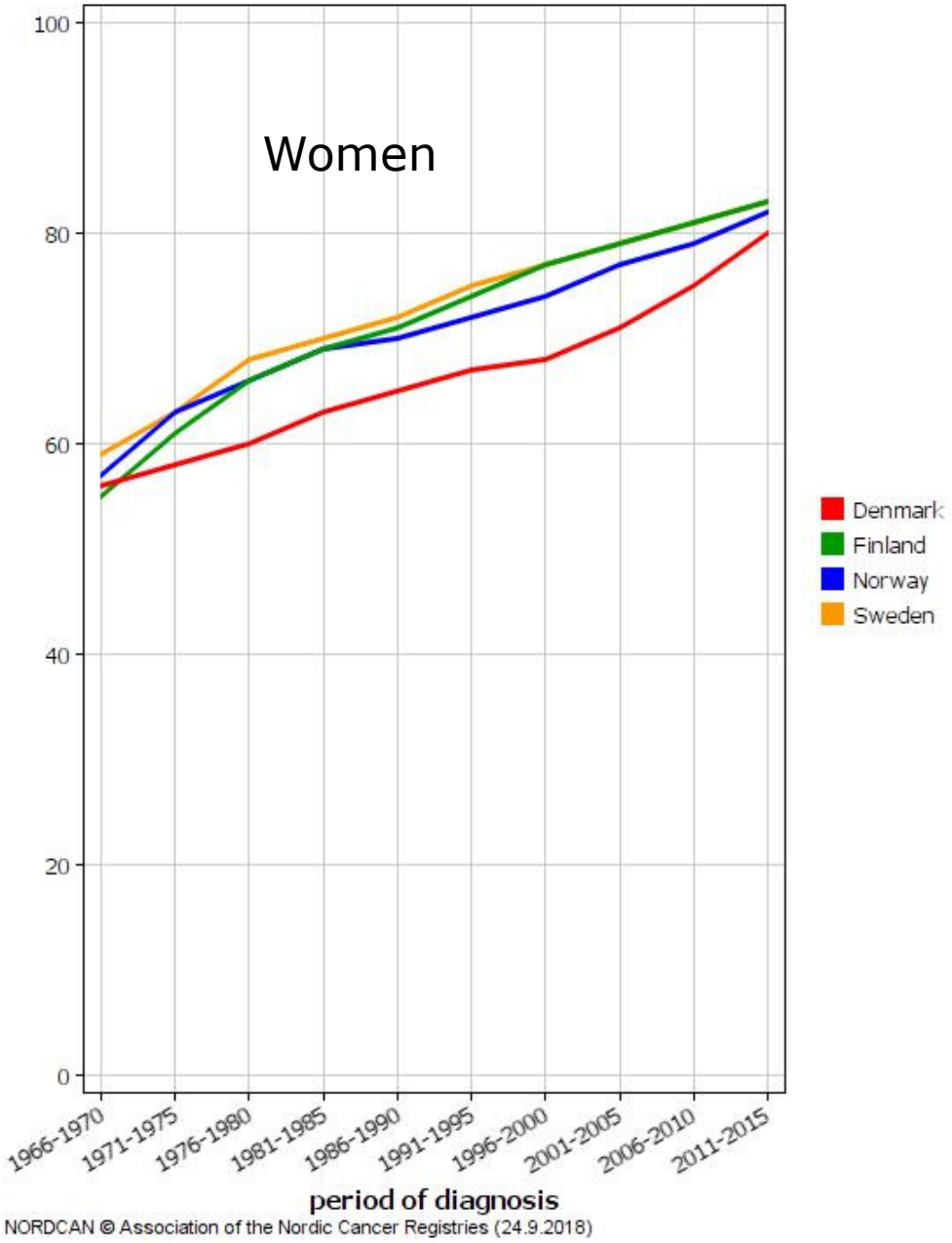
1. All incident cancer patients 1966-2015, excluding those diagnosed as DCO or incidental autopsy and above age 90 years.
2. Follow-up for death or emigration through 2016

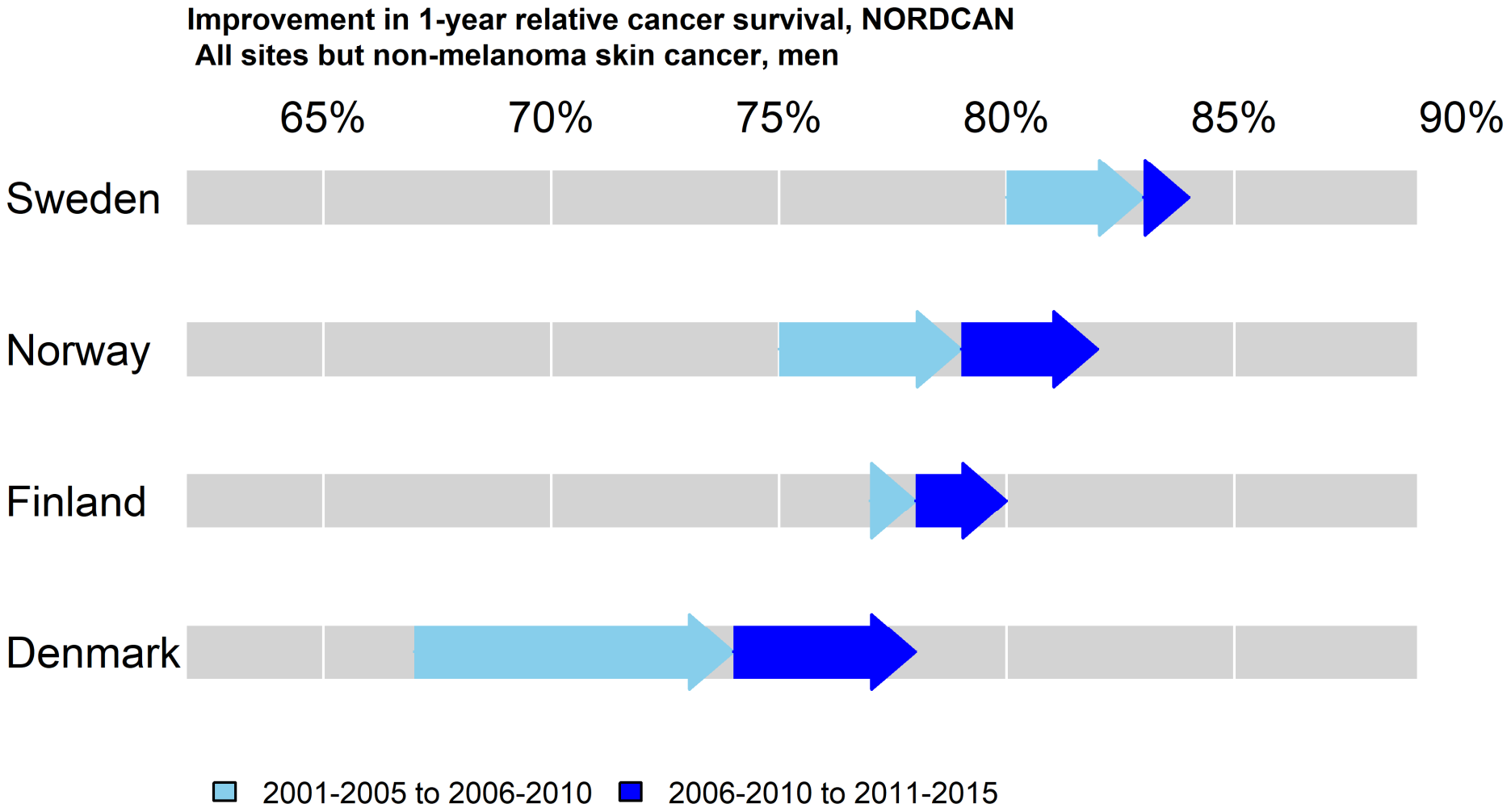
Method and programs used

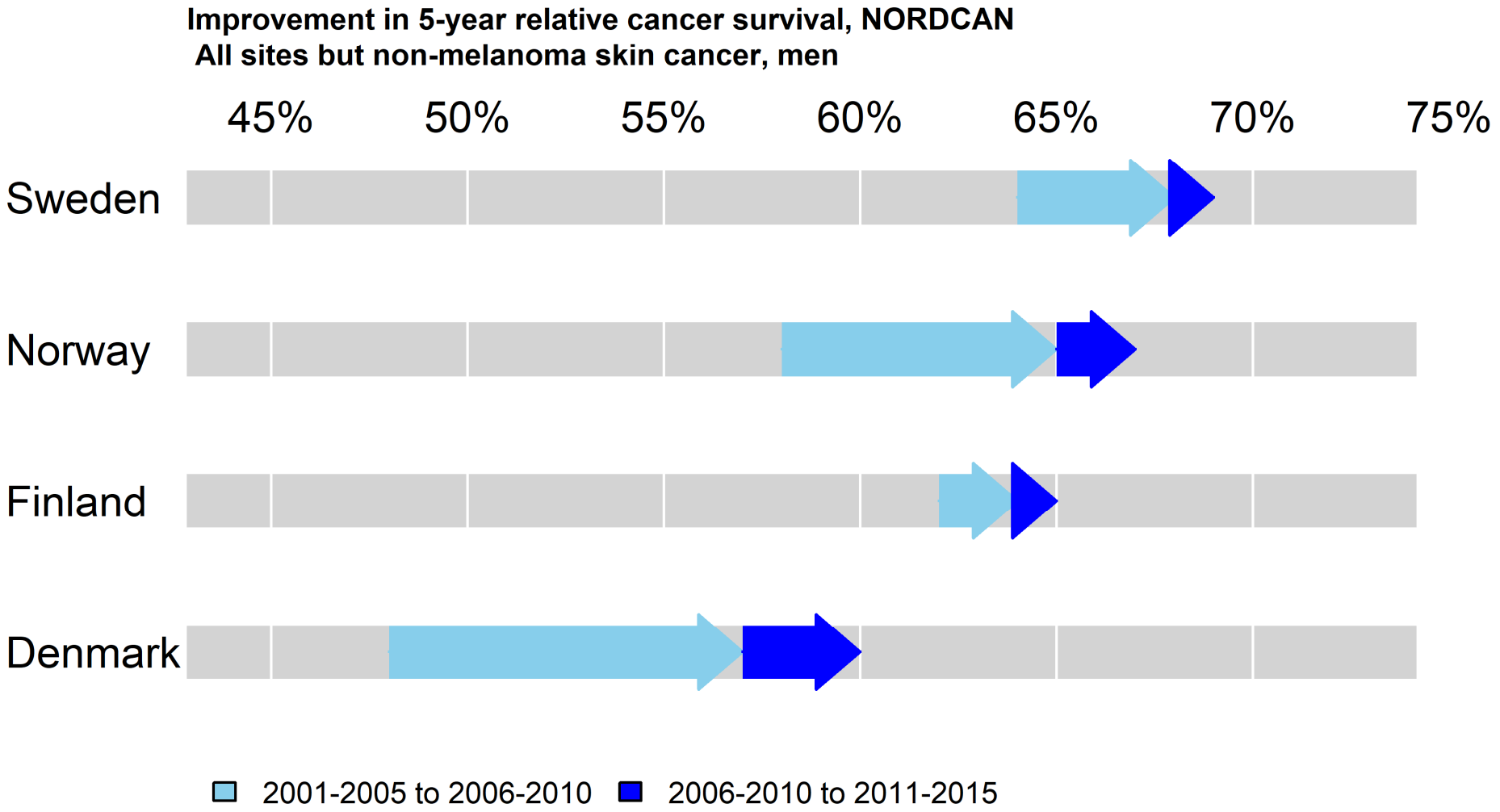
1. 1- and 5-year relative survival, actuarial method for observed survival, Ederer II for expected, age-standard ICSS, Dickman-program STATA strs
2. Short and cohort survival (1-year) is preferred, supplementing with hybrid methods for latest 5-year. 10 five-year periods

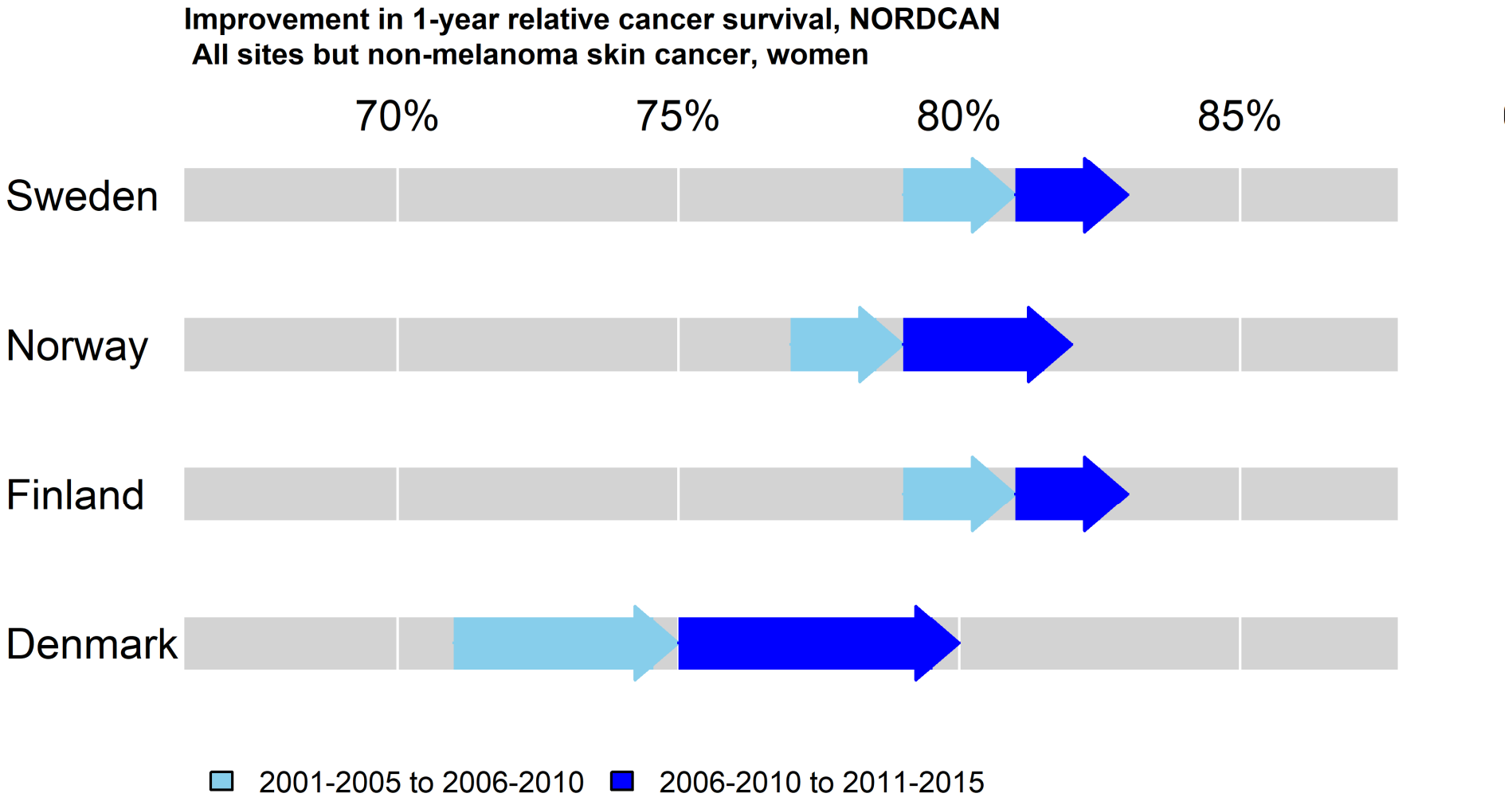
All sites but non-melanoma skin cancer 1-year age-standardised relative survival

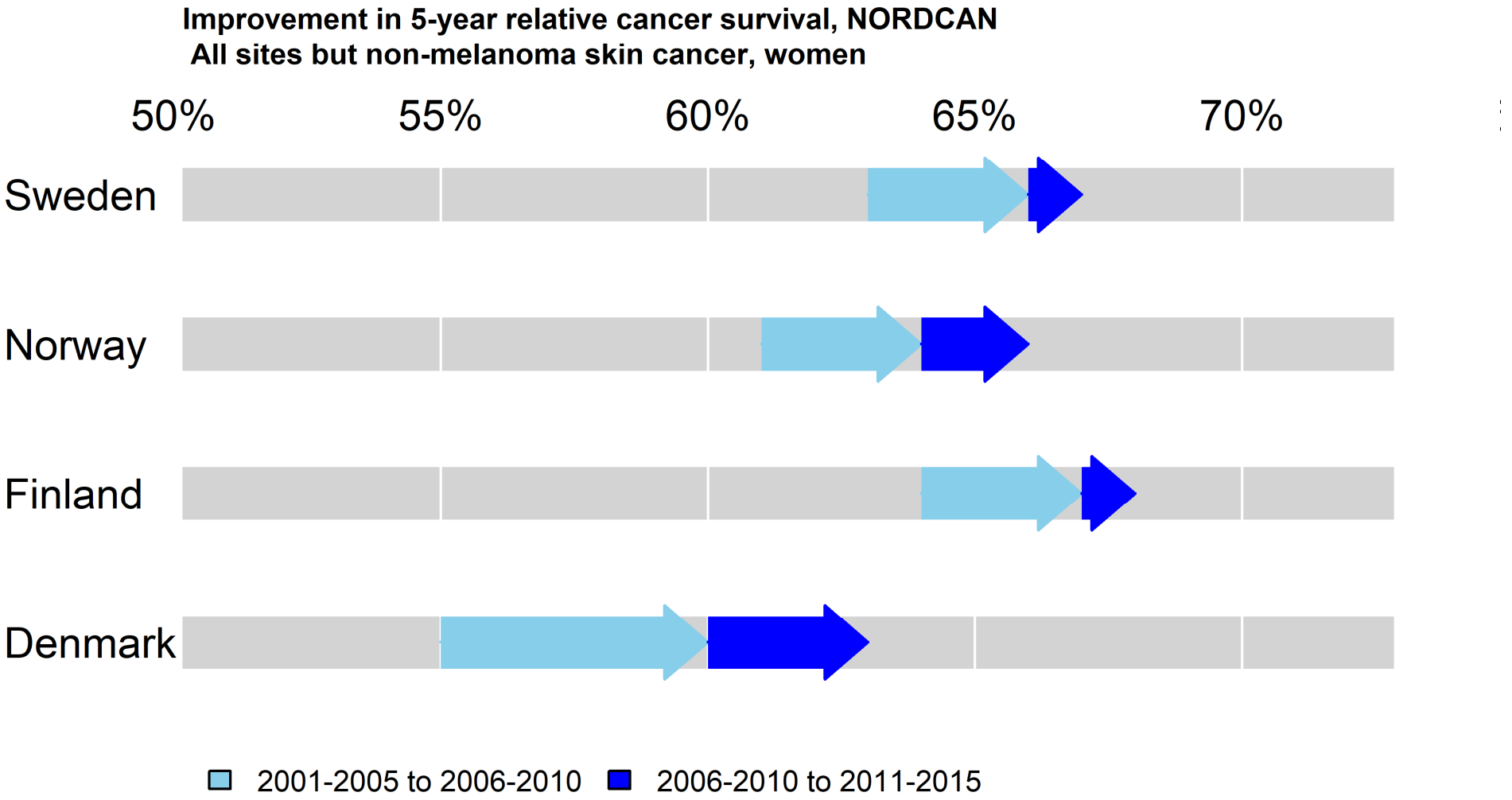





Improvement in 1-year relative cancer survival, NORDCAN
All sites but non-melanoma skin cancer, men
65%
70%
75%
80%
85%
90%
Sweden
Norway
Finland
Denmark
2001-2005 to 2006-2010
2006-2010 to 2011-2015


Improvement in 5-year relative cancer survival, NORDCAN
All sites but non-melanoma skin cancer, men
45%
50%
55%
60%
65%
70%
75%
Sweden
Norway
Finland
Denmark
2001-2005 to 2006-2010
2006-2010 to 2011-2015


Improvement in 1-year relative cancer survival, NORDCAN
All sites but non-melanoma skin cancer, women
70%
75%
80%
85%
Sweden
Norway
Finland
Denmark
2001-2005 to 2006-2010
2006-2010 to 2011-2015


Improvement in 5-year relative cancer survival, NORDCAN
All sites but non-melanoma skin cancer, women
50%
55%
60%
65%
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Sweden
Norway
Finland
Denmark
2001-2005 to 2006-2010
2006-2010 to 2011-2015

Improvement in cancer survival

Cancer survival improved from 2001-05 to 2011-15. Denmark had a higher improvement, but from a lower survival level.

Improvement in age-standardised relative survival for patients diagnosed with any cancer but non-melanoma skin from 2001-2005 to 2011-2015 by country

% point survival improvement	Denmark	Finland	Norway	Sweden
Men				
1-year RS	**11**	**3**	**7**	**4**
5-year RS	**12**	**3**	**9**	**5**
Women				
1-year RS	**9**	**4**	**5**	**4**
5-year RS	**8**	**4**	**5**	**4**

This picture is seen for most cancer sites.

Highest position in cancer survival by country and year af diagnosis

Number of cancer sites with highest survival among the 20 most common sites by year of diagnosis, country, sex and length of survival

#sites with	Denmark		Finland		Norway		Sweden	
highest RS	01-05	11-15	01-05	11-15	01-05	11-15	01-05	11-15
Men								
1-year RS	0	3	9	3	4	5	11	15
5-year RS	1	4	13	3	5	7	5	9
Women								
1-year RS	0	5	10	5	3	9	10	13
5-year RS	1	5	11	7	4	8	7	7

In 2001-2005 Finland and Sweden mainly divided the position as having the best 1-year survival and Finland had the front position for 5-year survival.
In 2011-2015, 10 years later, the number of first positions had increased for Denmark, Norway and Sweden and decreased in Finland

Lowest position in cancer survival by country and year of diagnosis

Number of cancer sites with lowest survival among the 20 most common sites by year of diagnosis, country, sex and length of survival

#sites with	Denmark		Finland		Norway		Sweden	
highest RS	01-05	11-15	01-05	11-15	01-05	11-15	01-05	11-15
Men								
1-year RS	17	8	2	9	3	3	0	1
5-year RS	16	10	0	10	5	2	0	1
Women								
1-year RS	18	10	1	9	1	7	0	3
5-year RS	15	10	2	10	3	2	0	1

Denmark had the lowest position for most sites 2001-2005, but Finland took over half of them in 2011-2015

Many factors behind Danish cancer survival improvement

- Four Danish cancer plans, 2000, 2005, 2007 and 2015
- Hardware investment
- Centralisation of cancer diagnostics and treatment
- MDT conferences and treatment guidelines
- 2007: cancer classified as an ”acute disease”
- 2007-2009: Accelerated cancer-specific patient paths and public monitoring of waiting times
- 2007-2009 Breast cancer screening for remaining 80%
- 2014 Colorectal cancer screening, preceeded with a symptom awareness campaign towards men

Plans for development from NORDCAN-group

TNM-stage

- Distribution and stage-specific survival for monitoring
- Availability and comparison between countries
- Sweden and Denmark use TNM from 2004. Available for some sites in Norway and Iceland

Co-morbidity, treatment, education

- Documentation and comparability between countries and effect on survival
- Co-morbidity based on inpatient registers
- The Nordic operation classification – primary treatment
- Education – a socioeconomic measure