



Finnish Cancer Registry

Finnish Cancer Organisations



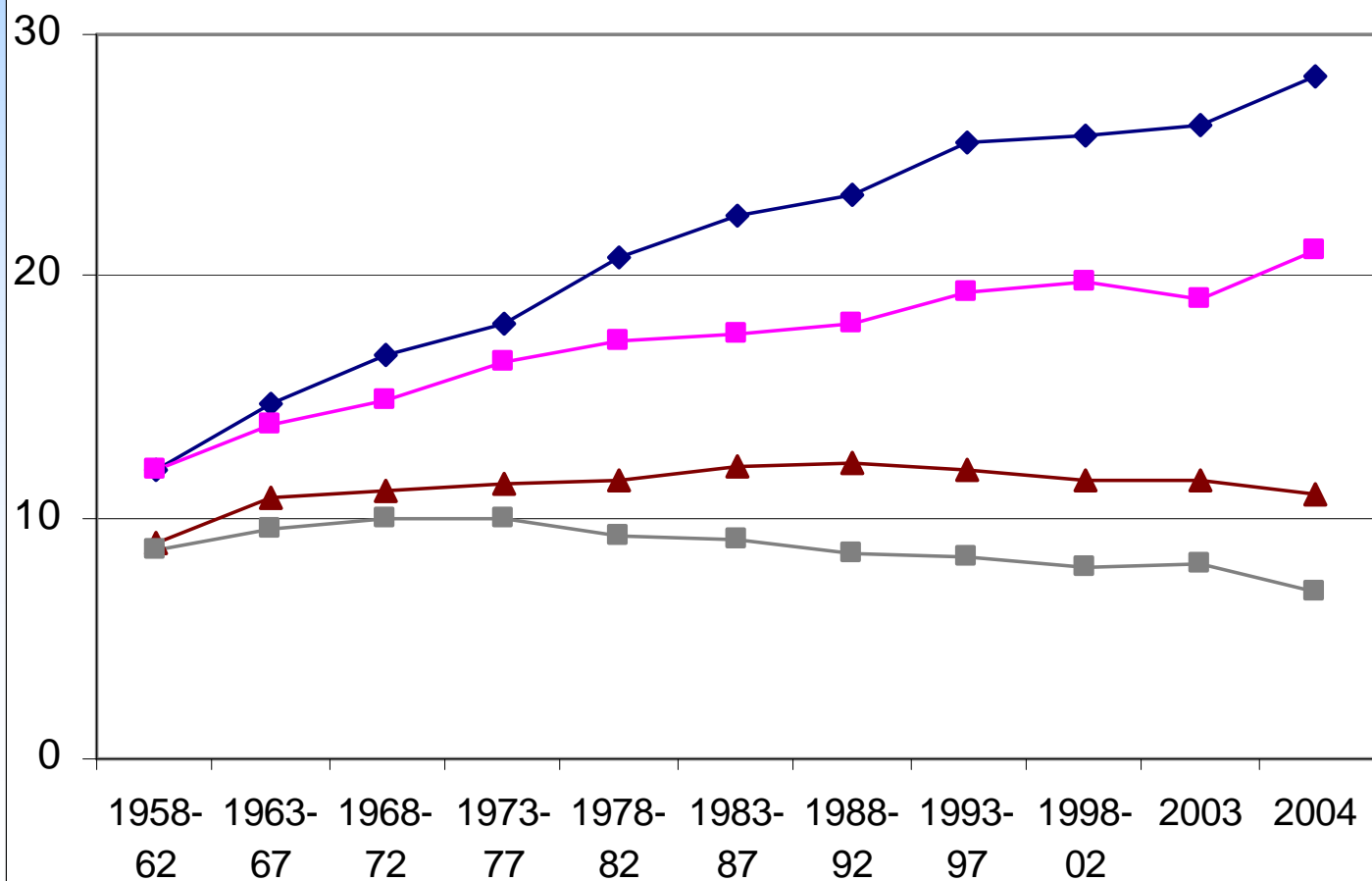
Colorectal Cancer Screening

Implementation of a public health programme

Nea Malila and the Expert Group on Colorectal Cancer Screening
Cancer Society of Finland,
Finnish Cancer Registry, Mass Screening Registry



CRC incidence and mortality/100 000 Finland





Launch of screening in 2004

- A population-based screening programme
- Centrally planned, organised and run
- Gradual implementation in the target population over time
- Gradual expansion over regions
- Main aim to reduce colorectal cancer mortality
- Evaluation (until effectiveness) of the programme in built
- Testing feasibility (practical issues, compliance, test results, colonoscopy process) within the public health care system in Finland



Benefits of gradual implementation

- **Effectiveness** in the Finnish health care environment can be evaluated
- Colonoscopy resources existing and can be increased as needed in a controlled way
- Need of extra resources can be studied and planned
- Programme costs in Finland will be discovered



Screening process

- Invitation of men and women aged 60-69-years eventually
- Randomisation into screening or control arms at individual level
- Gradual start among the target age-cohort during six first years
- Test-kits mailed and returned by mail
- Test results mailed to screenees
- Repeated screening every second year, no exclusions



Implementation

| | | 2010 | 2011 | 2012 | 2013 | 2014 |
|------------|----------|-----------|-----------|-----------|---------|---------|
| Birth year | Age 2004 | | | | | |
| 1941 | 69 v | | | | | |
| 1942 | 68 v | ReS+50% | | | | |
| 1943 | 67 v | | ReS+50% | | | |
| 1944 | 66 v | Re-Screen | | ReS+50% | | |
| 1945 | 65 v | | Re-Screen | | ReS+50% | |
| 1946 | 64 v | Re-Screen | | ReS+50% | | 100 % |
| 1947 | 63 v | | Re-Screen | | ReS+50% | |
| 1948 | 62 v | Re-Screen | | Re-Screen | | ReS+50% |
| 1949 | 61 v | | Re-Screen | | ReS+50% | |
| 1950 | 60 v | 100 % | | 100 % | | 100 % |
| 1951 | | | 100 % | | 100 % | |
| 1952 | | | | 100 % | | 100 % |
| 1953 | | | | | 100 % | |
| 1954 | | | | | | 100 % |



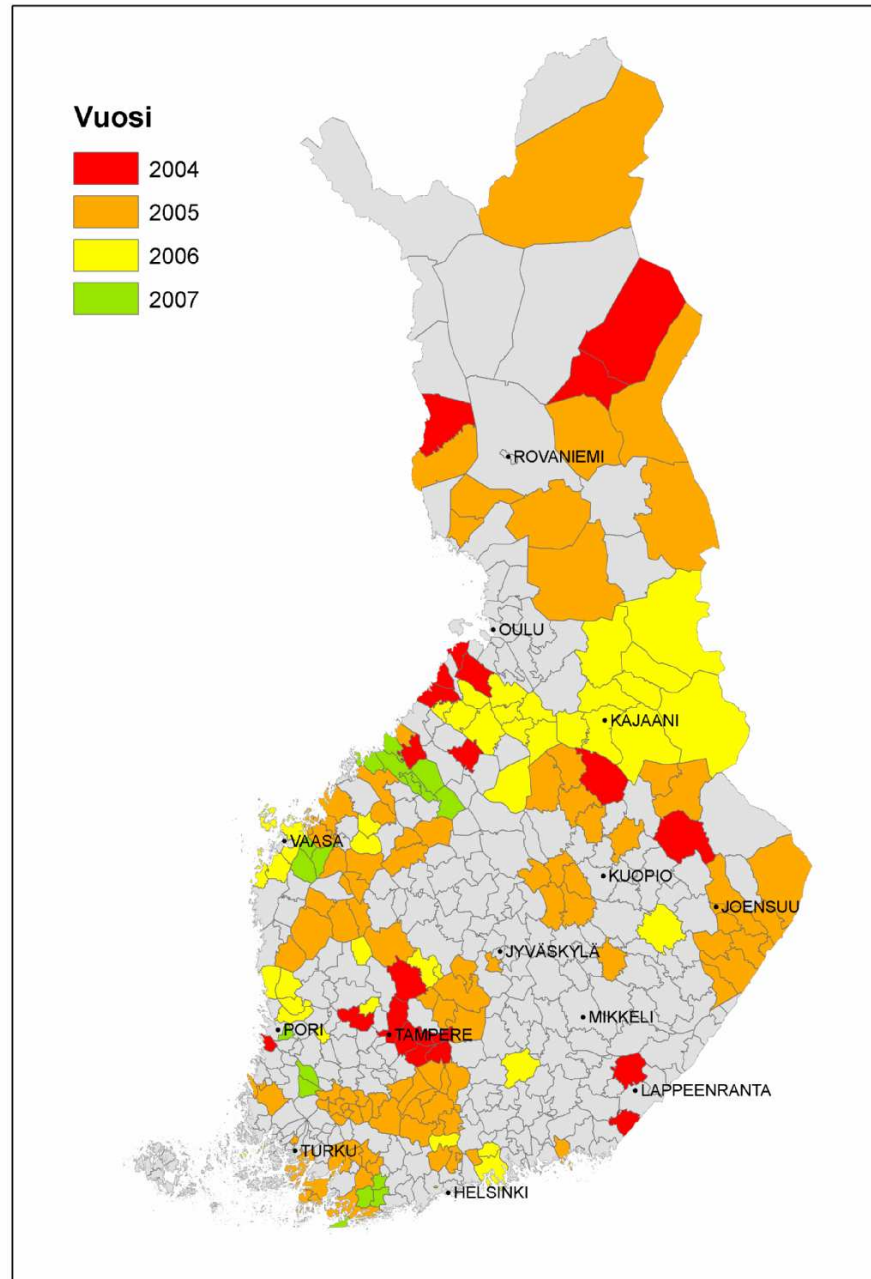
Procedure

- Three day specimen collection (faecal cards) at home
- Guaiac based test, no rehydration
- Any positive test window (out of 6) regarded as a positive test result
- Those being positive are sent to their local health care center for colonoscopy referral
- Further surveillance and treatment according to usual care
- Data collected centrally via contact persons at local level and sending to screening center



First experiences in Finland

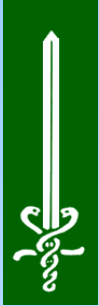
- Launch in September 2004 in 22 municipalities (out of 444)
- In 2007 175 municipalities in the programme
- One national centre for the entire country (5,3 million people)
- Centre takes care of sending invitations, analysing tests and referrals for further examination
- Overall compliance good, 71%
- Test positivity 2,1%





Finland, first round 2004-2006

| Invitation year | | 2004 | 2005 | 2006 | All |
|-----------------|--------------|------|-------|-------|-------|
| Controls | Men | 2148 | 11639 | 12462 | 26249 |
| | Women | 2391 | 11923 | 12435 | 26749 |
| | Total | 4539 | 23562 | 24897 | 52998 |
| Screening | Men | 2143 | 11643 | 12461 | 26247 |
| | Women | 2396 | 11916 | 12435 | 26747 |
| | Total | 4539 | 23559 | 24896 | 52994 |



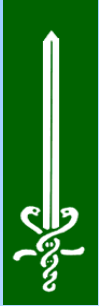
Final results from first round

| Test result | MEN | WOMEN | BOTH |
|---------------|--------------|--------------|--------------|
| NEG | 16130 | 20581 | 37514 |
| POS | 495 | 308 | 803 |
| NON-COMPLIERS | 9622 | 5858 | 15480 |
| Total | 26247 | 26747 | 52994 |



| <i>Males</i> | | | |
|---------------|---------------------|--------------|-----------------------|
| age_gr | non-complier | Total | Non-compliance |
| 1940 | 179 | 666 | 26,9 % |
| 1941 | 1254 | 3862 | 32,5 % |
| 1942 | 1155 | 3271 | 35,3 % |
| 1943 | 1142 | 3307 | 34,5 % |
| 1944 | 1750 | 4410 | 39,7 % |
| 1945 | 1673 | 4474 | 37,4 % |
| 1946 | 2594 | 6257 | 41,5 % |
| Total | 9747 | 26247 | 37,1 % |

| <i>Females</i> | | | |
|----------------|---------------------|--------------|-----------------------|
| age_gr | non-complier | Total | Non-compliance |
| 1940 | 138 | 784 | 17,6 % |
| 1941 | 841 | 4059 | 20,7 % |
| 1942 | 734 | 3472 | 21,1 % |
| 1943 | 698 | 3448 | 20,2 % |
| 1944 | 1074 | 4470 | 24,0 % |
| 1945 | 1000 | 4409 | 22,7 % |
| 1946 | 1479 | 6105 | 24,2 % |
| Total | 5964 | 26747 | 22,3 % |



Colonoscopy findings, preliminary

| Diagnosis | Number |
|------------------|---------------|
| Cancer | 54 |
| Adenoma | 286 |
| Hemorrhoides | 80 |
| Other diagnoses | 89 |
| Normal finding | 59 |
| No diagnosis | 235 |
| Total | 803 |



| | | |
|----------------------------|---------------|-----------|
| No diagnosis | 235 | |
| Information missing | 60 | |
| Not done | 88 | |
| | Not reached | 3 |
| | Declined | 19 |
| | In follow-up | 3 |
| | Done recently | 27 |
| | Other | 34 |
| | Not known | 2 |
| | | 88 |
| No findings | 87 | |
| Total | 235 | |



Evaluation

- The randomised design allows comparison between the screening and control arms
- Cancers and deaths followed through national registries (statistics Finland, Finnish Cancer Registry)
- Both screened and controls can be followed through register linkage (personal id)
- First years: performance, compliance, positivity rate, colonoscopy performance
- After six years randomisation will gradually cease
- At three years process evaluation, after 10-15 years mortality reduction in screened and controls