



LO SCREENING CON COLONSCOPIA I RISULTATI DEL NORDICC TRIAL

Carlo SENORE

CPO Piemonte



Centro di Riferimento per l'Epidemiologia
e la Prevenzione Oncologica in Piemonte

Nordic-European Initiative on Colorectal Cancer

The NordICC trial

Screening group

- One-time colonoscopy screening
- Bowel prep
- Polyp removal during screening procedure
- Polyp surveillance according to ESGE guidelines

Control group

- Standard of care

NordICC inclusions



Poland



Netherlands

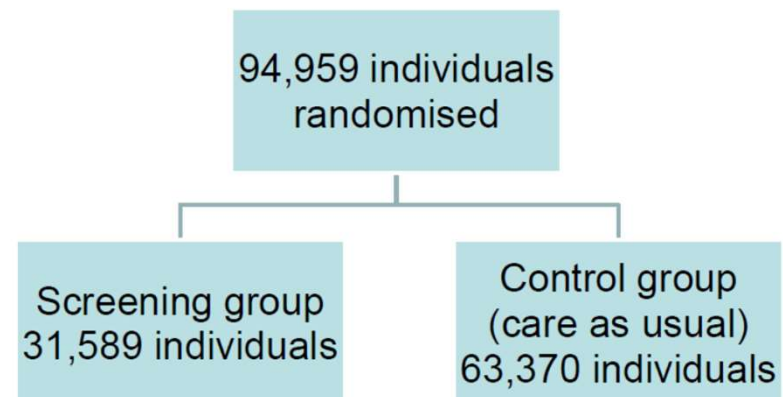


Norway



Sweden

**Screening was performed between
June 2009 and June 2014.**



METODI

Target population

Average risk subjects aged 55 to 64 years.
General population sample

Interventions (randomization ratio 1:2)

- invitation to once-in-the-lifetime screening colonoscopy
- no invitation to screening – usual care

METODI

All screening colonoscopies were performed at dedicated centers.

A quality-assurance and training program was implemented for the trial.

Dedicated pathologists assessed all polyps and cancers according to the classification of the World Health Organization.

Data from all screening examinations were registered in an online electronic case-report form and stored at a central database.

Patients were referred for surveillance of polyps after screening in accordance with national guidelines

POPOLAZIONE INCLUSA NELL'ANALISI

This report is based on follow-up data from all 84,585 participants in Poland, Norway, and Sweden (89.1% of all 94,959 participants)

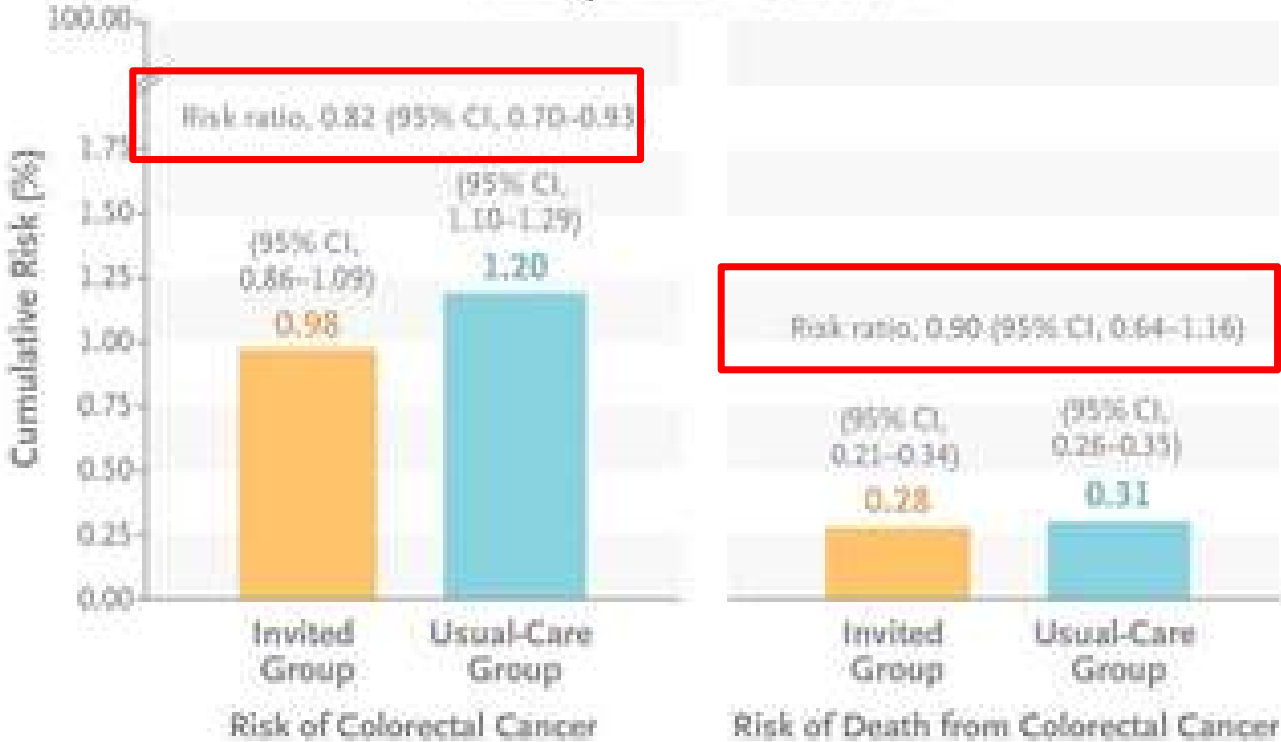
9780 participants, all from the Netherlands, could not be included because Statistics Netherlands could not provide follow-up data from the usual-care group owing to a new Dutch law based on the recently introduced European Union General Data Protection Regulation.

ORIGINAL ARTICLE

Effect of Colonoscopy Screening on Risks of Colorectal Cancer and Related Death

M. Bretthauer, M. Løberg, P. Wieszczy, M. Kalager, L. Emilsson, K. Garborg, M. Rupinski, E. Dekker, M. Spaander, M. Bugajski, Ø. Holme, A.G. Zauber, N.D. Pilonis, A. Mroz, E.J. Kuipers, J. Shi, M.A. Hernán, H.-O. Adami, J. Regula, G. Hoff, and M.F. Kaminski, for the NordICC Study Group*

Primary End Points at 10 Yr

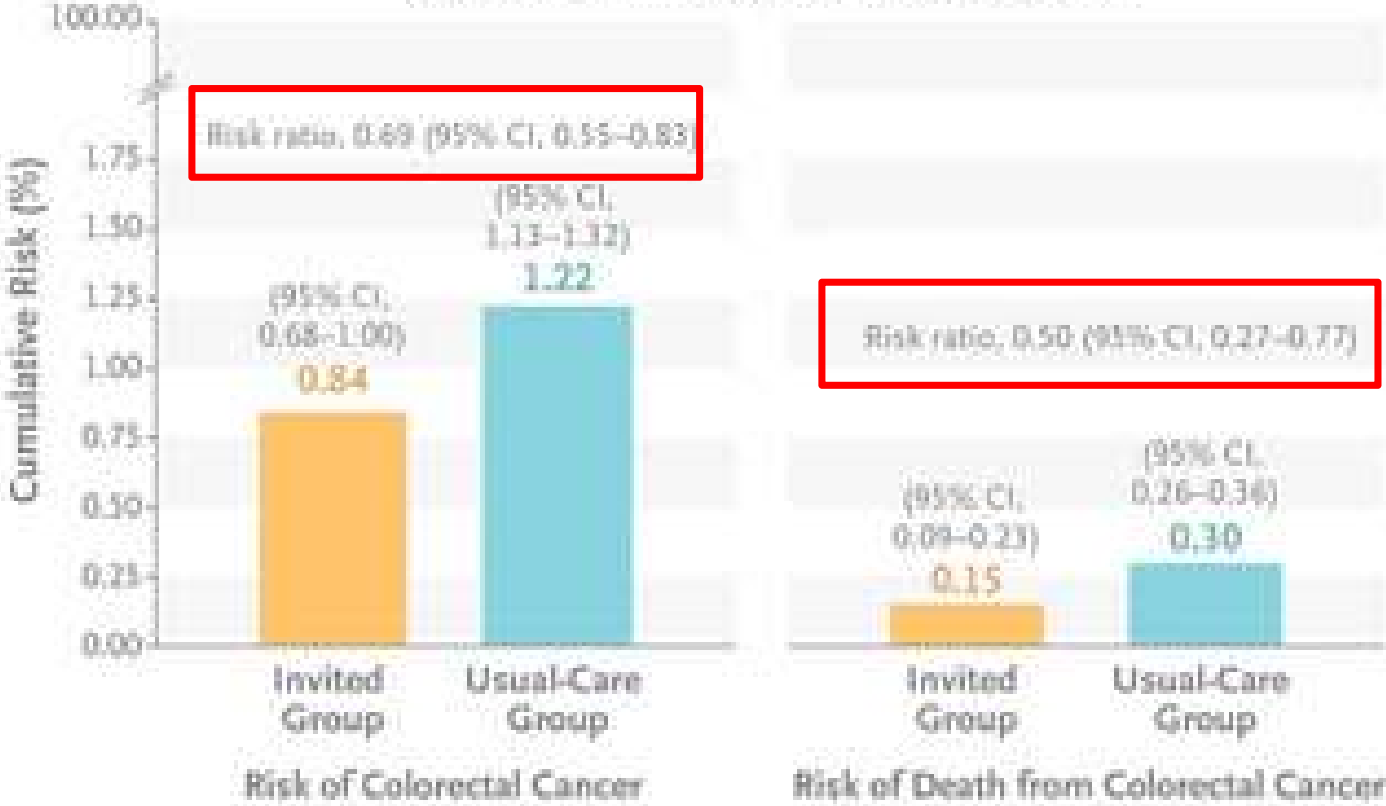


ORIGINAL ARTICLE

Effect of Colonoscopy Screening on Risks of Colorectal Cancer and Related Death

M. Bretthauer, M. Løberg, P. Wieszczy, M. Kalager, L. Emilsson, K. Garborg, M. Rupinski, E. Dekker, M. Spaander, M. Bugajski, Ø. Holme, A.G. Zauber, N.D. Pilonis, A. Mroz, E.J. Kuipers, J. Shi, M.A. Hernán, H.-O. Adami, J. Regula, G. Hoff, and M.F. Kaminski, for the NordICC Study Group*

Adjusted Per-Protocol Analyses at 10 Yr

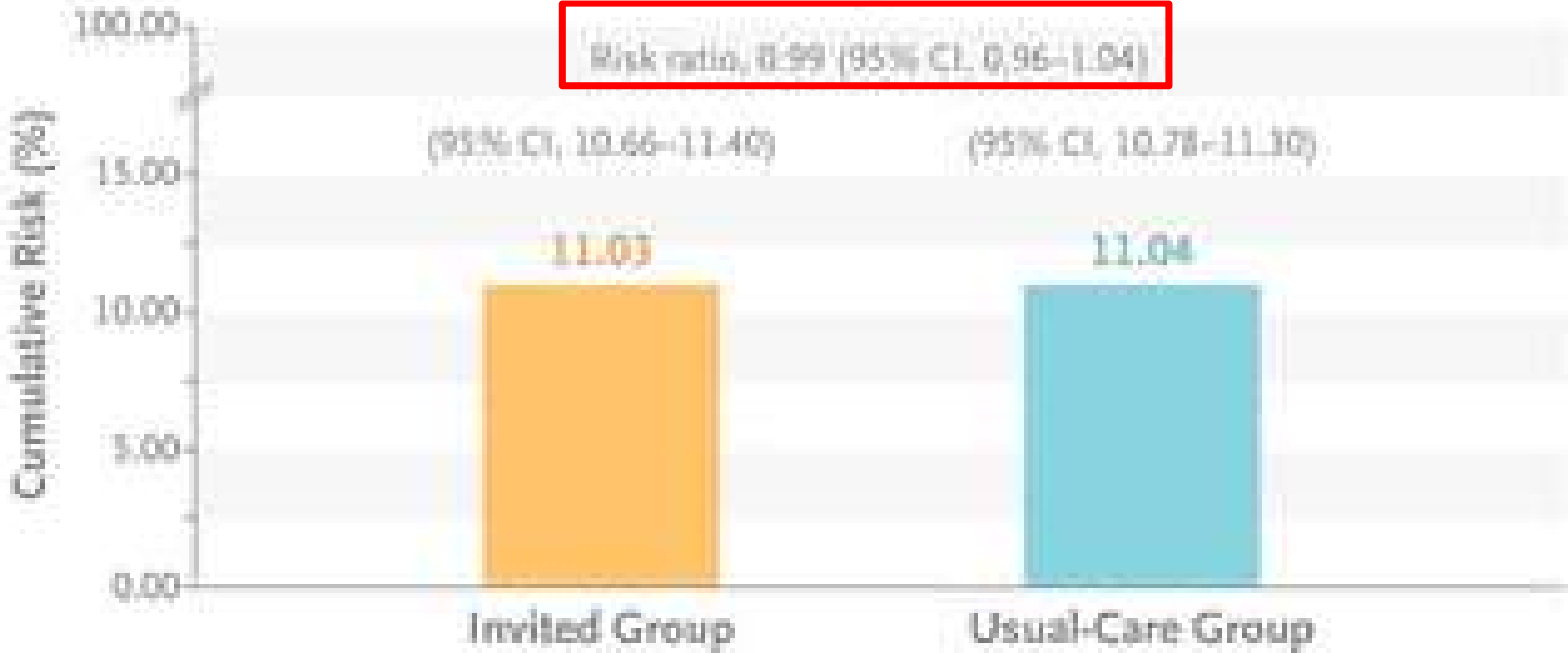


ORIGINAL ARTICLE

Effect of Colonoscopy Screening on Risks of Colorectal Cancer and Related Death

M. Bretthauer, M. Løberg, P. Wieszczy, M. Kalager, L. Emilsson, K. Garborg, M. Rupinski, E. Dekker, M. Spaander, M. Bugajski, Ø. Holme, A.G. Zauber, N.D. Pilonis, A. Mroz, E.J. Kuipers, J. Shi, M.A. Hernán, H.-O. Adami, J. Regula, G. Hoff, and M.F. Kaminski, for the NordICC Study Group*

Death from Any Cause at 10 Yr



ORIGINAL ARTICLE

Effect of Colonoscopy Screening on Risks of Colorectal Cancer and Related Death

M. Bretthauer, M. Løberg, P. Wieszczyn, M. Kalager, L. Emilsson, K. Garborg, M. Rupinski, E. Dekker, M. Spaander, M. Bugajski, Ø. Holme, A.G. Zauber, N.D. Pilonis, A. Mroz, E.J. Kuipers, J. Shi, M.A. Hernán, H.-O. Adami, J. Regula, G. Hoff, and M.F. Kaminski, for the NordICC Study Group*

Table 2. Primary and Secondary End Points.

| End Point | Invited Group | | Usual-Care Group | | Risk Difference (95% CI) | Risk Ratio (95% CI) |
|------------------------|---------------|------------------------|------------------|------------------------|-----------------------------|------------------------|
| | Participants | 10-Yr Risk (95% CI) | Participants | 10-Yr Risk (95% CI) | | |
| | number | percent | number | percent | | |
| Colorectal cancer | 259 | 0.98 (0.86 to 1.09) | 622 | 1.20 (1.10 to 1.29) | -0.22 (-0.37 to -0.07) | 0.82 (0.70 to 0.93) |
| Death | | | | | percentage points | |
| From colorectal cancer | 72 | 0.28 (0.21 to 0.34) | 157 | 0.31 (0.26 to 0.35) | -0.03 (-0.11 to 0.05) | 0.90 (0.64 to 1.16) |
| From any cause | 3036 | 11.03 (10.66 to 11.40) | 6079 | 11.04 (10.78 to 11.30) | -0.01 (-0.47 to 0.44) | 0.99 (0.96 to 1.04) |

LO SCREENING CON SIGMOIDOSCOPIA

Annals of Internal Medicine

ORIGINAL RESEARCH

15-Year Benefits of Sigmoidoscopy Screening on Colorectal Cancer Incidence and Mortality

A Pooled Analysis of Randomized Trials

Frederik E. Juul, MD; Amanda J. Cross, PhD; Robert E. Schoen, MD, MPH; Carlo Senore, MD, MSc; Paul Pinsky, PhD; Eric Miller, PhD; Nereo Segnan, MD, MSc; Kate Wooldrage, PhD; Paulina Wieszczy-Szczepanik, PhD; Paola Armaroli, MD, MSc; Kjetil K. Garborg, MD, PhD; Hans-Olov Adami, MD, PhD; Geir Hoff, MD, PhD, MBChB; Mette Kalager, MD, PhD; Michael Bretthauer, MD, PhD; Magnus Løberg, MD, PhD*; and Øyvind Holme, MD, PhD*

Table 2. Pooled Analysis of CRC Incidence and Mortality in Randomized Sigmoidoscopy Screening Trials*

| Variable | Screening, n | | Usual Care, n | | Intention-to-Screen Analysis (95% CI)† | |
|----------------------|--------------|--------------|---------------|--------------|--|----------------------|
| | Cases | Participants | Cases | Participants | Rate Ratio | Rate Difference‡ |
| CRC incidence | | | | | | |
| Trial | | | | | | |
| NORCCAP | 291 | 13 638 | 366 | 13 637 | 0.79 (0.67 to 0.92) | 0.66 (0.24 to 1.08) |
| PLCO | 668 | 49 621 | 812 | 49 587 | 0.82 (0.74 to 0.90) | 0.32 (0.17 to 0.47) |
| UKFSST | 1034 | 57 098 | 1361 | 57 099 | 0.76 (0.70 to 0.82) | 0.64 (0.45 to 0.83) |
| SCORE | 368 | 17 136 | 446 | 17 136 | 0.82 (0.71 to 0.95) | 0.50 (0.15 to 0.85) |
| Pooled analysis | | | | | | |
| All | 2361 | 137 493 | 2985 | 137 459 | 0.79 (0.75 to 0.83) | 0.51 (0.40 to 0.63) |
| CRC mortality | | | | | | |
| Trial | | | | | | |
| NORCCAP | 92 | 13 638 | 115 | 13 637 | 0.79 (0.60 to 1.05) | 0.19 (−0.04 to 0.42) |
| PLCO | 171 | 49 621 | 182 | 49 587 | 0.94 (0.75 to 1.16) | 0.03 (−0.05 to 0.11) |
| UKFSST | 291 | 57 098 | 399 | 57 099 | 0.72 (0.62 to 0.84) | 0.21 (0.11 to 0.31) |
| SCORE | 107 | 17 136 | 131 | 17 136 | 0.81 (0.62 to 1.06) | 0.15 (−0.03 to 0.33) |
| Pooled analysis | | | | | | |
| All | 661 | 137 493 | 827 | 137 459 | 0.80 (0.72 to 0.88) | 0.13 (0.07 to 0.19) |

LO SCREENING CON SIGMOIDOSCOPIA

Annals of Internal Medicine

ORIGINAL RESEARCH

Long-Term Follow-up of the Italian Flexible Sigmoidoscopy Screening Trial

Carlo Senore, MD, MSc; Emilia Riggi, PhD; Paola Armaroli, MD, MSc; Luigina Bonelli, MD; Stefania Sciallero, MD, MPH; Marco Zappa, MD; Arrigo Arrighoni, MD; Claudia Casella, PhD; Cristiano Crosta, MD; Fabio Falcini, MD; Franco Ferrero, MD; Mario Fracchia, MD; Orietta Giuliani, PhD; Mauro Risio, MD; Antonio G. Russo, MD, MPH; Carmen Beatriz Vizioli, MD, MSc; Stefano Rosso, MD, MSc; and Nereo Segnan, MD, MPH; for the SCORE Working Group*

Long-term effects of once-only flexible sigmoidoscopy screening after 17 years of follow-up: the UK Flexible Sigmoidoscopy Screening randomised controlled trial

Wendy Atkin, Kate Wooldrage, D Maxwell Parkin, Ines Kralj-Hans, Eilidh MacRae, Urvi Shah, Stephen Duffy, Amanda J Cross

Riduzione di incidenza:

33% - 35%

Riduzione della mortalità:

39% - 41%

Persone aderenti

RIDUZIONE DELLA MORTALITÀ GENERALE

LETTERS

OBSERVATION: BRIEF RESEARCH REPORT

Reanalysis of All-Cause Mortality in the U.S. Preventive Services Task Force 2016 Evidence Report on Colorectal Cancer Screening

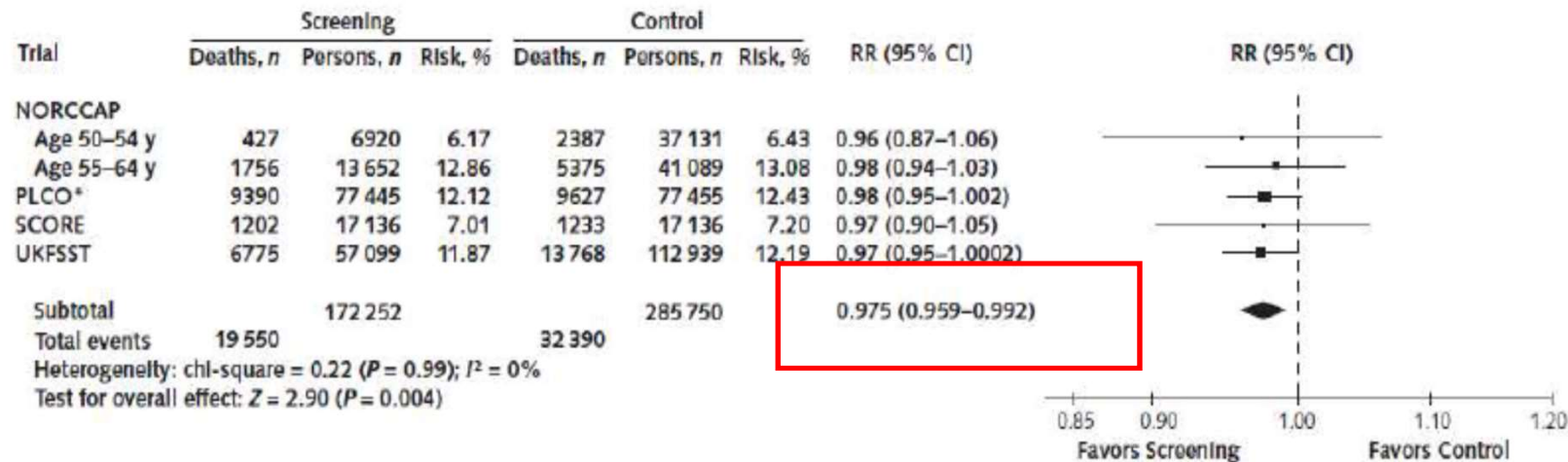
Annals of Internal Medicine

Vol. 167 No. 8 • 17 October 2017 603

Andrew W. Swartz, MD
Yukon-Kuskokwim Delta Regional Hospital
Bethel, Alaska

Jan M. Eberth, PhD
Michele J. Josey, MS
Scott M. Strayer, MD
University of South Carolina
Columbia, South Carolina

Figure 2. RR for death with screening with flexible sigmoidoscopy in randomized controlled trials.



Riduzione del 2.5% della mortalità per tutte le cause a 10 anni dallo screening nel gruppo invitato a screening con sigmoidoscopia

NORCCAP – Norwegian Colorectal Cancer Prevention; PLCO – Prostate, Lung, Colorectal, and Ovarian; RR – relative risk; SCORE – Screening for Colon Rectum; UKFSST = U.K. Flexible Sigmoidoscopy Screening Trial.

* This trial reports a modified all-cause mortality that excludes deaths from prostate, lung, and ovarian cancer because the intervention group was also screened for those types of cancer.

CONCLUSIONI

Durata del follow-up ancora limitata

numero assoluto di eventi relativamente basso, in particolare per le morti

Esame diagnostico versus esame di screening

Storia naturale della malattia

Qual è l'esito di interesse?

CONCLUSIONI

Effectiveness of flexible sigmoidoscopy screening in men and women and different age groups: pooled analysis of randomised trials

Øyvind Holme,^{1,2} Robert E Schoen,³ Carlo Senore,⁴ Nereo Segnan,⁴ Geir Hoff,^{5,6} Magnus Løberg,^{2,8} Michael Bretthauer,^{1,2,7,8} Hans-Olov Adami,^{2,7,9} Mette Kalager^{2,7,8} **BMJ 2017**

| Proximal colon | | | | |
|----------------|---------------------|------|---------------------|------|
| Both sexes* | 0.86 (0.79 to 0.93) | | 0.87 (0.73 to 1.04) | |
| Men† | 0.83 (0.73 to 0.94) | | 0.89 (0.70 to 1.13) | |
| ≥60 years‡ | 0.82 (0.71 to 0.95) | | 0.96 (0.73 to 1.28) | |
| <60 years§ | 0.84 (0.66 to 1.07) | 0.04 | 0.71 (0.44 to 1.14) | 0.61 |
| Women¶ | 0.91 (0.79 to 1.03) | | 0.85 (0.66 to 1.10) | |
| ≥60 years‡ | 1.03 (0.88 to 1.20) | | 0.89 (0.65 to 1.21) | |
| <60 years§ | 0.65 (0.50 to 0.84) | | 0.79 (0.51 to 1.23) | |

Annals of Internal Medicine

ORIGINAL RESEARCH

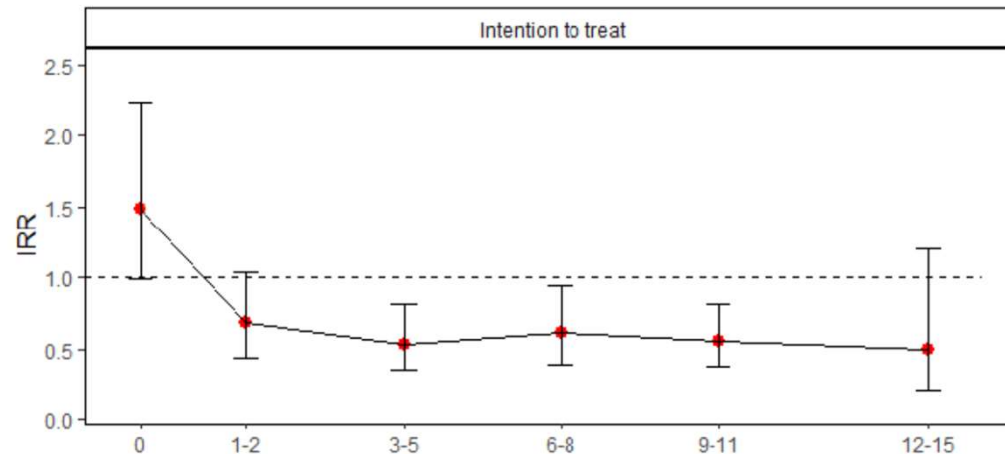
Long-Term Follow-up of the Italian Flexible Sigmoidoscopy Screening Trial

Carlo Senore, MD, MSc; Emilia Riggi, PhD; Paola Armaroli, MD, MSc; Luigina Bonelli, MD; Stefania Sciallero, MD, MPH; Marco Zappa, MD; Arrigo Arrigoni, MD; Claudia Casella, PhD; Cristiano Crosta, MD; Fabio Falcini, MD; Franco Ferrero, MD; Mario Fracchia, MD; Orietta Giuliani, PhD; Mauro Risio, MD; Antonio G. Russo, MD, MPH; Carmen Beatriz Visioli, MD, MSc; Stefano Rosso, MD, MSc; and Nereo Segnan, MD, MPH; for the SCORE Working Group*

**NNS to prevent one CRC
180 (95% CI: 98-1134)
after 11-year f-up**

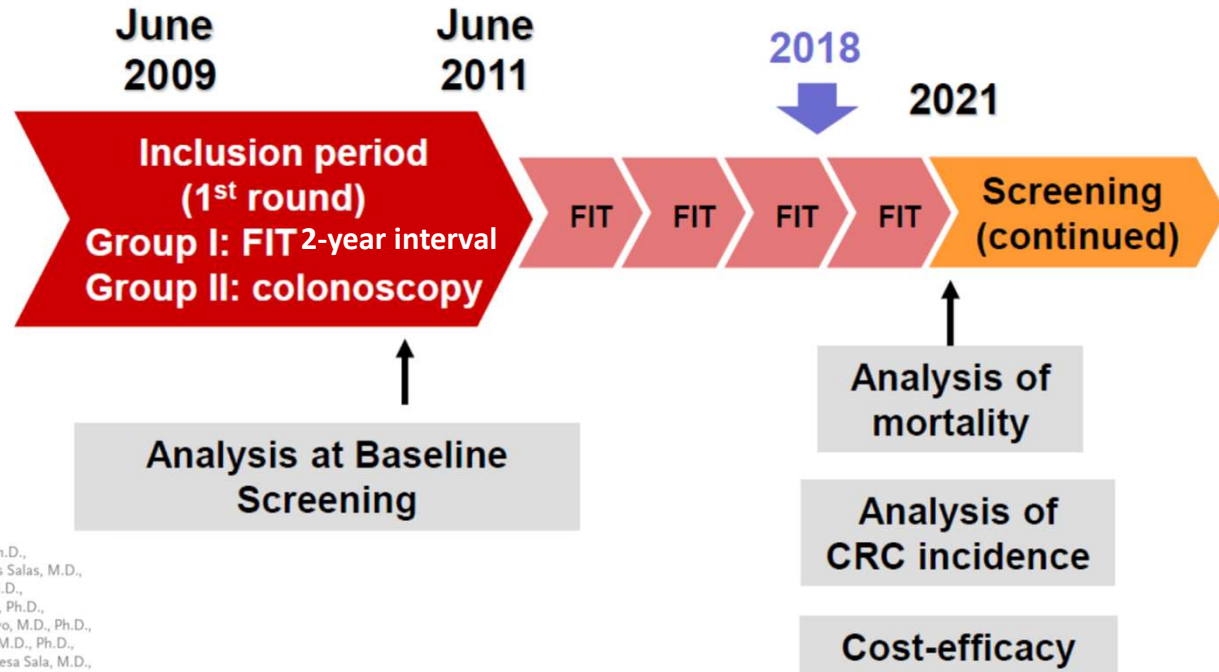
**115 (95% CI: 69-343)
After 15-year f-up**

B. Distal



ORIGINAL ARTICLE

Colonoscopy versus Fecal Immunochemical Testing in Colorectal-Cancer Screening



Enrique Quintero, M.D., Ph.D., Antoni Castells, M.D., Ph.D.,
Luis Bujanda, M.D., Ph.D., Joaquín Cubiella, M.D., Ph.D., Dolores Salas, M.D.,
Ángel Lanas, M.D., Ph.D., Montserrat Andreu, M.D., Ph.D.,
Fernando Carballo, M.D., Ph.D., Juan Diego Morillas, M.D., Ph.D.,
Cristina Hernández, B.Sc., Rodrigo Jover, M.D., Ph.D., Isabel Montalvo, M.D., Ph.D.,
Juan Arenas, M.D., Ph.D., Eva Laredo, R.N., Vicent Hernández, M.D., Ph.D.,
Felipe Iglesias, R.N., Estela Cid, R.N., Raquel Zubizarreta, M.D., Teresa Sala, M.D.,
Marta Ponce, M.D., Mercedes Andrés, M.D., Gloria Teruel, M.D., Antonio Peris, M.D.,
María-Pilar Roncales, R.N., Mónica Polo-Tomás, M.D., Ph.D.,
Xavier Bessa, M.D., Ph.D., Olga Ferrer-Armengou, R.N., Jaume Grau, M.D.,
Anna Serradesanferm, R.N., Akiko Ono, M.D., José Cruzado, M.D.,
Francisco Pérez-Riquelme, M.D., Inmaculada Alonso-Abreu, M.D.,
Mariola de la Vega-Prieto, M.D., Juana María Reyes-Melian, M.D.,
Guillermo Cacho, M.D., José Díaz-Tasende, M.D., Alberto Herreros-de-Tejada, M.D.,
Carmen Poves, M.D., Cecilio Santander, M.D., and Andrés González-Navarro, M.D.,
for the COLONPREV Study Investigators*

Grazie dell'attenzione

carlo.senore@cpo.it



Centro di Riferimento per l'Epidemiologia
e la Prevenzione Oncologica in Piemonte