



UiO : **Institute of Health and Society**
University of Oslo

Nordic-European Initiative on Colorectal Cancer The NordICC trial



Magnus Løberg
University of Oslo
Oslo University Hospital



STUDY DESIGN

Research question and study aims

- How much can we reduce the incidence and mortality of colorectal cancer by introducing a colonoscopy screening program?
- The **primary aim** is to compare colorectal cancer mortality and incidence between the screening group and the control group under the intention-to-screen principle during 15 years of follow-up.
- The **secondary aims** are: (i) to compare colorectal cancer mortality and incidence between the screening group and the control group after adjustment for imperfect uptake, and (ii) to evaluate mortality from all causes during 15 years of follow-up.

Study design

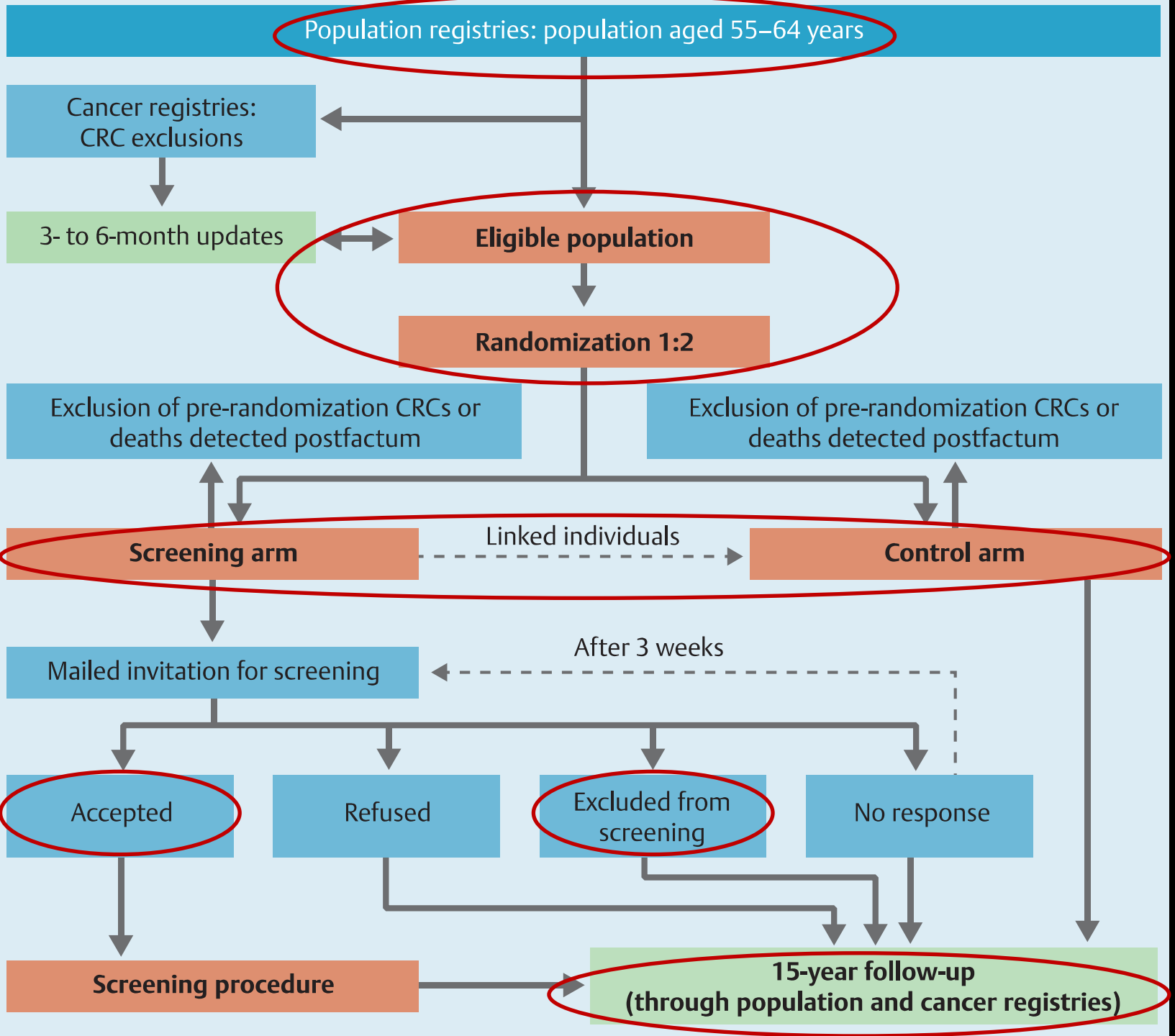
- Goal: To mimic a population-based screening program
- Method: Pragmatic randomized controlled trial

COMMENTARY

“Randomize, Then Consent” or “Consent,
Then Randomize”?

Revitalizing the Issue of Preconsent Randomization

Magnus Løberg,^{a,b} Mette Kalager,^{a,b,c} and Michael Bretthauer^{a,b,c}



Intervention

Screening group

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

Control group

- Standard of care

Quality assurance

- Only centres with QA program eligible for participation
 - Training for endoscopists, pathologists
 - High-quality equipment
 - Continuous monitoring of key performance indicators for colonoscopy
- Trial endoscopists had performed at least 300 colonoscopies before entering the trial and had a minimum workload of 200 colonoscopies per year

Quality assurance

- Online electronic case report form and centralized trial database
- Continuous monitoring of
 - Adenoma detection rates
 - Cecal intubation rates
 - Perceived pain and discomfort during and after the screening examination
 - Satisfaction with the screening center personnel
- Complications and adverse effects
- Screen-positive individuals with no scheduled appointments for adequate follow-up
- Missing, inadequate or illogical registration of histopathological findings

BASELINE RESULTS

NordICC inclusions



Poland



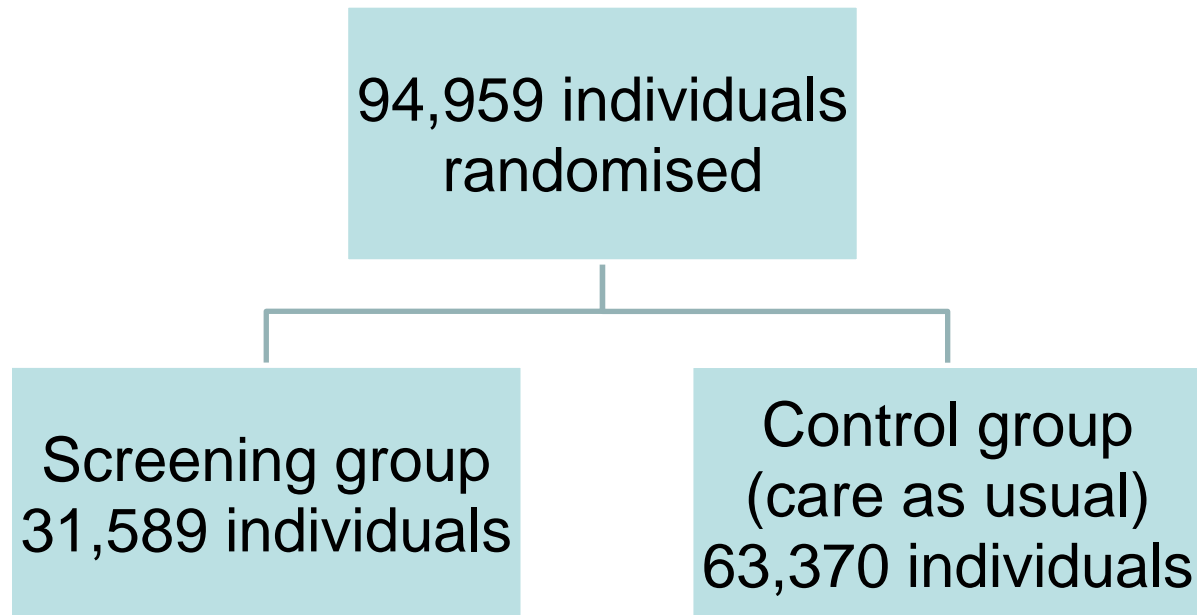
Netherlands



Norway



Sweden



Results

- Included 2009 to 2014
 - Poland 54,927
 - Norway 26,588
 - Netherlands 9,780
 - Sweden 3,664
- Participation rate 40% (12,574 c'scopies)
 - Poland 33.9%
 - Norway 60.7%
 - Netherlands 22.9%
 - Sweden 39.8%

Results

- Coecum intubation rate 97.2%
- CRC 0.5%
- Adenomas: 30.7%
- Complications
 - 1 perforation (0.01%)
 - 18 bleedings (0.15%)
 - 51 vasovagal reactions (0.41%)

So far

- Participation satisfactory, but varying
- High yield
- Variation in performance
- Carbon dioxide reduces pain after procedure
- Will it work? We'll know in 10 years
- **In the meanwhile:**
 - Biomarkers, pathology, subgroups (precision)...

Bretthauer M, et al. JAMA Int Med 2016

Publications

- Kaminski MF, Bretthauer M, Zauber AG, Kuipers EJ, Adami HO, van Ballegooijen M, et al. The NordICC Study: rationale and design of a randomized trial on colonoscopy screening for colorectal cancer. *Endoscopy*. 2012.
- Bretthauer M, Kaminski MF, Loberg M, Zauber AG, Regula J, Kuipers EJ, et al. Population-Based Colonoscopy Screening for Colorectal Cancer: A Randomized Clinical Trial. *JAMA internal medicine*. 2016.