Socioeconomic and ethnic inequalities in organized colorectal cancer screening participation

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Outline

• Presentation review (20 min)
  – Colorectal cancer (CRC) screening and equal access
  – Overview of organized CRC screening programs
  – Participation by socioeconomic status (SES)
  – Participation by ethnicity
  – Conclusion
  – Discussion
  – Recommendations
  – Proposed next steps for EWP

• Expert discussion (20 min)
Keys of colorectal cancer screening

• Colorectal cancer has a high disease burden (~700,000†/year)

• Screening is effective in reducing CRC morbidity and mortality (14-28%)

• Population health benefit depends on participation

• Health benefit must be equal for all population subgroups

• Access, participation and benefit are not equal for all population subgroups
Ideal: Equal start

Practice: ↑CRC ↓ SES

Unequal participation

Health ↑

→ SES
Aim

Create an overview of the existing evidence on participation by socioeconomic status and ethnicity in organized colorectal cancer screening programs
International guidelines

• ‘To maximize the impact and ensure high coverage and equity of access’:

• ‘Organized’
  – Specific population
  – Actively invited
  – Following an explicit and pre-defined protocol

• Test
  – EU: FIT and secondary colonoscopy [1]
  – Canada: FIT or flexible sigmoidoscopy [2]
  – US: FIT or sigmoidoscopy or colonoscopy [3]

(2) Recommendation statement from the Canadian Task Force on Preventive Health Care. CMAJ. 2001
Organized screening programs

• Program inclusion:
  – Organized
  – Implemented or rolling out
  – FIT or gFOBT

• Questionnaire survey (76% response)

• Characteristics
  – Contact strategy
  – Test
  – Age
  – Interval
  – Start
  – Implementation status
  – Overall participation rate
Organized screening programs

Australia
Belgium- Flanders
Belgium- Wallonia/Brussels
Canada-Manitoba
Canada- Nova Scotia
Canada- Ontario
Canada- Saskatchewan
Croatia
Denmark
Finland
France
Ireland
Italy (>100 regions)
Japan
Korea South
Malta
Martinique
Netherlands
Slovenia
Spain- Basque
Spain- Barcelona
Sweden- Stockholm/Gotland
UK (England and Scotland)
USA- Kaiser Permanente
Organized screening programs: characteristics

Ranging general participation:
21% in Croatia, 25.6% in South Korea, (..) to 68.8% in Finland, 69% US-KP and 71.3% in the Netherlands
Method

• Literature inclusion:
  – Organized programs
  – Participation by socioeconomic status (not: gender and age) or ethnicity
  – Screening with FIT or gFOBT
  – Implementation completed, roll out ongoing, added: pilot phase
  – 1995-2016, English full text

• Questionnaire
  – (Unpublished) data on participation by socioeconomic status or ethnicity
Results socioeconomic inequalities

- Literature: 892 papers
- Excluded: 876 papers
- 24 Papers
- 28 Results
- > 1 SES indicator per paper: 4
- 4 Additional results
- 32 Total results SES

‘Result’: Conclusion per SES indicator from published papers and (unpublished) information from contact persons
90% of the evidence: Lower participation among lower socioeconomic groups
Participation by socioeconomic status (Europe)

United Kingdom (UK)
14 results

1. Index of Multiple Deprivation
n= 1.500.000
Most deprived: 35%
Least deprived: 61%

2. Index of Multiple Deprivation
n=1.080.000
Most deprived: 42%
Least deprived: 62%

Variation between regions
Most deprived: 33-48%
Least deprived: 52-67%

Von Wagner et al. Int J Epidemiol 2011
Logan et al. Gut 2012
Participation by socioeconomic status (North America)

Manitoba: Income
Least (Q1): 45.4%
Most (Q5): 61.9%

Ontario: Income
Least (Q1): 50%
Most (Q5): 60%

All four regions: Income
OR 1.00 (Lowest)
OR 1.97 (Highest)

Decker et al. Am J Gastroenterol 2015 (Manitoba)
Honein et al. Cancer Epidemiol 2013 and contact information (Ontario)
Singh et al. CMAJ Open 2015 (Four organized programs combined)
Participation by socioeconomic status (Asia, Australia)

South Korea:
- Insurance: 12.6%
- Medical Aid: 23%

Australia:
- Index of Relative Socio-economic Disadvantage:
  - Most disadvantaged: 35.3%
  - Least disadvantaged: 31.3%
Opposite results

Spain: Basque and Barcelona
Socioeconomic deprivation index

Uptake in %

Q1: Least deprived  Q2  Q3  Q4  Q5: Most deprived
Opposite results

Italy
Education
Non- or elementary school: 32%
Academic degree: 28%

Economic difficulties
Major difficulties: 29%
No difficulties: 41%
Conclusion: Participation by socioeconomic status

1. The majority of organized screening programs do not have data on participation by SES

2. 90% of available data: Lower participation by lower SES

3. Overall difference: average of 150% (up to 200%) higher participation rate for high, compared to low SES
Participation by ethnicity

- Data available: 6/24 organized screening programs
  - UK, Kaiser Permanente, Slovenia, Denmark and The Netherlands
- Data in progress: 3 programs
  - Belgium-Flanders, Finland, Sweden

Limitations:
- Categorization
- Inequalities not always statistically significant
- Confounding present or correction not reported

Conclusion:
- Inequalities suspected
- Inequalities not proven in this review
Conclusion

- Risk: Unequal CRC screening participation may create or exacerbate health inequalities

- Only few programs have structural data on participation by SES and ethnicity available

- The majority of programs do not know whether participation differences exist

- Available evidence shows:
  - Lower socioeconomic groups are less likely to participate in organized CRC screening
  - Overall participation difference of 150% (up to 200%)
  - Inequalities by ethnicity may be suspected but not supported by this study
Discussion

- Lack of data gathering and monitoring: why?
Recommendations

1. Address awareness

2. Structural data gathering and monitoring

3. Identify barriers with high quality research

4. Target identified barriers were possible
Proposed next steps for EWP

1. Consensus EWP:
   - Most clear and easy to use indicators for socioeconomic status (and ethnicity)

2. Proposed research:
   - Review on determinants of SES and ethnic inequalities in participation
   - Review on strategies to enhance access for low SES and ethnic minorities

3. Consensus meeting to compose a WEO recommendations guideline including:
   - Criteria on data gathering and monitoring of socioeconomic (and ethnic) indicators and participation in CRC screening
   - Organizational characteristics of CRC screening programs to enhance equal access and equal participation
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