The future of personalised (risk-stratified) screening

Paolo GIORGI ROSSI, PhD
Director of the Epidemiology Unit,
AUSL-IRCCS di Reggio Emilia

Co-funded by
the Health Programme
of the European Union

EU CanScreen
European Joint Action on Cancer Screening

Do we need a risk-stratified screening?

Mentimeter

Instructions

Go to

www.menti.com

Enter the code

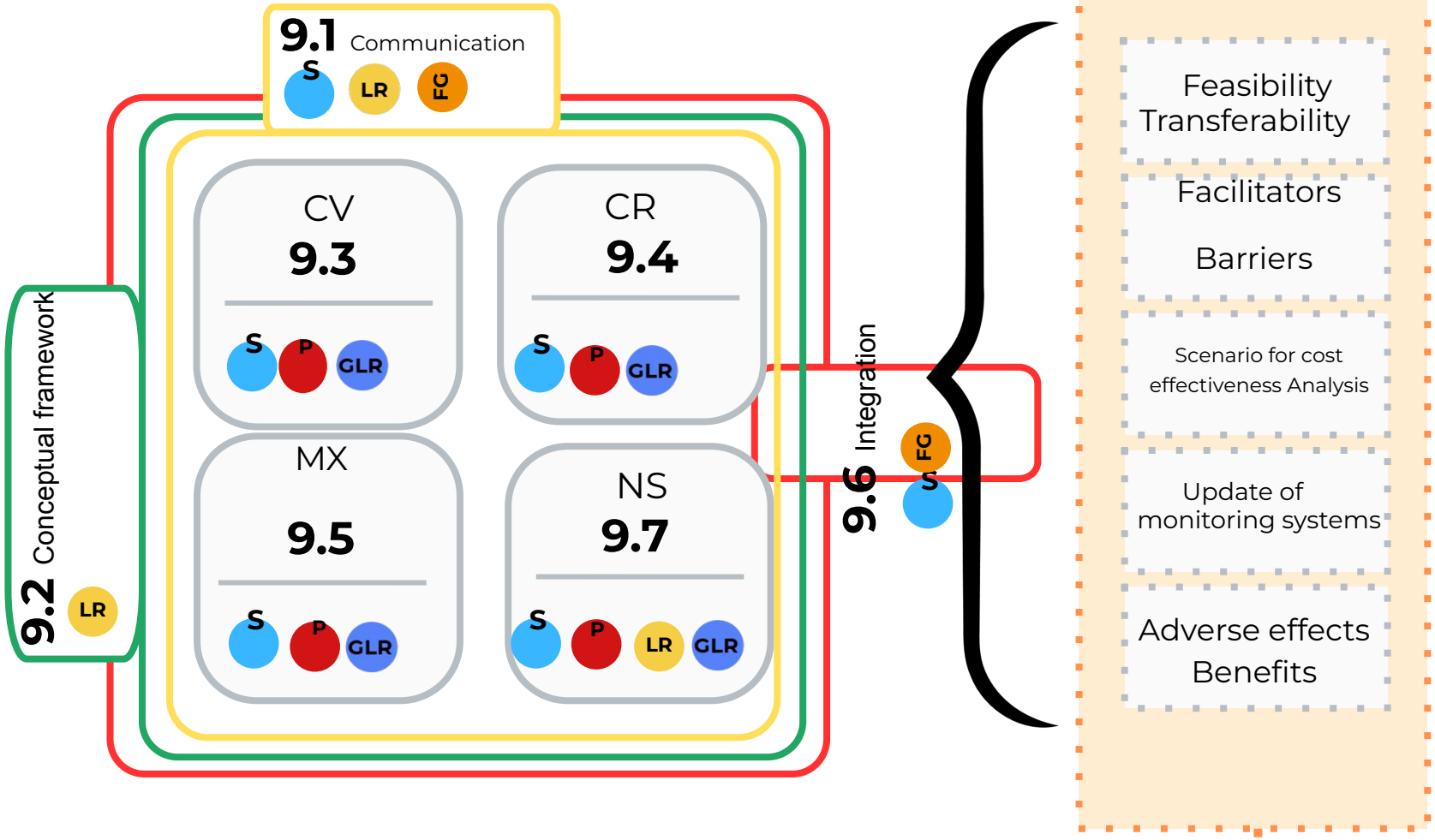
1458 1107

Or use QR code

Co-funded by
the Health Programme
of the European Union

WP9 overview

- S — Survey
- P — Pilot
- LR — Literature Review
- FG — Focus Group
- GLR — Guidelines Revision



The instruments

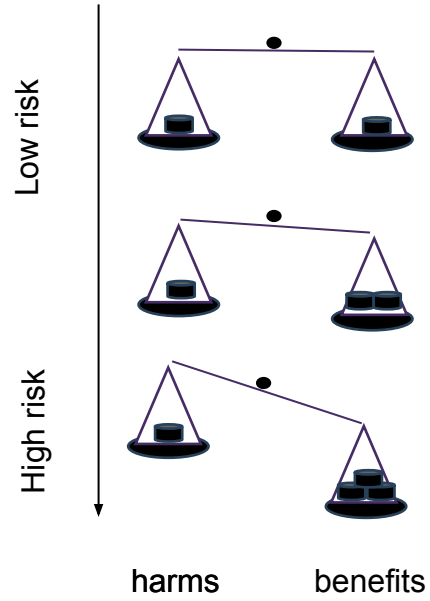
Toolbox

WP10 – WP8- WP6 - WP4 - WP5

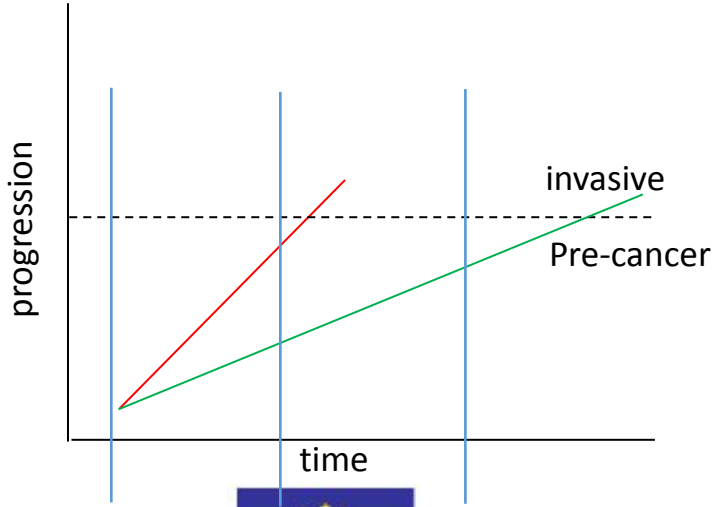
Co-funded by the Health Programme of the European Union

The rationale

- Benefits are for those who develope the disease, thus proportional to the proportional risk
- Harms affect all the screenees, thus harms/benefits ratio depends on risk
  - **Risk stratification can optimize the balance**



- A different risk may also imply a different natural history of the disease
  - **In this case, a different screening (interval, age to start or test) may increase the screening efficacy**



EU CanScreen
European Joint Action on Cancer Screening

Co-funded by
the Health Programme
of the European Union

iPAAC
INNOVATIVE PARTNERSHIP
FOR ACTION AGAINST CANCER

Possible strategies to stratify screening

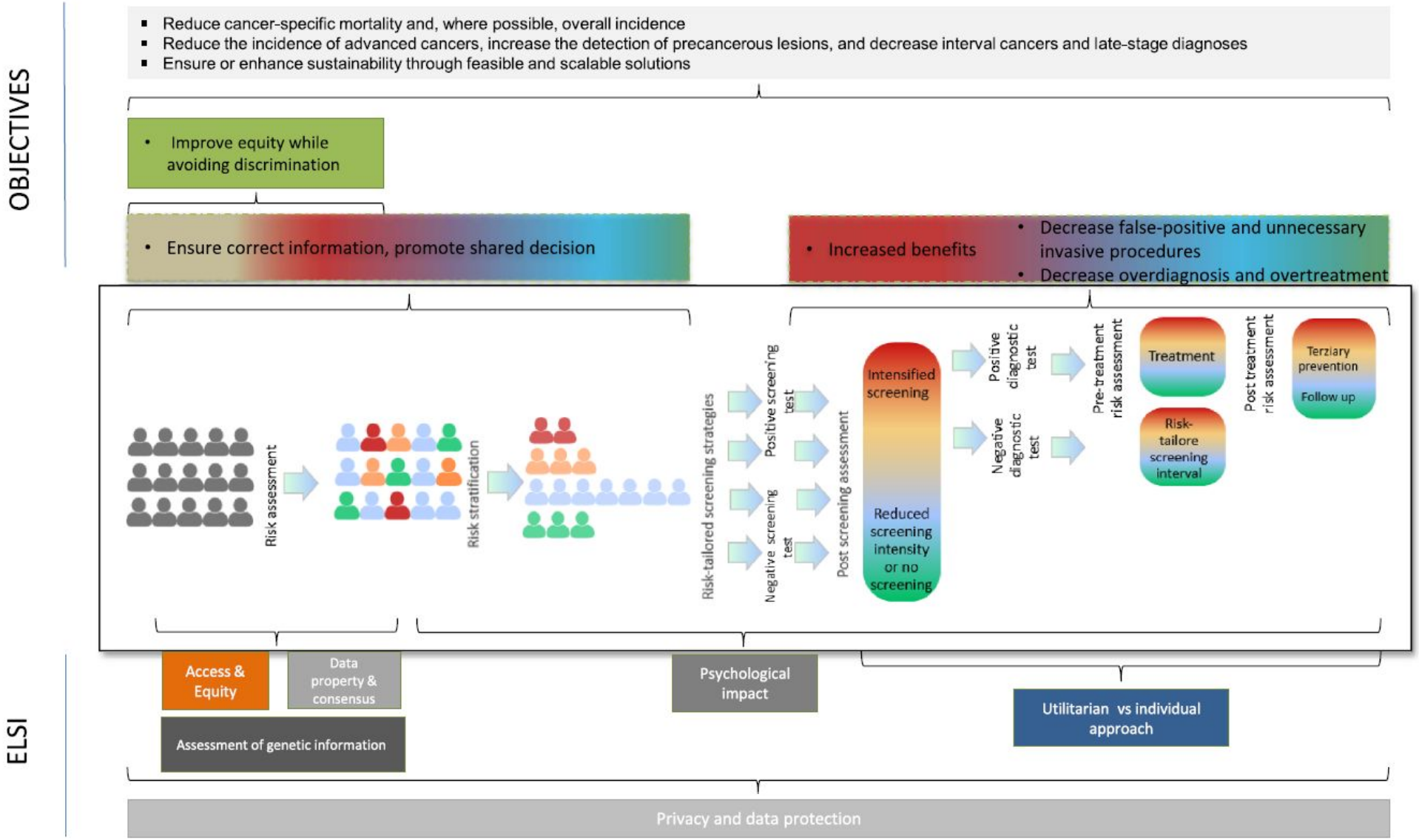
1. The age at which we start or stop screening could be different (i.e. starting later in people with lower risk, since most epithelial cancers have an increasing incidence with age);
2. The screening interval can be different (i.e. more frequent screening in people at higher risk);
3. Identify a group at so low risk that screening is not beneficial at any age;
4. The test or test combination can be different based on the risk level;
5. Thresholds for test positivity might be different.

Co-funded by
the Health Programme
of the European Union

Screening is a pathway

P. Giorgi Rossi et al.

European Journal of Cancer 240 (2026) 116746



Ethical issues

- Optimization within groups or at the population level?

	Standard screening	Risk-based screening	Death prevented
High risk	30 treatments to prevent 10 deaths (NNT 3)	60 treatments to prevent 15 deaths (NNT 4)	+5
Average risk	24 treatments to prevent 6 deaths (NNT 4)	24 treatments to prevent 6 deaths (NNT 4)	0
Low risk	20 treatments to prevent 4 deaths (NNT 5)	12 treatments to prevent 3 deaths (NNT 4)	-1



Co-funded by
the Health Programme
of the European Union

Which are the main barriers to risk-stratified screening implementation?

- Lack of evidence
- Lack of guidelines
- Lack of IT infrastructure
- Low acceptability by professionals
- Low acceptability by the users
- Low acceptability of deintensified screening
- Weakness of the existing screening

Instructions

Go to

www.menti.com

Enter the code

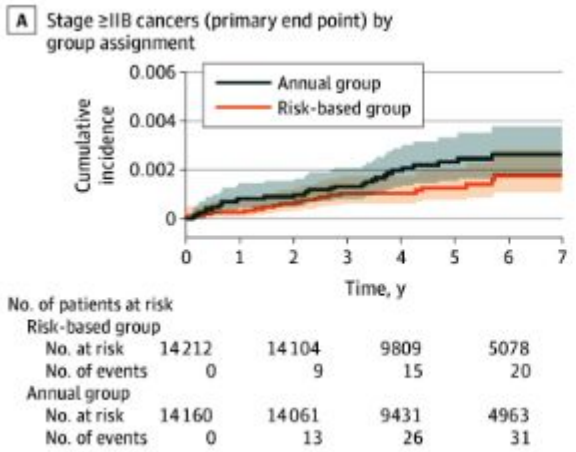
1458 1107

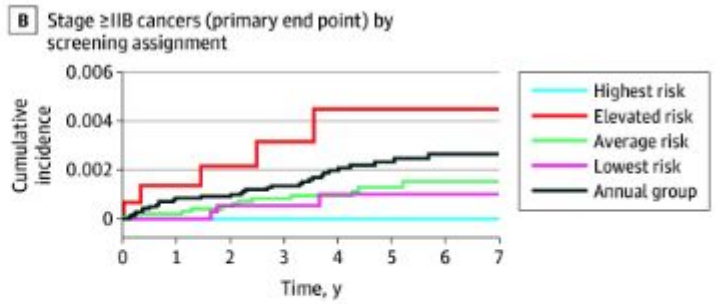


Or use QR code

A few examples of risk stratified screening

- Cervical cancer:
  - Screening in vaccinated populations,
  - Equal risk, equal management in US
- Colorectal cancer:
  - Haemoglobin levels below positivity
- Breast cancer:
  - MyPeBS and Wisdom trials, use of genomics to define screening





Esserman et al. JAMA 2025

A few examples of risk stratified screening

- Lung cancer:
  - The smoking history to identify screening population and interval
  - Biomarkers and radiomics to manage indeterminate nodules
- Prostate cancer:
  - PSA level to define interval and stopping age
  - Biomarkers to identify who should receive MRI
  - Biomarkers after MRI to identify who should be biopsied.
- Gastric cancer:
  - Population and cohort-level risk to identify who and should be screened

Thank you for your attention

paolo.giorgirossi@ausl.re.it

EU CanScreen
European Joint Action on Cancer Screening

Co-funded by
the Health Programme
of the European Union