Risk-stratification within population-based screening programme

iPAAC INNOVATIVE PARTNERSHIP FOR ACTION AGAINST CANCER

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Cancer screening

PROBLEM & OBJECTIVE

PROBLEM In risk-stratified screening programme different protocols are scheduled for different groups of individuals of the same target population according to characteristics conditioning the specific risk. A specific condition can be family history, a genetic predisposition, a specific biomarker, i.e. density of the breast, vaccination against HPV or smoking habits for example.

OBJECTIVE Age and gender are main determinants identifying the target population for the population-based screening approach. What can be conditions for possible modification of the programme according to risk?

KEY COMPONENTS / STEPS

- Key to a successful modification of a population-based cancer screening programme is to do any modifications in a controlled manner, with monitoring and follow-up evaluation. To launch a screening programme, evidence for the effectiveness, benefits and harms are required. Then the key steps are the same as in planning the programme:
  - pre-planning;
  - planning;
  - piloting;
  - rollout;
  - sustainability, including the decision to continue or not to continue.

KEY CONTEXTUAL FACTORS

- In this short summary the EU Council recommended cancers (2003) for screening (cervical, colorectal and breast cancers) are described. For a more detailed chapter and with other cancer types, can be found in two dedicated chapters from iPAAC screening report (links below).
- Risk-stratification within the population-based screening programmes has apparently started already. This is the case especially in cervical cancer screening where HPV vaccination status changes the screening needs and algorithms in female populations remarkably.

MAIN IMPACTS / ADDED VALUE

- Cervical cancer: Human papilloma virus (HPV) testing makes cervical cancer screening actually a risk-stratified protocol, even if HPV test is still considered to be standard first level test. The risk of having a CIN3 or immediately or in the next future may be risk-stratification if the screening protocol would vary individually based e.g. on risk scores.
- With HPV vaccination programmes the risk-stratification has already started.
- In colorectal cancer programmes defining different screening intervals according to the previous level of fecal Hb could be considered an element of risk-stratification. The risk stratification based on multiple parameters is also an example of potential risk-stratified screening strategies for colorectal cancer
- For breast cancer in Europe, age is the sole criterion for screening, except for very high risk conditions. Research on optimal strategies e.g. on women with dense breasts is a key area for improving the programme.

LESSONS LEARNED

- Cervical cancer screening programmes are already changing towards risk-stratification because of HPV vaccinations.
- Risk-stratified approaches are under development also in breast and colorectal cancer screening programmes. Breast cancer as an example, to adopt validated surrogate/early indicators of effectiveness, as rate of advanced cancers, survival and quality of life after treatment should be considered. This can enable gradual, well-controlled modifications to the screening policy with profound evaluation of effectiveness of the programme in long term.
- Improving already existing screening programmes in the EU level through good evidence criteria and governance. Quality improvement is crucial for successful risk-stratification modifications.
- Expert networks are important, when advancing population-based cancer screening programmes on EU-level.

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