Improving Cancer Care Coordination and Screening in Slovakia (ICCCS) project

International Agency for Research on Cancer
World Health Organization

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Executive summary

Cancer remains a major concern in Slovakia, where each year more than 23 000 new cancer cases are diagnosed and about 13 000 cancer-related deaths occur. Although there is a national cancer control plan with implemented prevention measures, as well as a population-based screening programme for breast, cervical, and colorectal cancers, Slovakia's cancer incidence and mortality rates are still higher than the averages for the European Union (EU). In response, the Improving Cancer Care Coordination and Screening in Slovakia (ICCCS) project was conducted between 2022 and 2024, funded by the EU via the Technical Support Instrument, led by the International Agency for Research on Cancer (IARC/WHO) in partnership with Erasmus University Medical Center (Erasmus MC, the Netherlands). ICCCS has established a strong foundation for enhancing cancer screening and surveillance systems in Slovakia. The project's primary goal was to develop a strategic plan and actionable roadmap that address the unique challenges faced by the health-care system in Slovakia, particularly in relation to the operations of the National Cancer Registry, the effectiveness of cancer screening programmes, and the communication of the importance of screening to the public.

In pursuit of this goal, local experts, government representatives, health-care providers, patient and citizen representatives, and international specialists collaborated closely through Operational Working Groups and a dedicated Steering Committee. These groups conducted comprehensive situational analyses, including SWOT (strengths, weaknesses, opportunities, and threats) evaluations, based on standardized surveys, focus groups, and expert site visits, ensuring that the strategic plan was well informed by both the local context and international best practices. The project's outputs are designed to support data-driven policy decisions and are aligned with the broader objectives of Europe's Beating Cancer Plan, with a focus on improving early detection, treatment, and overall cancer control.

One of the project's major findings was that although the **National Cancer Registry**, which is one of the region's oldest resources, continues to provide high-quality data, delays in reporting are significantly hindering timely quality assurance and policy-making. To address this, recommendations were made to establish an advisory board, fully operationalize a new electronic information system, update standard operating procedures, and address staffing challenges.

In parallel, the evolution of **cancer screening** in Slovakia has seen a shift towards population-based screening programmes, with breast cancer screening introduced in 2019 and cervical and colorectal screening introduced in 2021. However, an expert assessment based on international consensus criteria revealed gaps in governance, data exchange, training, and quality assurance. The proposed improvements include updating screening protocols and guidelines, establishing a formal referral pathway and a screening registry, strengthening the invitation system with call–recall mechanisms, and implementing a legal framework to ensure that only compliant and quality-assured providers deliver screening services.

The project also developed a comprehensive **communication strategy** aimed at boosting participation in cancer screening. This strategy was informed by targeted stakeholder surveys, focus groups, and benchmarking against best practices in other European countries. It emphasizes tailored messages and a diverse mix of communication channels to increase public awareness, clarify the benefits of screening, and overcome barriers such as misconceptions about health and distrust in the health-care system.

A clear implementation roadmap has been established, outlining specific tasks, responsible parties, timelines, and required resources across the domains of the cancer registry, screening programmes, and communication strategies. The next phase is for policy-makers and implementers in Slovakia to carry out these recommendations, to achieve better coordination, timely data reporting, and increased screening participation. Ultimately, the ICCCS project aims to enhance cancer care coordination throughout Slovakia, leading to improved prevention, early detection, and treatment outcomes that will benefit public health across the country.

The ICCCS project

The Improving Cancer Care Coordination and Screening in Slovakia (ICCCS) project, funded by the European Union (EU) via the Technical Support Instrument, was implemented between 2022 and 2024 by the International Agency for Research on Cancer (IARC/WHO), in collaboration with Erasmus University Medical Center (Rotterdam, the Netherlands). The project aimed to strengthen cancer care coordination in Slovakia by enhancing the effectiveness of cancer prevention, screening, and surveillance. As part of ICCCS, a similar project was carried out in Latvia.

The primary objective was to develop a strategic plan and roadmap tailored to Slovakia's specific needs, focusing on improvements in the cancer registry and cancer screening programmes and developing a communication strategy to increase public awareness and engagement in cancer screening programmes. These outputs were co-designed with key local stakeholders to support health authorities in data-driven policy decisions through an integrated and well-functioning cancer registry and cancer screening programmes, ultimately achieving sustainable improvements in cancer control.

The project was structured around the Logical Framework Approach, to ensure that while ICCCS provided the necessary outputs, Slovakia would drive the implementation to achieve the desired outcomes. Ultimately, these improvements are expected to have a lasting impact on public health, leading to better cancer control nationwide. The project's aims, outputs, outcomes, and impact are also aligned with the aims of Europe's Beating Cancer Plan to improve the prevention, detection, treatment, and management of cancer in the EU while reducing health inequalities.

Outputs of the ICCCS project

Cancer Registry

- **Adopt** a standard operating procedure with specific quality control procedures.
- **Ensure** interoperability between screening and registry databases, for better linkage and reporting.
- **Enhance** reporting mechanisms to improve data completeness and accessibility.

Cancer Screening

- **Strengthen** governance of national screening programmes with a structured approach.
- **Implement** national guidelines ensuring quality assurance mechanisms.
- **Introduce** a tailored information system to monitor and evaluate cancer screening performance.

Communication Strategy

- **Develop** a structured communication strategy to increase public awareness of benefits of cancer screening.
- **Improve** the invitation system and follow-up mechanisms for non-compliant individuals.
- **Expand** engagement efforts with health-care providers to facilitate patient navigation and education.

The cancer burden in Slovakia

Slovakia has a population of about 5.5 million. Each year, more than 23 000 people are diagnosed with cancer and about 13 000 people die from cancer, which accounts for a significant proportion of overall mortality. The most frequently diagnosed cancer types among men are colorectal, lung, and prostate cancers, and among women are breast, colorectal, and uterine cancers.

Despite efforts to establish structured cancer screening programmes, cancer incidence and mortality rates in Slovakia are higher than the EU averages. This underscores the urgent need for improvements in cancer registration, screening programme effectiveness, and communication strategies to increase public awareness and participation in cancer prevention and early detection initiatives.

ICCCS methodology in Slovakia

As part of the project, Operational Working Groups (OWGs), composed of local experts in the field, were established to collaborate closely with international specialists. Their primary role was to assess the current landscape and provide context-specific recommendations for Slovakia's cancer registry, cancer screening programmes, and communication strategy. To ensure effective oversight, a Steering Committee, comprising key Slovak authorities, was formed to validate, guide, and monitor the project's progress.

The assessment of Slovakia's cancer care landscape followed a systematic, stepwise approach, actively engaging stakeholders across the domains (Fig. 1). A situational analysis was conducted using standardized, tailor-made, and validated questionnaires. In addition, comprehensive desk reviews were undertaken to gain deeper insights into the existing challenges and opportunities in each domain of cancer care. To further validate the findings, expert-led site visits were conducted, facilitating direct engagement with local stakeholders. Each domain underwent an independent SWOT analysis, ensuring a thorough evaluation of strengths, weaknesses, opportunities, and threats.

After these assessments, each OWG synthesized and refined its findings through extensive deliberations. Strategic plans and roadmaps were then co-developed with the OWGs, incorporating insights from the comprehensive analysis.

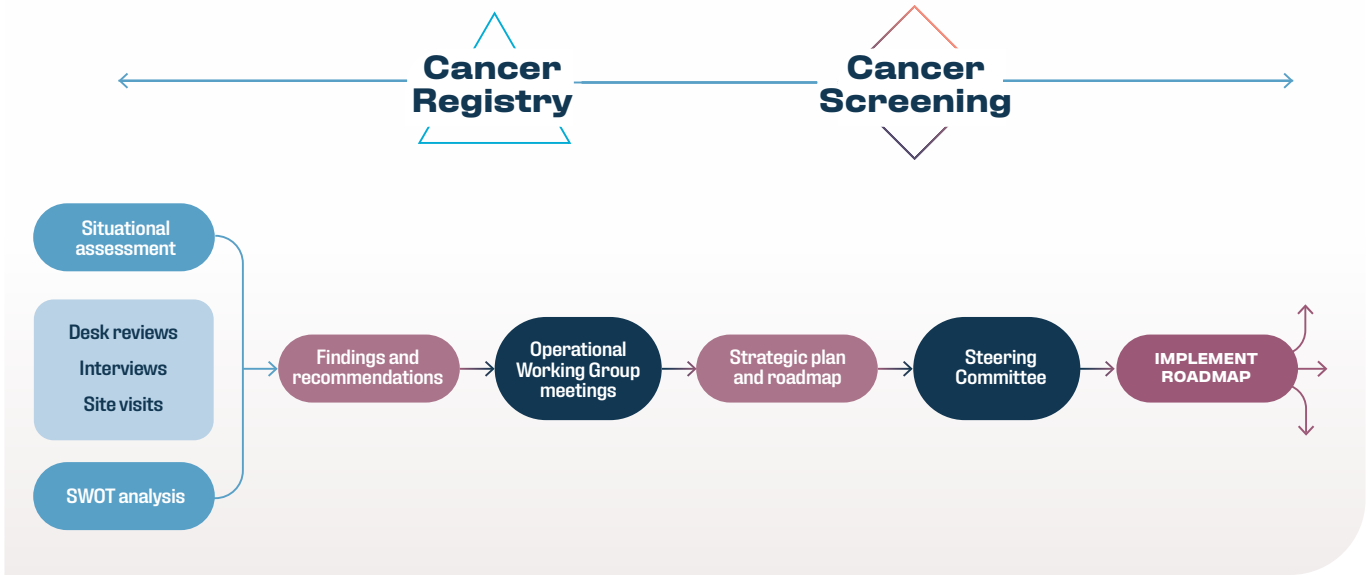

Fig. 1. Methodology adopted to implement the ICCCS project in Slovakia. SWOT, strengths, weaknesses, opportunities, and threats.

For the communication strategy, the project partnered with a local communication agency with experience in the health sector to carry out a detailed assessment of colorectal, breast, and cervical cancer screening. The project began by identifying key stakeholders, which included health professionals and members of the general population. Their views and experiences were collected using target group surveys, key informant interviews, and focus group discussions, providing valuable insights into current practices, challenges, and areas for improvement (Fig. 2).

Fig. 2. Methodology adopted for the communication strategy by the ICCCS project in Slovakia.

In addition to gathering stakeholder feedback, the project also examined the effectiveness of various media channels to better reach the general population. This involved evaluating different types of media to determine which platforms could most effectively communicate important screening messages and encourage participation. The initiative was further strengthened by a benchmarking analysis conducted across several European countries. This analysis reviewed screening practices and communication strategies in other regions, helping to identify best practices that could be adapted for Slovakia.

The combination of local stakeholder input, media analysis, and international benchmarking provided a comprehensive understanding of the current situation and potential improvements. All the gathered data were then organized and analysed to develop a tailored communication strategy. This strategy is designed to address the identified gaps, improve public awareness, and increase participation in cancer screening programmes throughout Slovakia.

These finalized recommendations were presented to the Steering Committee for approval and integration into Slovakia's implementation plans, ensuring alignment with national healthcare priorities.

What was found, and what could be done?

Cancer Registry

The Slovakia **Population-Based Cancer Registry (PBCR)** was established in 1976 at the Oncology Centre in Bratislava. The Slovakia National Cancer Registry is one of the region's oldest and most important resources. Its main role is to collect, process, validate, and analyse data on patients with cancer, a task that is essential for monitoring the quality of population-based screening programmes and overall cancer care in the country. In 2006, when the National Health Information Centre (NHIC) was established, the registry's responsibilities were transitioned to this new institution.

Currently, the registry faces challenges that affect the timeliness of its reports. For example, there is a delay of about 10 years in publishing cancer incidence reports (last publication from 2014), which is longer than the generally accepted 2-year time frame. This delay can affect quality control efforts for cancer services and the reporting to the European Cancer Information System (ECIS), among other international organizations. Factors contributing to this situation include the following:

- Notifications and reports are not available.
- Personnel working in the registry change frequently.
- The number of registrars is inadequate.
- There is suboptimal collaboration with clinicians.
- The creation of a new information system while continuing activities in the existing information system leads to an increased workload.

On a positive note, the introduction of new software for cancer registration at the NHIC has enabled a shift from a single-user, simple database model to a fully electronic system. Since December 2022, the Information System of Health Indicators (ISHI) has been integrated with the NHIC's systems as well as those of other stakeholders.

In addition, since 2020 the Health Data Value Project has been working to optimize health-care data flows and reduce administrative burdens by incorporating new data sources; the new National Cancer Registry stream serves as a pilot initiative. However, for the years that are still waiting to be completed (2015–2022), there is still a large quantity of paper forms that were received, and it is not reasonable to expect that these notifications will be sent again electronically.

Furthermore, the information collected in the national health registries complies with strict Slovak and European personal data protection regulations. Based on these observations, the OWG developed recommendations to further address and improve the processes within the Slovakia National Cancer Registry.

The OWG also proposed an operational structure for the cancer registry in Slovakia, integrating the data flow process (Fig. 3).

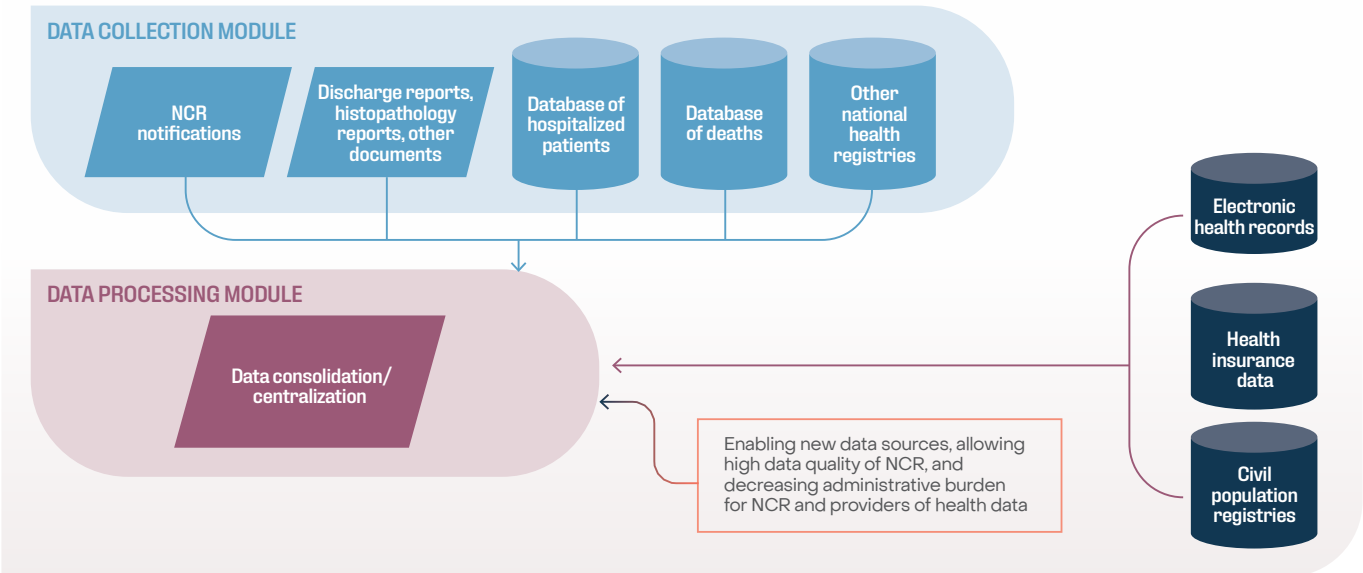

Fig. 3. Proposed cancer registry model. NCR, National Cancer Registry.

Cancer Registry RECOMMENDATIONS

1. **Establish** a screening registry at the NHIC with options for linkages with the PBCR and clinical (hospital-based) registries.
2. **Create** an advisory body for the National Cancer Registry under the Ministry of Health, with relevant stakeholders included.
3. **Develop** a legal framework that allows data linkage and sharing while ensuring data protection standards.
4. **Ensure** that the new information system for cancer registration is fully operational. The Standard Operating Manual should be updated. The move towards electronic data collection should be further optimized to enable high-quality data to be received.
5. **Catch up** with delayed registrations by addressing issues related to personnel in the registry.
6. **Develop** and roll out a training plan for cancer registry personnel.
7. **Ensure** alignment with international standards, and participate in global studies on cancer incidence and survival.
8. **Keep track** of developments in the field of artificial intelligence to ensure better outcomes for cancer registration in Slovakia.

Cancer Screening

Screening programmes for colorectal, breast, and cervical cancers were operating as opportunistic programmes since 2004. Over the past decade, these programmes have evolved into population-based screening programmes: for breast cancer screening since 2019, and for cervical and colorectal cancer screening since 2021. The Ministry of Health, supported by the National Oncology Institute, is responsible for managing, coordinating, and evaluating these screening programmes. Health insurance companies also play a key role by sending invitations to the target populations, while the NHIC maintains the health information system and collects data.

An OWG assessed the current status of the cancer screening programmes in Slovakia using international consensus criteria for organized cancer screening programmes[1]. This method objectively evaluates the level of organization and maturity of a screening programme, providing guidance for improvement (Fig. 4).

The assessment revealed that 6 of the 16 essential criteria for an organized cancer screening programme have not yet been implemented in Slovakia.

The key observations included the following:

- A system to send a recall notice to non-compliant individuals is lacking.
- Audit for the programme is absent.
- Activities along the screening pathway are not planned and coordinated through a quality improvement framework – for cervical cancer screening.
- An evidence-based protocol or guideline developed in consensus with the majority of stakeholders is not available for cervical cancer screening.
- The information system lacks appropriate linkages.
- The performance of the screening programme is not evaluated against all standard reference indicators.

These findings highlight critical areas that need to be addressed to strengthen Slovakia's cancer screening programmes and ensure their effectiveness in cancer early cancer and prevention.

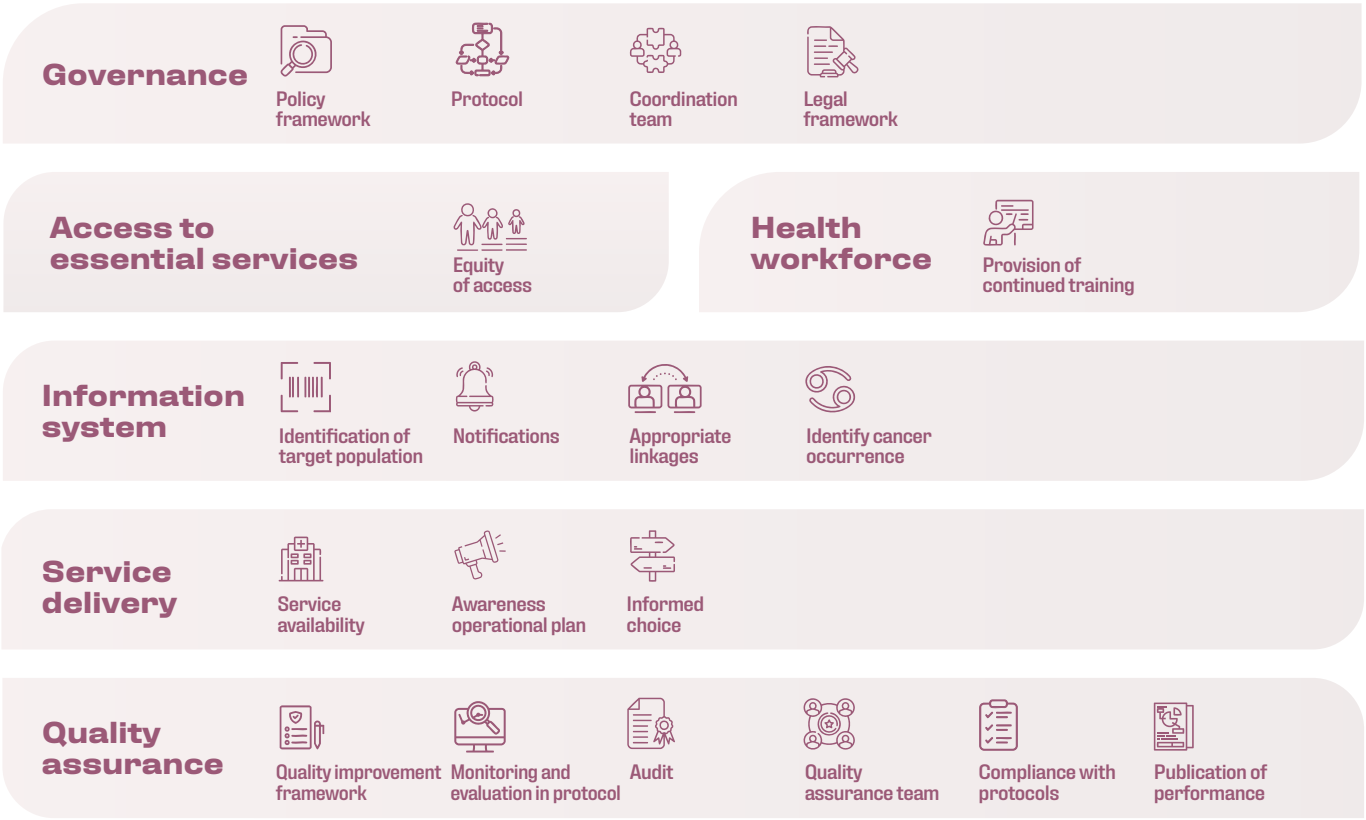

Fig. 4. Elements of an organized screening programme, with components across the building blocks of health systems.[2]

[1] Zhang L, Carvalho AL, Mosquera I, Wen T, Lucas E, Sauvaget C, et al. (2022). An international consensus on the essential and desirable criteria for an "organized" cancer screening programme. BMC Med. 20(1):101. https://doi.org/10.1186/s12916-022-02291-7 PMID:35317783

[2] Adapted from Zhang L, Carvalho AL, Mosquera I, Wen T, Lucas E, Sauvaget C, et al. (2022). An international consensus on the essential and desirable criteria for an "organized" cancer screening programme. BMC Med. 20(1):101. https://doi.org/10.1186/s12916-022-02291-7 PMID:35317783 Published under https://creativecommons.org/licenses/by/4.0/

In addition, the findings for each of the subdomains of cancer screening are as follows.

Governance and legislation

- Breast, colorectal, and cervical cancer screening is offered through both opportunistic and organized programmes.
- The Ministry of Health, with support from the National Oncology Institute, oversees screening, although the specific roles of experts in governance are not clearly defined.
- The national cancer control plan includes screening, but further development is needed in areas such as budget allocation, data exchange, training, and quality assurance.

Screening tests and diagnosis – guidelines and protocols

- Target populations, screening tests, and screening intervals are defined in line with international standards.
- Although guidelines exist for breast cancer and colorectal cancer, there are no specific guidelines for cervical cancer.
- Compliance with these guidelines is monitored only in certified centres.

Organization, funding, and staffing

- Costs of screening, diagnosis, and treatment are covered by health insurance.
- There is no dedicated budget for training and quality assurance, except for mammography centres.
- A clear referral pathway between screening services is not established, and a structured training programme for screening providers is lacking.

Invitations and communication

- Health insurance companies send invitations only to individuals who have not participated in opportunistic screening.
- A tracking system for non-responders is absent.
- The overlap between opportunistic and organized screening complicates adherence to recommended screening intervals.
- There is a possibility that health insurance companies may act independently to provide incentives for their insured individuals, and these incentives may interfere with the recommendations of standard screening programmes (e.g. outside target age groups or timing of the screening procedures).
- Specialists directly communicate screening test results and next steps to participants.

Data and IT systems

- A comprehensive system to track screening participants from invitation to treatment is not in place.
- The roles and responsibilities for data collection among stakeholders need clearer definition.

Quality assurance

- A comprehensive quality assurance system is lacking.
- Some criteria exist for breast cancer and colorectal cancer screening; the quality of cervical cancer screening is monitored only in certified centres.

Raising awareness

- A dedicated team from the Ministry of Health, with the expert support of the National Oncology Institute, manages public awareness campaigns through mass media, social media, and group education initiatives.
- An informational website is available, featuring brochures, videos, and relevant links.

Research

- Cancer screening data are actively used for reports and publications.
- The Scientific Council of the National Oncology Institute sets research priorities and collaborates with academic and health institutions to advance research in cancer screening.

Based on these findings, the OWG developed a set of recommendations aimed at strengthening cancer screening in Slovakia. The goal was to transition towards a more organized and effective screening programme, ensuring that it is people-centred, accessible, and aligned with international best practices.

Cancer Screening RECOMMENDATIONS

1. **Establish** a clear governance structure for the screening programme based on ICCCS guidelines (Fig. 5). Expand the section on cancer screening in the national cancer control plan, outlining the governance, budget, and legislative framework.
2. **Update** the cancer screening programme with recent evidence-based guidelines, and develop one for cervical cancer.
3. **Establish** a formal referral pathway across different levels of care within the cancer screening continuum, and formulate a dedicated training programme for screening service providers, with specific budget provisions.
4. **Strengthen** the invitation system by implementing a call–recall system and a fail-safe mechanism. Draft a clear written procedure for communicating with screening participants, to ensure consistent and reliable messaging.
5. **Establish** a screening registry at the NHIC with options for linkages with the PBCR and clinical (hospital-based) registries. Also, implement a legal framework that allows data linkage and sharing while ensuring data protection standards.
6. **Establish** and implement a quality assurance scheme for the screening programme, based on the existing EU quality assurance schemes. Allocate a specific budget for this, to maintain the quality and ensure sustainability.
7. **Prepare** a cancer screening-specific communication strategy and implementation plan, with a monitoring framework. A dedicated budget should be allocated for this purpose.
8. **Prepare** a strategy to integrate research into the screening programme. Use implementation science methods to facilitate decision-making on improving the effectiveness of the cancer screening programme.

The OWG recommended a cancer screening governance model for better coordination and improved efficiency in cancer screening (Fig. 5).

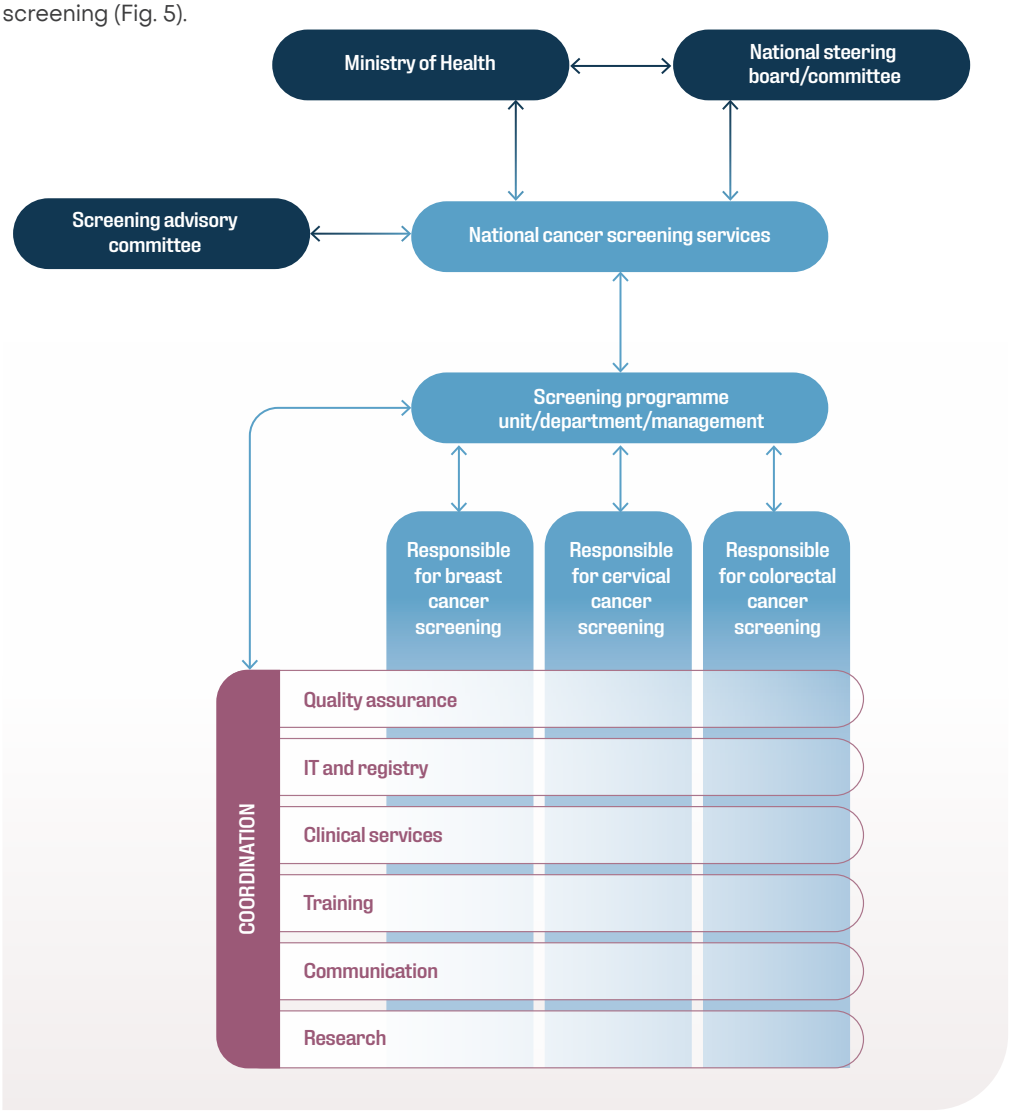

Fig. 5. A model governance framework for cancer screening.

Communication Strategy

Effective **communication strategies** are essential to boost participation in cancer screening in Slovakia, where uptake remains relatively low. To better understand the situation, a comprehensive survey was conducted to capture the views of key stakeholders about the existing cancer screening programmes.

The survey was structured in three parts:

1. **Focus groups:** Six focus groups were held with eligible men and women across Slovakia's three main regions.
2. **Nationwide online survey:** A survey of 1000 individuals (500 men and 500 women) from the target groups was conducted to gather broader insights.
3. **In-depth interviews:** Ten face-to-face interviews were carried out with influential stakeholders – such as Ministry of Health representatives, doctors, health insurance companies, nongovernmental organizations, and media professionals – to explore issues in greater detail.

Key findings from these efforts include the following:

- **Ambiguous health perceptions:** Although health is highly valued, many respondents consider themselves to be healthy even when they are managing chronic conditions. There is also confusion between preventive screenings and routine specialist check-ups.
- **Limited understanding of prevention:** The terms "prevention" and "screening" are not clearly understood, and many people only visit doctors for acute health issues.
- **Motivations and barriers:** People who do participate in screening recognize its importance, and the motivation is often driven by fear of serious illness or personal experiences with the disease. However, for the non-attendees, there are common barriers, including:
  - a belief that they are healthy and do not need regular check-ups;
  - a preference for comfort over undergoing screening;
  - fear of potential results, and distrust in doctors and the health-care system;
  - a general scepticism about the preventability and treatability of cancers, which diminishes the perceived benefits of screening.

Experts acknowledge that although the current preventive and screening framework is functional, participation rates remain critically low. Although some communication efforts have been made, the absence of a unified coordinated, state-managed message in health communications appears to contribute to the ongoing challenges, because health insurance companies and nongovernmental organizations, despite their efforts, are not enough to bridge the gap.

Furthermore, there is a recognized need to improve communication and build trust between health-care providers and participants. Doctors, particularly senior ones, have noted issues such as insufficient capacity, limited patient engagement, and a generally passive approach, which further hinder effective screening outreach.

In parallel, a benchmarking analysis was conducted with input from expert partners in five better-performing European countries. This analysis identified successful communication strategies, which have been adapted to develop recommendations specifically tailored to the context of Slovakia.

Communication Strategy RECOMMENDATIONS

1. **Establish** systematic multilevel support, feedback mechanisms, and consistent communication approaches for sustained impact.
2. **Enhance** collaboration with health-care professionals, health insurance companies, and regional authorities.
3. **Repeated outreach** to non-responders should be targeted.
4. **User-friendly approaches** should be planned considering people's needs, motivations, and barriers.
5. **Communication strategies** in the natural environment of the target population should be devised by involving their local health-care providers, employers, decision-makers, and ambassadors.
6. **Multiple information materials** targeting every specific group should be prepared with clarity. Transparent and understandable communications targeting the populations with lower education level and income group should be strategized.
7. **Targeted communications** should be based on evaluation of the data collected regularly.
8. **Revise** and adapt individual communication tools to achieve the highest possible effectiveness in meeting the communication goals.
9. **Sustainable financing** must be ensured for a successful communication strategy, with an emphasis on the largest investments being made in the early stages.

The way ahead: the roadmap

Based on the recommendations developed for the three key domains of cancer care, the OWGs drafted strategic action plans and a roadmap to guide implementation. These were presented to a dedicated Steering Committee, composed of national experts and key implementers in Slovakia, for review, validation, and feasibility assessment.

The action plan outlined specific tasks and action items, along with a defined timeline for implementation. Each task was assigned a lead responsible party, with careful consideration given to the relevant stakeholders involved. In addition, potential risks associated with implementation were identified, and funding requirements were projected to ensure effective execution.

The three roadmaps, detailing the specific tasks under each recommendation area, are summarized as follows.

Cancer Registry RECOMMENDATIONS FOR ACTION

Cancer Registry

Governance

- Establish an advisory board for the National Cancer Registry:
  - The Ministry of Health should take the lead in establishing and overseeing the board.
  - Involve key stakeholders such as the National Oncology Institute, the NHIC, professional societies, and relevant nongovernmental organizations.

Information system

- Make the new information system fully operational:
  - Ensure that the new system is fully functional by linking all electronic data sources for routine cancer registration.
  - Update the Standard Operating Manual of the National Cancer Registry to clearly outline procedures for data consolidation and case creation using the new software.
  - Integrate new data sources (e.g. health insurance data and electronic health records) into the system.
- Develop a data processing plan:
  - For data from 2017–2022, evaluate the number and structure of registry personnel required, and determine acceptable levels of data completeness, comparability, validity, and timeliness before publication.
  - Distinguish between procedures for closing the data gap (up to 2022) and for registering cases from 2023 onwards, ensuring dedicated staff and resources for each task.
  - Consider expanding data sets to include specific cancer types that are particularly relevant for cancer control efforts.

Cancer Screening RECOMMENDATIONS FOR ACTION

Governance

- Define tasks:
  - Establish a screening board.
  - Form an advisory committee.
  - Appoint coordinators for cancer-specific committees.
- Screening programme management:
  - Clearly outline the roles and responsibilities for managing the screening programme.
- Screening registry at the NHIC:
  - Develop technical specifications for the screening registry.
  - Establish the registry, and implement data collection processes from providers of screening data.
- Enhance the national cancer control plan:
  - Revise and update the legal framework to support the governance structure, ensuring clear roles for all health-care services involved in cancer screening.
  - Ensure that the legal framework mandates that only providers who are compliant with guidelines and quality assurance standards can perform screening procedures or receive accreditation.
  - Ensure that only trained and accredited institutes and specialists participate in the screening programme.
  - Define a dedicated budget for the screening programme.

Screening tests and guidelines

- Adopt only evidence-based guidelines from the EU.
- Revise and update guidelines periodically, at least once every 5 years.

Organization, funding, and staffing

- Document screening pathways and define referral patterns, to optimize the process.
- Develop and periodically deliver training programmes and courses for involved staff.
- Estimate the resources needed, and allocate dedicated budget heads.

Invitation and communication with screening participants

- Explore additional methods of sending invitations for screening.
- Strengthen the system with provision for reminders for non-participants.
- Establish a written procedure for delivering screening test results, with clearly defined timelines and individual responsibilities.

Data and IT systems

- Establish a screening registry at the NHIC with linkages to the PBCR and hospital-based registries.
- Develop technical specifications, and define the data flow process from the data collectors to the screening registry.
- Develop a legal framework to support these data systems.

Quality assurance

- Develop a quality assurance scheme, supported by legislation and an implementation plan.
- Define monitoring systems, and allocate dedicated budgets for quality assurance activities.

Raising awareness

- Draft a communication strategy for the screening programme, with an implementation plan.
- Prepare communication materials, and use multiple dissemination methods.
- Ensure that the awareness campaign is aligned with the communication plan and includes a monitoring framework with allocated budgets.

Research

- Develop a comprehensive research plan, including data, invitation systems, communication, etc.
- Use implementation science methods to test new technologies and in pilot projects.

Communication Strategy RECOMMENDATIONS FOR ACTION

The implementation roadmap for communication strategies includes developing tailored key messages for specific target groups, along with selecting appropriate communication channels for each audience.

Colorectal cancer communication roadmap

Target group	Communication channel	Key messages
Women aged 50–75 years Men aged 50–75 years	■ Website: OnkoKontrola.sk ■ General practitioners (at least once in a while), possibly also specialists ■ Health insurance companies: personalized invitations ■ Employers ■ Social networks (mostly Facebook, YouTube), with an emphasis on the unconvinced ■ Selected media preferred in the target group	■ The colon is just as important as the breast. Take care of it. ■ Colorectal cancer is curable if it is detected early. All you need to do is to take a sample of your stool to your general practitioner every 2 years. You can collect the sample comfortably at home by following the instructions. ■ The examination of occult faecal bleeding is completely risk-free. Don't be ashamed to examine your stool. Stool examination is not shameful; it saves lives. ■ The presence of blood in your stool does not automatically mean that you have cancer. However, it is necessary to further examine this phenomenon and monitor or remove it before it turns into cancer over time. ■ Colonoscopy brings certain risks and discomfort. Therefore, it is recommended mainly as an additional examination in case of a positive finding in an occult faecal bleeding test when additional examination and identification of the finding is necessary, although the guidelines accept colonoscopy as the primary screening test. The medical benefits many times outweigh the potential risks of the check-up.

Breast cancer communication roadmap

Target group	Communication channel	Key messages
Age group 50–69 years	■ Website: OnkoKontrola.sk ■ Health insurance companies: personalized invitations ■ Doctors (general practitioners, gynaecologists – at least once in a while, specialists) ■ Social networks (mostly Facebook) ■ Employers: working women	■ Breast cancer screening aims to catch early-stage, metastasis-free breast cancers before they start to pose a serious threat to women. ■ The age, frequency, and method of examination, as part of OnkoKontrola, are set on the basis of long-term knowledge about the occurrence, manifestations, and development of monitored diseases. ■ Screening tests and their frequency are set up to carry no or minimal risk for women.
Specific target group: women not attending mammography	■ Health insurance companies: cover letter ■ Doctors (general practitioners, gynaecologists): intervention, motivation ■ Involvement of doctors; specialists when needed ■ Employers: motivation, support (extra day off work, like for blood donation) ■ Media: general awareness, motivation through respected personalities, stories (positive and negative) ■ Social media: general awareness, motivation through respected personalities, influencers, authentic stories (positive and negative)	**Unconvinced – mammography** ■ It can be a little annoying, but it is necessary. ■ You should undergo a mammography after the end of your monthly cycle or in its first half, when the breasts are not as sensitive to pain. In case of pain, communicate with medical staff and look for optimal solutions to achieve high-quality imaging results. ■ Breast squeezing during the mammography examination is necessary to achieve the highest-quality imaging, and it can in no case cause breast cancer. ■ Mammography radiation is comparable to airport screening and at a dose that is completely harmless to the body, even with repeated screening.

Cervical cancer communication roadmap

Target group	Communication channel	Key messages
Age group 23–30 years	■ Paediatricians with adolescent medicine certificates, or general practitioners ■ Universities ■ Employers: working women ■ Social networks (mostly Instagram, YouTube)	■ Cervical cancer is not related to age; it can occur at any time. ■ Every sexually active woman from the age of 23 years should attend screening checks for cervical cancer.
Age group 30–50 years	■ Website ■ Doctors (general practitioners, gynaecologists, others) ■ Health insurance companies: personalized invitations ■ Employers: working women ■ Social networks (mostly Facebook, YouTube) ■ Regional, selected media preferred in this target group (primarily online)	To stay healthy: ■ It is not enough to just wish for health; you must take care of your health. Regular OnkoKontrola check-ups are a basic pillar of care for your health. ■ OnkoKontrola check-ups are designed to detect asymptomatic stages of diseases, so don't wait until something happens to you. ■ The tumour does not manifest itself at the beginning, but do not let it grow in you until it starts causing you problems. Thanks to OnkoKontrola, you can always be one step ahead of an insidious disease. ■ When the tumour starts to manifest itself, it is usually already too late. Therefore, it is necessary to visit OnkoKontrola regularly. ■ The age, frequency, and method of examination, as part of OnkoKontrola, are set on the basis of long-term knowledge about the occurrence, manifestations, and development of monitored diseases. ■ Although OnkoKontrola is currently the best way to prevent serious medical conditions, it has some limitations that we have to keep in mind (e.g. the possibility of false-negative and false-positive results). However, if you follow the recommendations of your doctor and attend OnkoKontrola regularly, you will cope with it and there is a high probability that you will avoid more serious stages of the disease.
Age group 50–65 years	■ Doctors (general practitioners, gynaecologists – at least occasionally, specialists) ■ Social networks (mostly Facebook), to a lesser extent, with an emphasis on the unconvinced	

Fig. 6 is a summary of the roadmap for implementing the communication strategy to improve cancer screening. It outlines tailored messages and specific communication tools for each target group.

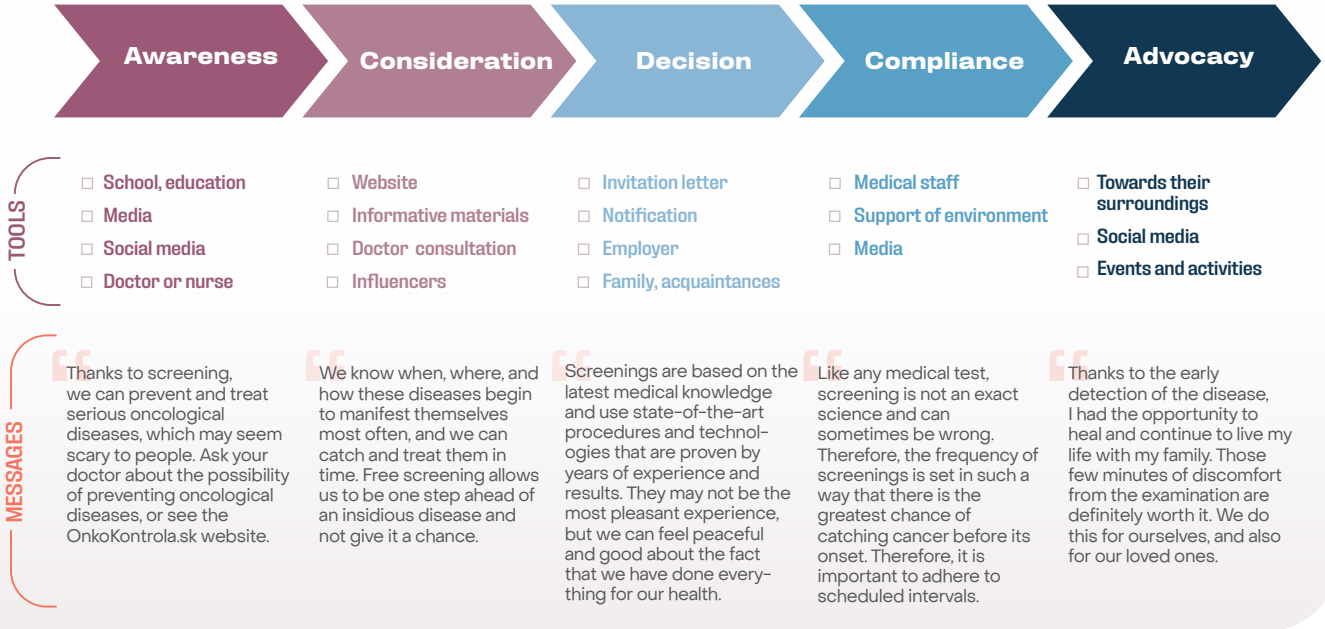

Fig. 6. Roadmap for the communication strategy to improve cancer screening.

Key highlights, implementation on the move, and what next?

The **ICCCS project** has significantly raised awareness and sensitized key stakeholders on the importance of strengthening cancer screening and surveillance in Slovakia, and also promoted some changes and improvements during its implementation.

Although the **National Cancer Registry** has a long tradition of publishing high-quality data, delays in publication remain a significant issue. To address this, an assessment was conducted and recommendations were made, including the creation of an advisory board to guide registry activities by involving all relevant stakeholders. A new registry model was also proposed, to integrate all data flows into a common system. It is crucial to address the data reporting gap, improve electronic reporting, and enhance access to electronic health resources. This requires adequately staffing the cancer registry with trained personnel and fostering better collaboration with other health stakeholders both within Slovakia and internationally.

In the domain of **cancer screening**, there is now a clearer understanding of what is required to operate a well-organized population-based screening programme. Existing protocols and guidelines need to be updated, and additional methods for inviting non-responders should be incorporated. A screening registry should be developed at the NHIC and linked with the PBCR. A new governance model was proposed, along with a legal framework to ensure that only providers who meet established guidelines and quality standards participate in the screening programme.

The **communication strategy** to improve cancer screening in Slovakia has been developed based on a thorough understanding of the perspectives of both beneficiaries and service providers. Drawing on best practices from the European region, tailored recommendations have been incorporated into the strategic plan. A clear roadmap outlining specific messages, target populations, and communication channels has been established for implementation.

The next step is for policy-makers, supported by implementers in Slovakia, to carry out the tasks outlined in the roadmap to enhance cancer care coordination across the country. The ICCCS project has laid the foundation for significant improvements in cancer care coordination in Slovakia. However, ensuring sustained commitment from health authorities, continuous training of professionals, and investment in health information systems will be crucial in achieving long-term success in cancer prevention and early detection efforts.

Moving forward, policy-makers, in collaboration with key implementers, must continue to carry out the tasks outlined in the action plan and roadmap to achieve better cancer care coordination in Slovakia, with impacts on many lives.

Cancer Registry

- Further strengthen registry governance.
- Establish a registry advisory committee.
- Fully implement the new information system with adequate and trained personnel.

Cancer Screening

- Programme managers should, in consultation with all the stakeholders and the service providers, review the identified shortcomings of the cancer screening programme in Slovakia and act on the recommendations.

Communication Strategy

- Targeted messages with specific modes of communication to target groups should be taken up to overcome the barriers and improve cancer screening in Slovakia.

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International Agency for Research on Cancer

World Health Organization

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