COLORECTAL CANCER SCREENING IN SLOVENIA

Ljubljana, 2018

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COLORECTAL CANCER SCREENING

Short description of the programme

1 Programme name

National screening and early detection programme for colorectal cancer (Programme Svit).

2 Programme type

Organised, population based screening programme.

3 Year of programme initiation

The nationwide programme started in 2009. A pilot programme was carried out in 2008. Until the start of 2009, opportunistic colorectal cancer screening was in place in Slovenia.

4 Programme founder

Ministry of Health of the Republic of Slovenia, Health Insurance Institute of Slovenia, Community Health Centre Ljubljana.

5 Programme operator

National Institute of Public Health (NIJZ).

6 Screening interval

2 years.

7 Screening test

Immunochemical faecal occult blood test and follow up colonoscopy if FIT is positive.

8 Additional diagnostics

CT colonography, MRI of abdomen, biopsy.

9 Treatment of changes detected by screening

Endoscopic therapy (polypectomy and similar), segmental resection of the colon or rectum, colectomy.

10 Target population

Inhabitants of the Republic of Slovenia aged between 50 and 74 years of age and currently covered by compulsory health insurance are the target population. Until 2015, the target population was between 50 and 69 years of age. Out of all the persons who accept the invitation, only those eligible for screening are included in the actual screening. Persons meeting the temporary exclusion criteria (persons who underwent colonoscopy in the past three years with no pathologies revealed, i.e. colorectal cancer, chronic inflammatory intestinal disease, adenomas) are invited again in the following invitation round. Persons meeting the permanent exclusion criteria (adenomas removed during colonoscopy, detected colorectal cancer, detected chronic inflammatory intestinal disease) are excluded permanently from the screening programme. In accordance with established medical doctrine, these persons are treated as patients by corresponding medical experts. In addition to persons who do not return the signed statement of participation, non-respondents also include persons who state that they do not wish to participate. The latter are not included in the screening, unless they subsequently decide otherwise and are consequently included again in the next screening round.

11 Invitation method

Programme legal basis is the second Indent of Article 23 of the Health Care and Health Insurance Act (Official Gazette of the Republic of Slovenia, No 9/92 and its amendments) and the Rules for the implementation of organized screening programs for early detection of precancerous lesions and cancer (Official Gazette of the Republic of Slovenia, No 57/2018). Before 2018 the Rules amending the Rules on the provision of preventive healthcare at the primary level (Official Gazette of the Republic of Slovenia, No 83/07) were in place. All persons aged between 50 and 74 years covered by compulsory health insurance in Slovenia have the right to free participation in the Programme Svit. There are around 600,000 persons invited according to a pre-defined scheme in the period of two years for each screening round. A test kit for two faecal samples is sent by mail to persons who completed and returned a signed statement of participation to the Central unit of the screening programme. All faecal samples are analysed in one central laboratory thereby ensuring a simultaneous analysis of a large number of samples under standard working conditions and with high quality guaranteed. The results of the faecal samples analysis are sent by mail to the tested person and her/his general practitioner. Persons with a positive result are referred to colonoscopy. Colonoscopies are performed in certified colonoscopy centres. The general practitioner, whom the person visits after receiving a positive result, decides whether the patient is suitable for colonoscopy. Prior to colonoscopy, the practitioner fills in a questionnaire with information on the patient's medical history, his family history of colorectal cancer, medication and the patient’s clinical status. Most patients prepare for colonoscopy at home. If the practitioner assesses that the patient’s health status requires inpatient preparation, an inpatient colonoscopy is organised. The time and the location of the outpatient and inpatient colonoscopies are coordinated by the Central unit of the screening programme. The data on the course of the colonoscopy, its results and the histopathological analysis of the biological tissue samples are entered into a uniform

information system. Uniform information system kept by the Central unit of the screening programme also covers invitation data and contacts with the invited persons.

12 Programme providers

Programme Svit operator (Central unit), general practitioners and other health care providers at the primary level, certified centres for colonoscopy and histopathology. The promotion of the programme is additionally carried out by Svit info points at community health centres and regional public health units of the NIJZ and several volunteers

13 Quality assurance and control

- Standardised documents: invitation to screening, information material on colorectal cancer (booklet), instructions for collecting faecal samples, laboratory result of faecal samples analysis, pre-and after colonoscopy questionnaire;
- Instructions for colonoscopists and histopathologists;
- Doctor's referral for histopathology and colonoscopy result;
- Information to general practitioners on their patients with positive and negative result of faecal occult blood test, information to general practitioner on their patients who did not respond to the programme or did not return faecal samples or did not respond to the invitation to colonoscopy;
- Monitoring results of target population response by statistical/health regions up to the municipal level twice a year;
- Annual professional supervision in colonoscopy and histopathology centres;
- Review of all the procedures included in the treatment of patients who participated in the screening programme and were diagnosed with colorectal cancer;
- Central information system, legal basis for programme implementation;
- Regular professional trainings for programme providers.

14 Programme information system

- Central registry of organised detection and treatment of precancerous changes and colorectal cancer – Register Svit, kept by the NIJZ.
- Links: Central Population Register, Health Insurance Institute of Slovenia, certified colonoscopy and histopathology centres.
- Data: target population personal data, person's status according to the Svit Programme algorithm, targeted medical history, data on screening and diagnostic tests, treatment and disease (stage according to the TNM classification or other corresponding clinical/pathological classification).

Programme Svit website: http://www.program-svit.si/

15 Programme Svit indicators and results

Set of 32 indicators are regularly monitored in the Programme Svit. The most used are presented for this report:

a) coverage by invitations
b) invitation response rate
c) participation rate
d) positive faecal occult blood test rate
e) colonoscopy after positive faecal occult blood test – compliance to colonoscopy
f) cancer detected by stage.

	1st screening round	*2nd screening round*	*3rd screening round*	*4th screening round*
Coverage by invitation	99.3%	99.6%	99.6%	99.6%
Invitation response rate	56.9%	57.8%	59.9%	62.2%
Participation rate	49.9%	52.8%	55.7%	58.0%
Positive FIT rate	6.2%	6.0%	6.0%	6.8%
Colonoscopy after positive FIT rate	90.9%	92.2%	93.1%	92.6%

Cancer detected by stage

	1st screening round	*2nd screening round*	*3rd screening round*
Stage I (T1NxMx)*	196 (22.0%)	117 (23.7%)	48 (11.2%)
***Stage I** (T1/2 N0 M0)*	238 (26.7%)	134 (27.2%)	162 (37.9%)
***Stage II** (T3/4 N0 M0)*	188 (21.1%)	99 (20.0%)	79 (18.5%)
***Stage III** (any T N1/2 M0)*	211 (23.7%)	104 (21.1%)	116 (27.1%)
***Stage IV** (any T N1/2 M1)*	57 (6.4%)	39 (7.9%)	23 (5.4%)
total	890 (100.0%)	493 (100.0%)	428 (100.0%)
missing	15	/	3
total no. of cancers	905	493	431

** endoscopic removal*

a) Coverage by invitations

The indicator shows the proportion of persons invited to participate in the programme with regard to the number of persons from the target population who meet the invitation criteria. The indicator shows the extent to which the population meeting the invitation criteria was included in the screening programme within a certain screening round. This indicator allows us to deduce the share of undelivered invitations due to incomplete addresses gained from the Central Population Registry.

The Coverage of population by invitations indicator of the Programme Svit exceeds the internationally defined acceptable (95%) and desirable (> 95%) level.

Table 1: Coverage by invitations according to gender and age group.

BY GENDER

	1st screening round	*2nd screening round*	*3rd screening round*	*4th screening round*
male	99.0%	99.4%	99.4%	99.4%
female	99.6%	99.8%	99.8%	99.8%
total	99.3%	99.6%	99.6%	99.6%

BY AGE GROUP

	1st screening round	*2nd screening round*	*3rd screening round*	*4th screening round*
50 – 54	99.2%	99.8%	99.6%	99.5%
55 – 59	99.3%	99.6%	99.6%	99.6%
60 – 64	99.4%	99.6%	99.6%	99.6%
65 – 69	99.4%	99.7%	99.7%	99.7%
more than 70	/	/	/	99.8%
total	99.3%	99.6%	99.6%	99.6%

Source: Programme Svit.

b) Invitations response rate

The indicator shows the proportion of persons who participated in the screening or returned the signed statement of participation with regard to the number of persons from the invited population. The indicator shows the proportion of persons willing to participate in the screening programme and to whom (if they meet the inclusion criteria) testers are sent.

Table 2: Invitation response rate according to gender and age group.

BY GENDER

	1st screening round	*2nd screening round*	*3rd screening round*	*4th screening round*
male	52.6%	53.2%	54.8%	57.3%
female	61.2%	62.3%	64.9%	66.7%
total	56.9%	57.8%	59.9%	62.2%

BY AGE GROUP

	1st screening round	*2nd screening round*	*3rd screening round*	*4th screening round*
50 – 54	54.7%	55.6%	59.3%	62.3%
55 – 59	57.3%	57.3%	59.1%	61.6%
60 – 64	60.0%	59.9%	60.7%	63.0%
65 – 69	56.3%	59.8%	61.3%	63.9%
more than 70	/	/	/	59.8%
total	56.9%	57.8%	59.9%	62.2%

Source: Programme Svit.

c) Participation rate

The indicator shows the proportion of persons who actually participated in the screening by returning faecal samples. The indicator shows the proportion of persons who returned complete faecal samples (regardless of whether these were appropriate for analysis or not) with regard to the number of persons who meet the invitation criteria for screening. The higher this share, the more successful the screening programme. It enables the monitoring of the share of tested persons in individual screening rounds.

The Participation rate indicator of the Programme Svit exceeds the internationally defined acceptable (> 45%) level. The internationally defined desired level is over 65%.

Table 3: Participation rate according to gender and age group.

BY GENDER

	1st screening round	*2nd screening round*	*3rd screening round*	*4th screening round*
male	44.8%	47.7%	50.2%	52.7%
female	54.9%	57.9%	61.2%	63.0%
total	49.9%	52.8%	55.7%	58.0%

BY AGE GROUP

	1st screening round	*2nd screening round*	*3rd screening round*	*4th screening round*
50 – 54	47.1%	49.5%	53.6%	56.2%
55 – 59	50.3%	52.8%	55.4%	57.9%
60 – 64	53.3%	55.8%	57.5%	59.9%
65 – 69	50.1%	56.1%	58.6%	61.1%
more than 70	/	/	/	55.9%
total	49.9%	52.8%	55.7%	58.0%

Source: Programme Svit.

d) Positive faecal occult blood test rate

The indicator shows the proportion of persons with positive faecal occult blood test. The indicator shows the proportion of persons with positive faecal occult blood test with regard to the total number of persons who returned test samples appropriate for analysis. The indicator shows the proportion of persons with potential pathology requiring additional tests (e.g. colonoscopy). The indicator also serves as a criterion to plan the necessary number of colonoscopies and the proper organisation of the health service.

There are no clearly established international standards for this indicator. According to Italian guidelines, the acceptable standard for the first test is < 6% and < 4.5% for all subsequent tests, whereas the desirable standard for the first test is < 5% and for the subsequent tests < 3.5%. The proportion of persons with positive faecal occult blood test also depends on the type of the faecal occult blood test used.

Table 4: Positive faecal occult blood test rate according to gender and age group.

BY GENDER

	1st screening round	*2nd screening round*	*3rd screening round*	*4th screening round*
male	7.8%	7.6%	7.5%	8.4%
female	5.0%	4.7%	4.8%	5.6%
total	6.2%	6.0%	6.0%	6.8%

BY AGE GROUP

	1st screening round	*2nd screening round*	*3rd screening round*	*4th screening round*
50 – 54	5.0%	5.0%	5.2%	5.4%
55 – 59	6.0%	5.8%	5.7%	5.8%
60 – 64	6.9%	6.5%	6.4%	6.6%
65 – 69	7.7%	7.6%	7.4%	7.7%
more than 70	/	/	/	10.7%
total	6.2%	6.0%	6.0%	6.8%

Source: Programme Svit.

e) Colonoscopy after positive immunochemical faecal blood test – Compliance to colonoscopy

The indicator shows the proportion of persons who underwent at least one colonoscopy with regard to the total number of persons who received positive faecal occult blood test results and were referred to colonoscopy. In all screening rounds, this indicator exceeds the acceptable (> 85%) as well as the desirable (> 90%) standards.

Table 5: Colonoscopy after positive immunochemical faecal blood test – Compliance to colonoscopy.

BY GENDER

	1st screening round	*2nd screening round*	*3rd screening round*	*4th screening round*
male	90.7%	91.8%	92.7%	92.2%
female	91.2%	92.8%	93.5%	93.0%
total	90.9%	92.2%	93.1%	92.6%

BY AGE GROUP

	1st screening round	*2nd screening round*	*3rd screening round*	*4th screening round*
50 – 54	92.8%	92.9%	92.9%	93.2%
55 – 59	91.4%	93.2%	92.5%	93.2%
60 – 64	90.8%	92.1%	93.6%	92.9%
65 – 69	88.5%	90.2%	92.9%	93.1%
more than 70	/	/	/	90.7%
total	90.9%	92.2%	93.1%	92.6%

Source: Programme Svit.

f) Cancer detected by stage

The tumor stage is the most important predictive factor in cancer survival. In the successful screening programme the proportion of advanced cancers should be lower than in unscreened population. According to Italian guidelines, the acceptable standard for screen-detected cancers stage III or higher is <30% and the desirable standard <20%.

Table 6: Cancer staging.

BY GENDER

	1st screening round	*2nd screening round*	*3rd screening round*
male			
Stage I (T1NxMx)*	126 (22.7%)	72 (23.4%)	28 (10.3%)
***Stage I** (T1/2 N0 M0)*	143 (25.8%)	85 (27.6%)	103 (37.9%)
***Stage II** (T3/4 N0 M0)*	118 (21.3%)	62 (20.1%)	51 (18.8%)
***Stage III** (any T N1/2 M0)*	125 (22.6%)	63 (20.5%)	72 (26.8%)
***Stage IV** (any T N1/2 M1)*	42 (7.6%)	26 (8.4%)	17 (6.3%)
total	**554**	**308**	**272**
female			
Stage I (T1NxMx)*	70 (20.8%)	45 (24.3%)	20 (12.8%)
***Stage I** (T1/2 N0 M0)*	95 (28.3%)	49 (26.5%)	59 (37.8%)
***Stage II** (T3/4 N0 M0)*	70 (20.8%)	37 (20.0%)	28 (17.9%)
***Stage III** (any T N1/2 M0)*	86 (25.6%)	41 (22.2%)	43 (27.6%)
***Stage IV** (any T N1/2 M1)*	15 (4.5%)	13 (7.0%)	6 (3.8%)
total	**336**	**185**	**156**
total no. of cancers	**890**	**493**	**428**

** endoscopic removal*

BY AGE GROUP

	1st screening round	*2nd screening round*	*3rd screening round*
50 – 54			
Stage I (T1NxMx)*	31 (21.5%)	25 (28.1%)	11 (12.5%)
***Stage I** (T1/2 N0 M0)*	35 (24.3%)	18 (20.2%)	34 (38.6%)
***Stage II** (T3/4 N0 M0)*	29 (20.1%)	18 (20.2%)	17 (19.3%)
***Stage III** (any T N1/2 M0)*	37 (25.7%)	16 (18.0%)	18 (20.5%)
***Stage IV** (any T N1/2 M1)*	12 (8.3%)	12 (13.5%)	8 (9.1%)
total	**144**	**89**	**88**
55 – 59			
Stage I (T1NxMx)*	42 (22.3%)	26 (28.0%)	9 (12.5%)
***Stage I** (T1/2 N0 M0)*	46 (24.5%)	22 (23.7%)	21 (29.2%)
***Stage II** (T3/4 N0 M0)*	40 (21.3%)	16 (17.2%)	17 (23.6%)
***Stage III** (any T N1/2 M0)*	51 (27.1%)	24 (25.8%)	22 (30.6%)
***Stage IV** (any T N1/2 M1)*	9 (4.8%)	5 (5.4%)	3 (4.2%)
total	**188**	**93**	**72**
60 – 64			
Stage I (T1NxMx)*	58 (22.8%)	37 (20.3%)	14 (8.8%)
***Stage I** (T1/2 N0 M0)*	70 (27.6%)	52 (28.6%)	66 (41.3%)
***Stage II** (T3/4 N0 M0)*	51 (20.1%)	40 (22.0%)	30 (18.8%)
***Stage III** (any T N1/2 M0)*	61 (24.0%)	40 (22.0%)	44 (27.5%)
***Stage IV** (any T N1/2 M1)*	14 (5.5%)	13 (7.1%)	6 (3.8%)
total	**254**	**182**	**160**
more than 65			
Stage I (T1NxMx)*	65 (21.4%)	29 (22.5%)	14 (13.0%)

Stage I (T1/2 N0 M0)	87 (28.6%)	42 (32.6%)	41 (38.0%)
Stage II (T3/4 N0 M0)	68 (22.4%)	25 (19.4%)	15 (13.9%)
Stage III (any T N1/2 M0)	62 (20.4%)	24 (18.6%)	32 (29.6%)
Stage IV (any T N1/2 M1)	22 (7.2%)	9 (7.0%)	6 (5.6%)
total	**304**	**129**	**108**
total no. of cancers	**890**	**493**	**428**

** endoscopic removal*

Source: Programme Svit.

Population impact

From year 2011 the colorectal cancer incidence in Slovenia starts to decrease. The assumption is that this is mainly influenced by extensive removal of precancerous lesions during the screening colonoscopies. Earlier cancer diagnosis influenced the survival rates. Comparing period 2010-2014 to 2005-2009 there was significant improvement of five-year net survival of men diagnosed with colorectal cancer.

16 Challenges for the future

In addition to regular and highly professional implementation of processes in the screening programme, numerous activities are aimed at monitoring and improving quality in all providers of the colorectal screening programme.

Another important task of the Programme Svit is to identify and find possibilities to eliminate the reasons for lack of responsiveness to the programme. Different evaluation and research activities will be implemented in this respect. The results will be important for a more targeted direction and strengthening of communication activities aimed at increasing the recognition and acceptance of the programme by the broader public, increasing support among health professionals and various decision makers. The common denominator of these activities is the wish to increase total responsiveness to the programme and especially increase the response rate of those parts of the population, where response rates are the lowest.