



## **Breast Cancer Screening programme (DORA programme)**

**Programme name:** National Breast Cancer Screening Programme – NP DORA

**Programme type:** organised population based screening programme.

**Year of initiation:** first invited women were screened in this programme in April 2008.

**Programme founders:** Ministry of Health of the Republic of Slovenia, Health Insurance Institute of Slovenia and Institute of Oncology Ljubljana.

**Responsible institution:** Institute of Oncology Ljubljana.

**Screening interval:** two years.

**Screening examination:** screening mammography in two projections.

**Additional diagnostics and treatment of lesions detected during screening:** additional projections (compression, enlargement), breast ultrasound, clinical examination, core biopsy, MRI, open biopsy, surgery, chemotherapy, radiotherapy and biological (targeted) therapy.

**Target group of population:** women aged from 50 to 69 with permanent residence in the Republic of Slovenia. Exclusion criteria for screening is the following: breast cancer, including carcinoma *in situ* (C50, D05), diagnosed at any time in the past.

*Figure 1: Target group of the DORA programme*



**Invitation method:** all women from the target population group who do not meet the exclusion criteria are sent a personal invitation letter with the date, hour and place of screening examination and contact information in case they want to change the appointment. If a woman does not attend the examination, she is sent another invitation in 4 weeks time. Self-invitations are also possible, by telephone or e-mail through the programme DORA call centre.

**Programme providers:** screenings are carried out in 16 screening units; on 17 stationary screening mammographs and in 3 mobile screening units.

Figure 2: Locations of the DORA programme (screening units) in Slovenia



All personnel, equipment and workflow must meet the EU requirements for quality control as stated in the European guidelines for quality assurance (N. Perry, M. Broeders, C. de Wolf, S. Törnberg, R. Holland, L. von Karsa and E. Puthaar (ed.): European Guidelines for Quality Assurance in Breast Cancer Screening and Diagnosis. Fourth Edition. European Commission. Luxembourg, Office for Official Publications of the European Communities, 2006 (ISBN 92-79-01258-4)).

**Quality assurance and control:** monitoring of performance indicators has been enabled ever since the introduction of the programme. Performance indicators are defined in the European guidelines for quality assurance.

**Information system of the programme:** a web application that follows all steps in the screening procedure was developed. It consists of several applications (central registry DORA, applications for mammography, reading, assessment, warehouse and eCRP). All data needed for constant and stable workflow and statistical analysis is collected in the central data warehouse. All screening units are using the same web application.

Links: Central Population registry (eCPR), Registry of spatial units of Slovenia (RSU) and Cancer Registry of the Republic of Slovenia (CRRS).

Data: personal data about women from the programme target group and findings of screening and diagnostic examinations and treatment.

**Website of the programme:** <http://dora.onko-i.si/>

## **PERFORMANCE INDICATORS OF DORA NP**

The DORA programme regularly monitors the quality of implementation through pre-determined indicators as stated in the European guidelines for quality assurance, published in 2004. Those guidelines state the desirable and acceptable values of performance indicators to be followed and achieved by each breast cancer screening programme.

The Epidemiology and Cancer Registry Department at the Institute of Oncology with Registry and call centre of programme DORA provides the basic statistics of the screening programme: reports (on a weekly, monthly, annual basis), basic selection of performance indicators, more detailed statistics for the internal programme quality assurance (statistics by screening centre, by radiographers, by radiologists...) and performs epidemiological studies.

### **Participation by screening rounds, age groups and regions**

Participation in the DORA programme was defined as a percentage of women invited in the specific period of time that attend for screening. In order to reduce breast cancer mortality rate it is necessary to reach at least 70 % participation rate. As evident in the Table 1, Slovenian breast cancer screening programme fully meets the acceptable levels of participation rate performance indicator, according to European guidelines.

In the view of the present calculations, the DORA program follows and meets the acceptable levels of performance indicators according to the EU standards (Table 2). Participation rate exceeds 70%, recall rate is 3% and the third of all invasive screened-detected cancers are smaller than 1 cm. Improvements related to cancer treatment are needed – women wait for the operation of screen-detected cancer more than two weeks.

Table 1: Participation rate in the DORA programme in 2017:

Screening round	HIIS region	Women invited	Women screened from invited	Participation rate (%)
1	LJUBLJANA	14.217	5.915	41,6
	MARIBOR	15.147	8.600	56,8
	KOPER	8.458	5.755	68,0
	KRANJ	8.902	6.156	69,2
	NOVA GORICA	7.065	4.905	69,4
	NOVO MESTO	5.604	3.876	69,2
	KRŠKO	3.095	1.834	59,3
	MURSKA SOBOTA	473	315	66,6
	RAVNE NA KOROŠKEM	150	91	60,7
	CELJE	84	70	83,3
	sum	63.195	37.517	59,4
	2	LJUBLJANA	7.594	6.135
MARIBOR		6.707	5.906	88,1
KRANJ		256	210	82,0
sum		14.557	12.251	84,2
3	LJUBLJANA	8.110	7.451	91,9
	MARIBOR	746	680	91,2
	sum	8.856	8.131	91,8
4	LJUBLJANA	9.985	9.476	94,9
5	LJUBLJANA	1.989	1.901	95,6
<b>SUM</b>		<b>98.582</b>	<b>69.276</b>	<b>70,3</b>

Calculated on 26.1.2018

Table 2: Performance indicators of the DORA programme, 2008-2017:

PERFORMANCE INDICATOR		Programme		
		DORA value 2008-2017	EU acceptable value	EU desirable value
Proportion of women invited that attend for screening		72.4 %	> 70%	> 75%
Proportion of women recalled for further assessment	Initial screening round	4.8 %	< 7%	< 5%
	Subsequent screening round	1.8 %	< 5%	< 3%
Breast cancer detection rate (per 1,000 screened women)	Initial screening round	7.8	6.8 / 1,000	> 6.8 / 1,000
	Subsequent screening round	4.7	3.4 / 1,000	> 3.4 / 1,000
Proportion of screened - detected cancers that are stage II+	Initial screening round	29.2 %	--	< 30%
	Subsequent screening round	20.4 %	25%	< 25%
Proportion of invasive screened-detected cancers that <= 10 mm in diameter	Initial screening round	35.1 %	--	>= 25%
	Subsequent screening round	36.5 %	>= 25%	>= 30%

Calculated on 15.11.2018

### **Important achievements and programme challenges in the future**

The DORA programme has had high participation rates in the first ten years and participants are very satisfied with it. We are proud to be one of the rare European countries that strictly follow the European guidelines from the implementation of the programme. The guidelines set performance indicators which the DORA programme achieves almost perfectly.

In addition, the Institute of Oncology Ljubljana was the first in Europe to make an EU guidelines-based web application which enables links with the electronic databases of the eCRP, RSU, CRRS, hospital information system, radiological information system and the database for the archiving of the mammograms (PACS). The DORA web application thus enables the invitation of women, continuous monitoring of individual women covered by the programme and calculation of current statistical data, e.g. performance indicators – some of which have been prepared in advance as part of e-reports.

### **Future challenges**

The future challenge of the DORA programme is to assure the participation rate of the target group above 70 %, in order to achieve the goal of the screening programme: to reduce the mortality of women in target group from breast cancer from 25 % to 30 %.