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Cervical Cancer Screening Resources Evaluation in Romanian North Western Region

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ROMANIA'S ACTIVITY REPORT IN EUROCHIP-3 WORK PACKAGE 4

General objectives

The purpose of the work conducted in Romania within EUROCHIP-3 Project was to evaluate cervical cancer screening resources in North Western (NW) European Development Region of Romania.

This study and report were developed with the approval of Romanian Ministry of Health "Cancer Commission" and Working Group on Cervical Cancer Screening leded by the Health Minister himself, Mr. Ladislau Ritli, on 11.11.2011.

Romanian North Western region

Romania has 8 regions. The North Western region of Romania (region nr 6 in the here below figure) includes 6 districts: Bihor, Bistrița-Năsăud, Cluj, Maramureș, Satu-Mare and Sălaj for a total population of 2,7 million inhabitants. Rural general population at national level is up to 45%, but in counties with big cities like Cluj the population of 25-64 year-old women (ie. cervical cancer screening age target group), is only 30% in rural areas and 70% of target population is living in urban areas. Following figure shows the 25-64 years old women population in each county of the NW region, according to 2008 data:



Appendix 1 details other information of this region.

In North Western Region, a Cancer Registry is also present. The cancer registry can be a valuable tool in managing pilot studies first, followed by regional screening programs. Appendix 2 shows some data from the First Report on Cancer Incidence and Mortality in NW Region.

A former pilot regional cervical cancer screening program was organized in 2002-2008 in this area (sustained by Ministry of Health completed with research grants). Before and after this Pilot no organized screening activities existed all over Romania (see details in appendix 3 and 4). Some data on burden of cervical cancer (and even some possible signs of impact of the former pilot on the number of in situ and pre-invasive lesions found) were used to evaluate citopathology quantitative and qualitative resources, in order to sustain some conclusions after the evaluation of the questionnaire performed with EUROCHIP-3.

Methods and data sources

The Romanian Ministry of Health is planning a national cervical cancer screening program starting from early 2012 based on a new national strategy. This will involve 8 Regional Management Units corresponding to the 8 existing European Development Regions of Romania in order to roll out NW Regional Pilot to National level. Within this initiative, a POSDRU Project on screening human resources started since 2010 and will end in 2012 with training of 6000 family doctors and 1.200 specialists, including citopathologists and gynecologists. No questions on labs quality control and number of citopathologists were asked in the POSDRU project.

As the Prevention and Cancer Control Department of the “Ion Chiricuta” Institute of Oncology is nominated as Management Unit for NW Region, and Dr Florian Nicula, in the meantime was nominated member of National Cervical Cancer Screening Coordination Committee at Ministry of Health level, it was considered really useful to promote the EUROCHIP Project in the North Western area as an example for other regional units and as an important tool in designing our future screening implementation network.

Phase 1 – Evaluation of labs and citopathologists

We used a questionnaire elaborated together with Dr. Ahti Antilla (EUROCHIP-3 WP-4 leader) for the evaluation of laboratory resources in NW region (see Romanian WP-4 protocol at http://www.tumori.net/eurochip/material/WP4/Romania_protocol.pdf). The questionnaire is based on the European guidelines of quality assurance in organized cervical cancer screening programs. Questionnaires were sent to all labs and to all citopathologists in NW region, based on lists received from Counties Authorities in Public Health and Health Insurance and list from Romanian Society of Citopathology.

Phase 2 – Evaluation of resources on taking smears

We asked to all Counties Authorities in Public Health and Health Insurance in NW region the total number of gynecologists and family doctors and the number of them willing to take part to a cervical cancer screening program.

After Phase 1 responses, we decided also to organize in 9th December 2011 a Regional Meeting inviting delegates of all actors involved mentioned above. Delegates from all six districts in NW Region (Cluj, Bihor, Bistrita-Nasaud, Maramures, Salaj, Satu-Mare) were present, representing all District Health Authorities and District Health Insurance Houses and 23 pathology labs (out of 37 invited). Questionnaires distributed in Phase 1 were discussed and in working groups we evaluated responses regarding regional overall screening resources (smear takers at the level of family doctors and gynecologists, mobile units, pathology laboratories and human resources, management unit resources).

EVALUATION OF SCREENING RESOURCES IN THE NORTH WESTERN REGION OF ROMANIA

Results of Phase 1 : remarks on laboratories questionnaires responses

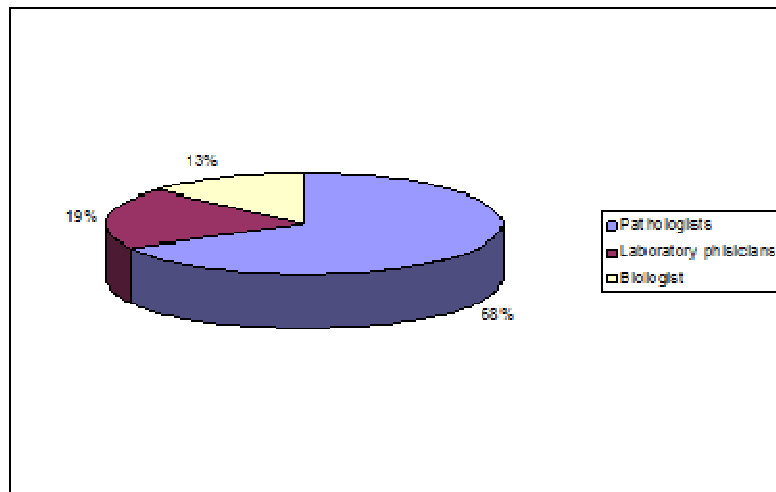
14 out of 37 laboratories responded (14 are almost enough for population screening).

Here below the synthesis of laboratories by NW district:

District	Nr of labs	Nr of responding labs
Cluj	12	10
Bihor	9	1
Bistrita-Nasaud	4	2
Maramures	3	1
Salaj	6	0
Satu-Mare	3	0

The analysis of questionnaires revealed the following:

1. Number of cytopathologists



Biologists in Romania are equivalent of citotechnicians, they have biology university degree after 4 years of study and a citopatology post-university training of at least 1 year with 2000 smears under surveillance. In the meantime laboratory doctors also work on Pap tests in biology labs. This year Health Ministry promised a new legislation regarding cytopathology quality control of labs and also a new curricula for cytotechnicians and cytopathologists.

2. Type of staining equipment

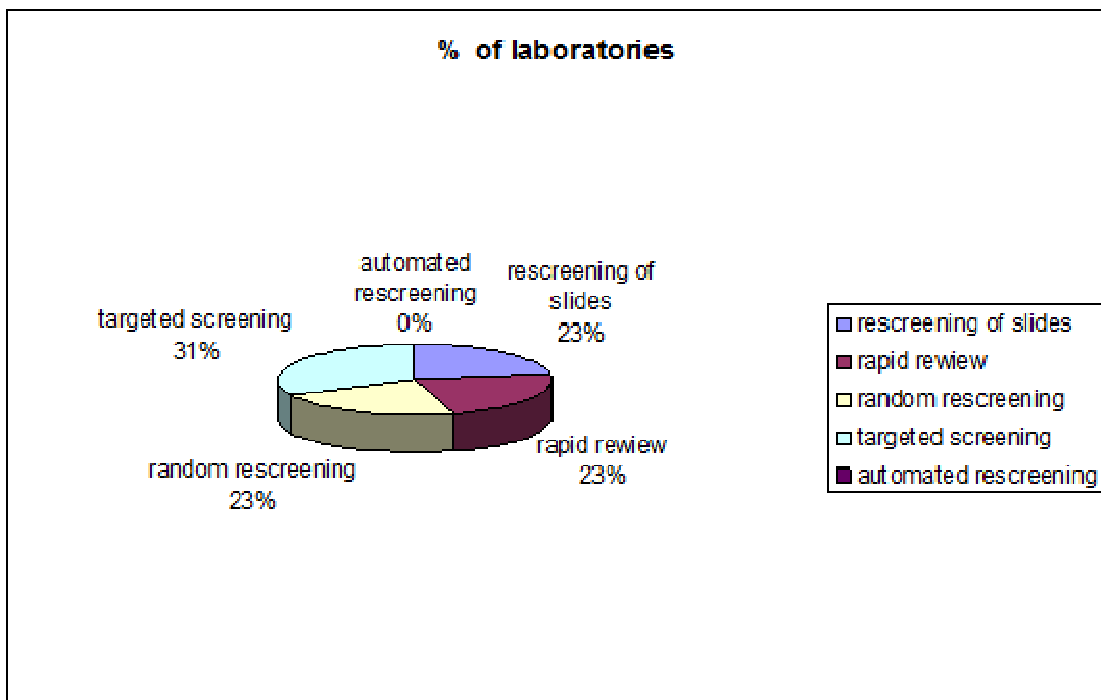
Staining equipment is automatic in 69% of labs while in the rest 31% is manual. Old staining procedures are still used in some labs performing opportunistic tests, mainly biology labs with cytopathology department, but again this situation will be changed until the end of this year: Papanicolaou staining and Bethesda classification will be compulsory by law for all labs in the programme, as is it recommended in the Guidelines.

3. Analytical quality management measures

The answers to our questions show that all the laboratories:

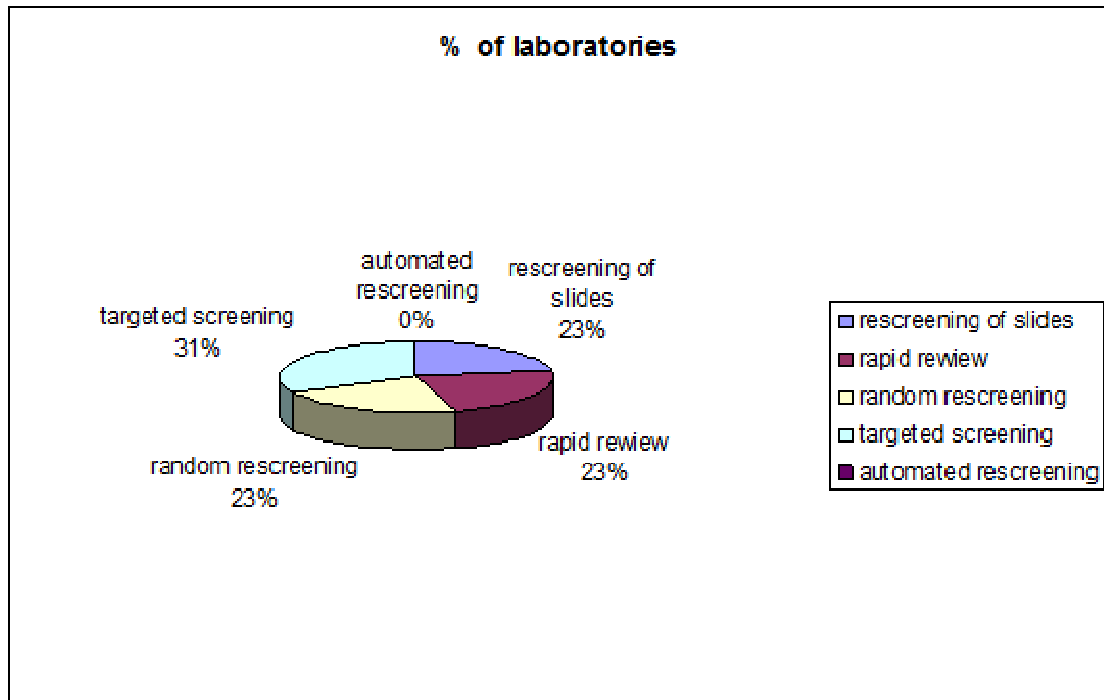
- a) debate upon cases showing serious discrepancy between the cytological and/or histological follow-up;
- b) communicate with gynecologists and other sample takers regarding specific cases;
- c) offer guidance and support for continuing medical education of your personnel;
- d) participate in quality assurance programs including an annual report concerning the outcomes of the cytological and histological follow up examinations within a cervical cancer screening program policy;
- e) the administrative personnel is educated regarding relevant medical terminology;
- f) the administrative personnel is able to work with current word processors and with automated database systems;
- g) the administrative personnel respects patient confidentiality;
- h) All laboratories fulfill the needed quality requirements concerning handling, analyzing and reporting cervical samples.

The analysis regarding the analytical quality management measures shows that:



In Romania, for the moment, no quality control is requested in labs functioning legislation, usually quality control used is based on the common sense of professionals on different models used abroad across Europe or even United States. We have laboratory of excellence in most on University hospitals in centers of counties, but we also have a lot of labs with quality control problems in respect to Guidelines of Screening Programme Quality.

Internal quality control based on correlation with clinical/ histological outcome



Even in the survey we questioned labs regarding their quality control measures obtaining rules similar to European guidelines, we had to be prudent in considering labs responses on quality control, because despite good work in coloration, fixation, storing and proper classification used, internal and external quality control in smears examination and results remains the most important issue as Romanian rules in citopathology allow citopathologists to work in any laboratory with almost no internal and external surveillance compulsory by law.

Some data from 2002-2008 Cluj Pilot Cervical Cancer screening Program can help in this evaluation.

The pilot project adopted own rules according to European guidelines of quality assurance for citopathology. To do so, all labs performances were checked and at the end the activity were carried on only with 6 labs working with checked citopathologists and 6 citopathologists did more than 60% of the job:

Cytopathologist	Nr of smears	%
A	50303	41%
B	7655	6%
C	4402	4%
D	4598	4%
E	2002	2%
F	894	1%
G (Others)	54036	44%
TOTAL	123890	

The fact that initially smears were distributed equally to all labs, with different citopathologists working in more than one lab, allowed appearance of some problems in quantitative and qualitative diagnosis of smears.

Regarding qualitative assessment of their work, percentage of different dysplasia diagnosed by several citopathologists suggest that we may have some huge problems in quality control of labs, and this must represent a very important issue in the future.

Cytopathologist	% ASCUS	% LSIL	% HSIL	% Invasive	% AGUS	Nr of smears
A	1.8	1.82	0.94	0.11	0.57	50303
B	1.33	0.63	0.61	0.01	0.05	7655
C	1.66	1.27	0.7	0.23	0.16	4402
E	6.89	6.44	3.3	0.95	1.75	2002
F	0.11	0.11	0.22	0.11	0	894
G	0	0	0	0	0	11
H	1.74	0.43	0.43	0	0.22	461
I	2.17	3.8	0.54	0	0.54	184
L	1.59	1.59	1.59	0	1.59	126
M	1.13	0	0	0	0	707
N	0	0	0	0	1.52	66
O	1.79	0	0.26	0	0	391
P	1.77	3.01	1.07	0.18	1.39	8909
Q	1.7	0	0	0	0.85	235
R	5.97	0.62	0.21	0	0.62	486
S	0.34	1.01	1.34	0	0	298
T	1.94	0.39	0	0	0.39	258

HSIL: High-Grade Squamous Intraepithelial Lesion, ASCUS: Atypical Cells of Undetermined Significance; LSIL: Low-Grade Squamous Intraepithelial Lesion; AGUS: Atypical Glandular Cells of Undetermined Significance

We could observe differences between some citopathologists both in invasive lesions as in lesions precursory to cancer.

In the new cervical screening program, Regional Management Unit will have the role to evaluate each laboratory and to enroll only labs with assured quality control with respect to Guidelines.

In the future, smears must be distributed in equal number to that of citopathologists, and not to that of labs, following individual certification of personal skills of people working in checked labs.

Results of Phase 2: citopathology resources

In 9th December 2011 took place NW Regional Meeting for Cervical Cancer Screening Evaluation. Representatives from 23 pathology laboratories were present and 37 were evaluated. The evaluated laboratories are (* those replying at phase 1 survey)

- ✓ Cluj-County:
 - “Prof . Dr. Ion Chiricuta” Institute of Oncology* – 5 citopathologists
 - Cluj County Hospital with 3 laboratories (* 2 labs responded) – 3 citopathologists
 - Cluj Infectios Deseases with 1 laboratory* – 2 citopathologists
 - Cluj Adult Clinical Hospital* – 2 citopathologists
 - Romanian Railway Hospital* – 2 citopathologists
 - Cluj Military Hospital – 1 citopathologist
 - Dej Municipal Hospital* – 1 citopathologist
 - Private laboratories
 - Radusan* – 9 citopathologists,
 - Medstar* – 3 citopathologists,
 - Santomar* – 2 citopathologists
- ✓ Bihor County:
 - Bihor County Hospital with 2 laboratories* (only 1 lab responded) – 5 citopathologists
 - 7 private laboratories
- ✓ Bistrita-Nasaud County:
 - Bistrita County Hospital – 2 citopathologists
 - Nasaud hospital – 2 citopathologists
 - Private laboratories
 - Sanovil* – 3 citopathologists,
 - Optimus* - 1 citopathologist
- ✓ Maramures County:
 - Baia Mare County Hospital* – 3 citopathologists
 - 2 private laboratories – 3 citopathologists
- ✓ Salaj County:
 - Zalau County hospital – 2 citopathologists
 - 5 private laboratories – 15 citopathologists
- ✓ Satu-Mare:
 - Satu- Mare County hospital - 2 citopathologists
 - 2 private laboratories – 11 citopathologists

Some remarks must be pointed for the very beginning :

- Cluj and Bihor County contain almost 50 % of regional population. Both have universities and citopathology schools, so resources are more representative in these two counties
- The other 4 counties are smaller and have from 3 up to 5 citopathologists
- Some citopathologists are working both in public hospitals and in private laboratories
- Some private laboratories work in more than one county of the region, and some citopathologists are in contract with more than one private laboratory, so citopathologists figures represent number of contracts

The final main purpose of present evaluation was to establish real citopathologists resources in number of persons trained and available for a certain work within the future screening program, a job never done before in the region.

Finally we established that the real number of citopathologists in NW Region counties are:

- ✓ Cluj-County: 16 citopathologists trained and experienced in screening
- ✓ Bihor County: 5 citopathologists
- ✓ Bistrita-Nasaud County: 5 citopathologists
- ✓ Maramures County: 3 citopathologists
- ✓ Salaj County: 2 citopathologists
- ✓ Satu-Mare: 3 citopathologists

In conclusion we have only 35 people with 91 contracts (as one cytologist can work with more than one lab). In the meantime we have about 660.000 women to be tested in 3 years at 100% coverage, 220.000 each year, which are corresponding to about 6.500 samples per year to be examined by each citopathologist. That means that resources may be enough in matter of human resources. However, we have to remember that citopathologists usually work in pathology labs histological specimens too, so they are not free to work full time for screening.

Results of Phase 2: taking smears resources

Delegates from all six District Health Authorities and District Health Insurance Houses participated in the meeting of 9th December 2011. Discussion was performed on resources for taking smears within organized screening program for invited 25-64 years women.

From Cluj pilot experience some facts are known:

- family doctors had a very low compliance – even double trained less than 10% really worked in smear taking to women on their lists
- gynecologists were more interested and women preferred to have tests in specialists units
- in rural areas, where no gynecologists work in Romania and family doctors were not able to participate, mobile unit doubled by mediators were extremely efficient.

The results of evaluation are:

District	Family doctors	Gynecologists	Colposcopy	Mobile units
Cluj	348, 232 urban, 116 rural	68	11 units	1
Bihor	333	41	2 units 117 colposcopies last year	
Bistrita-Nasaud	143	12	6 units 672 colposcopies last year	1
Maramures	382	24	2 units 510 colposcopies last year	
Salaj	82	12	5 units 2010 colposcopies last year	2
Satu-Mare	178	11		

It seems to us that the main problem in organizing our regional cervical cancer screening program will be organizing in each county the network of taking smears, before inviting women to screening. Lot of family doctors may not participate, gynecologists with private units are not in contract with Insurance Houses which will pay anyway cheap for taking smears within program, mobile units are few and not very clearly defined and authorized.

General conclusions for cervical screening implementation in Romania

Target population characteristics

It is important to mention and underline that in Romania access to population and access of population to screening resources are marked by important disparities: due to rural and urban areas, disparities in religion and ethnical cultural habits and sexual behavior and socio-economical disparities. This situation need two main approaches:

- ✓ First of all, screening must be free and offered to all women population at risk, at same quality with no any discrimination.
- ✓ Second, efforts must be made to get to the most hard to reach woman in the most isolated and resistant area, to convince her, her husband, her family, friends and neighbors and her community that this action is mandatory to her health and to everyone welfare.

This is not an easy task in Romania. Invitations as in other countries may be sometimes used, but we think that covering women with tests in all conditions and quality of tests will be the most important challenge of future organized cervical cancer screening program.

Management resources

Considering National Public Health Institute Report on National Health System Evaluation, in the Perspective of Screening Implementation, regarding management resources only our institute, the “Prof . Dr. Ion Chiricuta” Institute of Oncology, in Romania has today regional human “tactical” resources thank to the experience in organizing pilot screening program. But we have to remember that in 2002, when Pilot started, none of us had any experience, and we did some mistakes in the process of learning implementing and monitoring such a activity.

So, resources can exist in all regions. Epidemiologists exist, even if not specially trained in particular screening aspects. All other actors exist everywhere. More than that, special training for each category will be provided next months in POSDRU Project. It is only a matter of time and proper organizing that management units will be in place in each region.

We provided through Cancer Commission some guidelines in organizing such Units, adopted by Ministry of Health as Methodological Normative this year.

A National Working Group on Cervical Cancer Screening National Program will be leaded by Health Ministry himself (he is medical oncologist anyway). Leaders of Regional Management Units and representatives of all professional groups involved will be members.

Regional Management Units will be assisted by a commission of specialists in epidemiology and public health, gynecology, citopathology, family doctor, data manager, leaded by any of those specialists involved.

We delivered data from our Pilot regarding management, in order to help other units in organizing things and not to do same mistakes in their learning process.

Moreover a mandatory resource of program quality control is Regional Cancer Registry. Screening Management Units must be at least in contact with Cancer Registry Units, if not parts in same comprehensive cancer and control units like in our situation.

Conclusions for the Romanian North Western region

It seems from our results that resources are almost enough to sustain a quality controlled population based organized screening program in NW region, but smear taking resources are extremely limited especially in rural areas, where no gynecologists exist and training for family doctors will be started only in march (within a Training Project POSDRU with structural funds in partnership with Ministry of Health, University of Bucharest and Romanian College of Physicians).

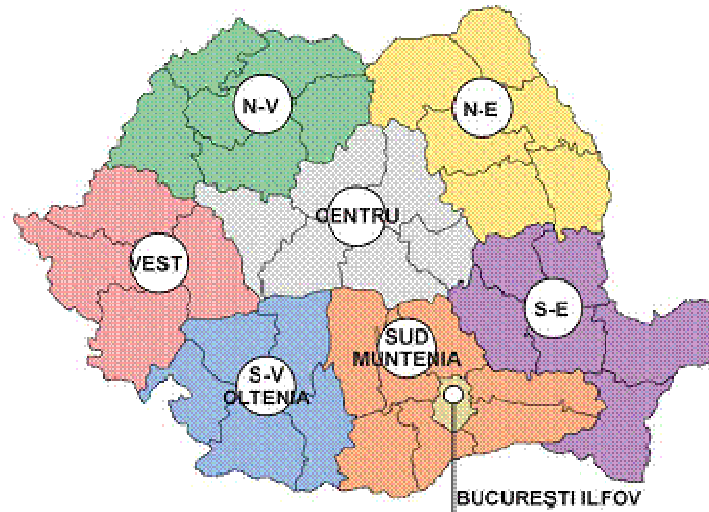
The EUROCHIP-3 study and the experience of the Pilot Screening Project held in Cluj in 2002-2008 underlined that in Romanian North Western region:

- ✓ there are enough citopathologists, but many not enough trained
- ✓ quality control of labs must be improved and legislation must be changed in domain
- ✓ family doctors must be trained and convinced to participate at taking smears, especially in rural areas
- ✓ mobile units must be authorized
- ✓ sanitary mediators should be trained to reach and convince women in isolated areas in mountains and minorities such as Roma, Ukrainian, Hungarian and other minorities living in villages
- ✓ gynecologists must be trained in follow-up and treatment of lesions, feed back to Fail Safe System Screening Registry for quality control
- ✓ there are epidemiologists at Cancer Registry and all the quality monitoring could be done properly.

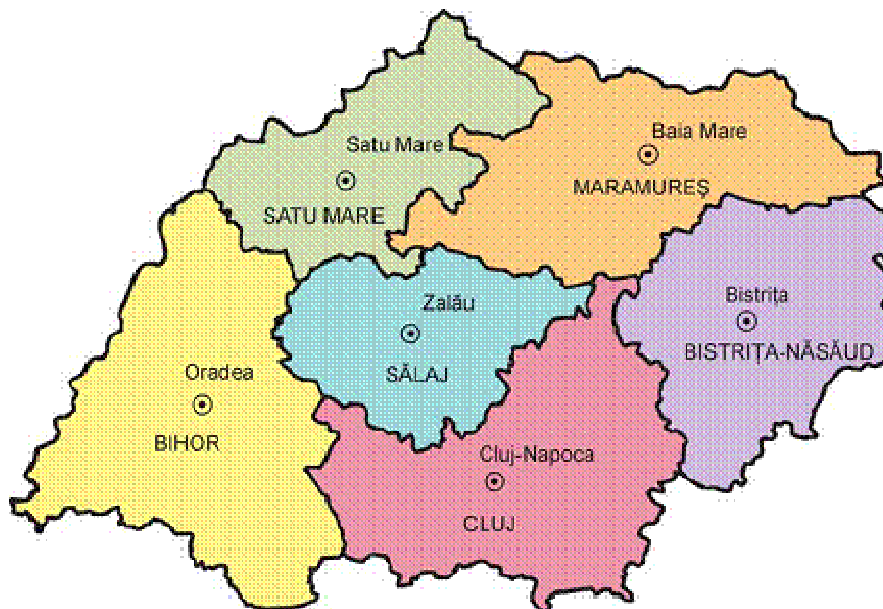
Appendix 1. THE NORTH –WESTERN REGION

Geographical units

The Romanian territory is organized in 42 counties (including Bucharest), the county being the traditional administrative-territorial unit in our country. Eight development regions have been created as territorial units (non-administrative), composed of several counties .



The **North-Western Region** has a **surface of 34159 km²**, representing **14.32%** of the total surface of our country and includes **6 counties: Bihor, Bistrița-Năsăud, Cluj, Maramureș, Satu-Mare and Sălaj**. The capital is Cluj-Napoca.



Population

The population of the North-Western Region is **2.714.118 inhabitants**, representing 12.7% of the total Romanian population. The main demographical, geographical and social characteristics of the composing counties and the North-Western Region compared to national data are presented in the next table.

INDICATOR	Bihor	Bistrița Năsăud	Cluj-Napoca	Maramureș	Satu Mare	Sălaj	NW Region	România
Area (km ²)	7544	5355	6674	6304	4418	3864	34159	238391
Inhabitans	592564	318508	676476	514409	367199	244962	2714118	21504442
Females (%)	51.36	50.43	51.64	50.84	51.45	50.09	51.21	51.3
Population density (inhabitans/km ²)	78.55	59.48	101.36	81.60	83.11	63.40	79.46	90.21
Life expectancy at birth	M 68.74	M 70.32	M 70.66	M 68.78	M 65.83	M 68.34	M 68.95	M 69
	F 75.01	F 76.41	F 77.46	F 76.17	F 74.09	F 75.67	F 75.9	F 77
Birth rates/1000	11	11.3	9.7	10.7	11.3	11.1	10.7	10.32
Mortality rates/1000	12.7	10.3	11.4	10.3	12.2	12.7	11.6	11.8
Cities	10	4	6	13	6	4	43	320
Villages	91	58	75	63	58	57	402	12951
Unemployment rate (2007)	2.4	2.4	3	3.4	2.6	4.4	2.9	6.4

The population structure of each county by age and sex groups at the 1st of July 2008 is shown in Table 1. Cluj county holds a quarter of the Region population and together with Bihor county the percentage reaches 46% from the total of the Region (Figure 1). The age structure for the **6 counties** and for the Region and its comparison to the World Standard Population are presented in Figure 2. In the North-Western Region, the population has continuously decreased and is by 8.6% lower in 2008 than in 1990.

Figure 1. Distribution of population on counties

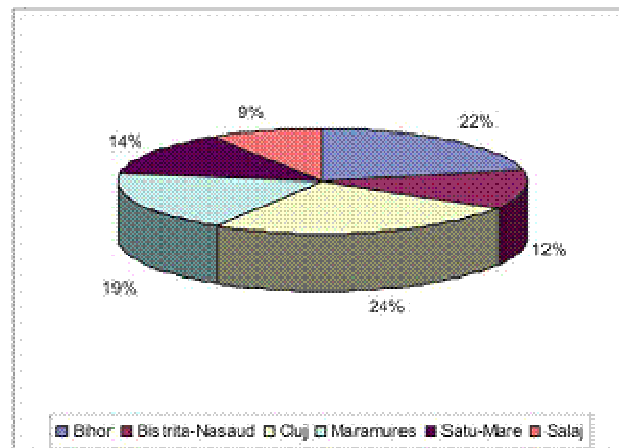


Table 1. North-Western Region population, by age, sex and by county, 01.07.2008

	BIHOR		BISTRIȚA-NĂSĂUD		CLUJ		MARAMUREȘ		SATU-MARE		SĂLAJ		TOTAL REGION		Total sexes
	M	F	M	F	M	F	M	F	M	F	M	F	M	F	
0-4	16218	15542	8670	8469	16086	15119	13809	13177	10125	9453	6488	6349	71396	68109	139505
5-9	15806	14981	9400	9053	14585	14070	14008	13444	9958	9529	6829	6548	70586	67625	138211
10-14	16458	15579	9795	9442	15819	14943	15010	14328	10365	10074	7116	6812	74563	71178	145741
15-19	20661	19660	11789	11515	20742	20103	19084	18263	14000	13365	8766	8451	95042	91357	186399
20-24	22959	21984	14042	13189	25050	24298	22275	21136	15912	15018	10087	9623	110325	105248	215573
25-29	23836	23028	13421	12445	27900	27942	21658	20160	15008	14121	9176	8463	110999	106159	217158
30-34	24787	23643	13381	12239	29061	28802	22394	20252	16077	14982	9718	8933	115418	108851	224269
35-39	24302	23505	12831	11953	27673	27260	20912	19541	15482	14822	9887	9377	111087	106458	217545
40-44	19412	19047	10944	10694	23164	23124	17873	17599	12769	12486	8472	7903	92634	90853	183487
45-49	17293	18347	10012	10059	20984	21928	16397	16721	11643	11902	7592	7290	83921	86247	170168
50-54	20530	22380	10373	10550	24530	26210	16939	18244	12091	13356	7723	7960	92186	98700	190886
55-59	17719	19866	9067	9672	21429	23895	15062	17021	10675	12405	6983	8105	80935	90964	171899
60-64	13781	16357	6769	7557	16556	19406	11567	13859	7670	9919	5906	7008	62249	74106	136355
64-69	11035	15128	5653	6946	14765	19022	9697	12413	6141	8693	5029	6683	52320	68885	121205
70-74	9918	14510	4923	6478	12157	17166	7407	10604	4710	7798	4360	6275	43475	62831	106306
75-79	7488	11240	3766	5434	9266	13638	5130	7979	3237	5890	3131	5121	32018	49302	81320
80-84	3980	6529	2036	3215	4988	8204	2529	4560	1659	3391	1724	2926	16916	28825	45741
85>	1800	3255	1026	1700	2381	4210	1115	2242	748	1725	824	1324	7894	14456	22350
Total	287983	304581	157898	160610	327136	349340	252866	261543	178270	188929	119811	125151	1323964	1390154	2714118

Figure 2. Distribution of population on counties and age groups - Nord Western Region

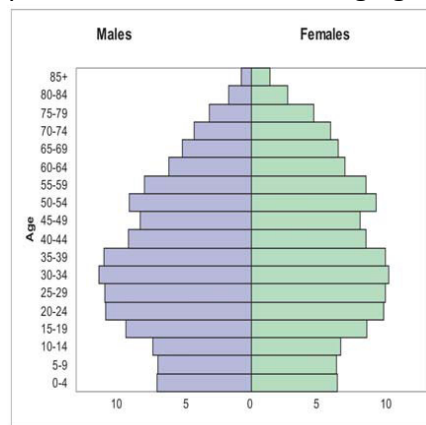
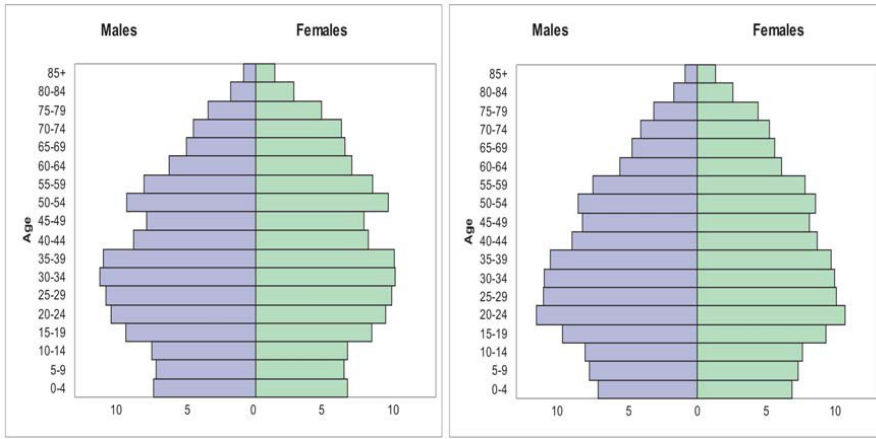
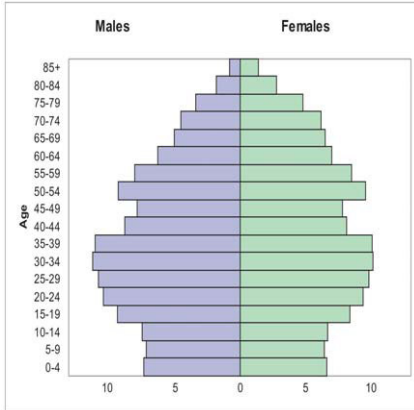


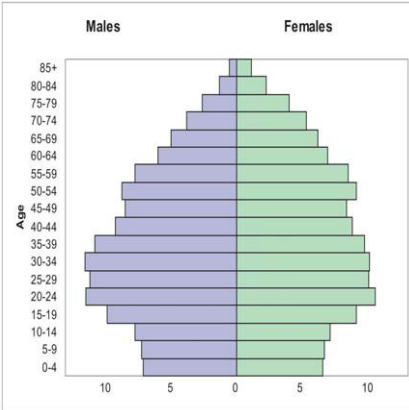
Figure 2. Distribution of population on counties and age groups – District of NW Region
Bihor Bistrita-Nasaud



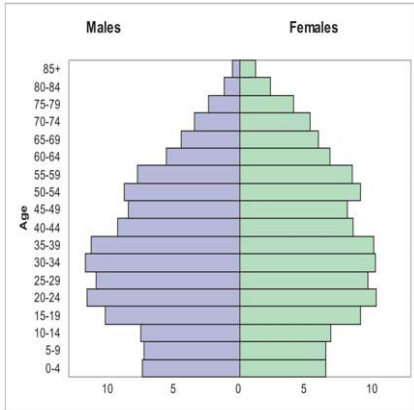
Cluj



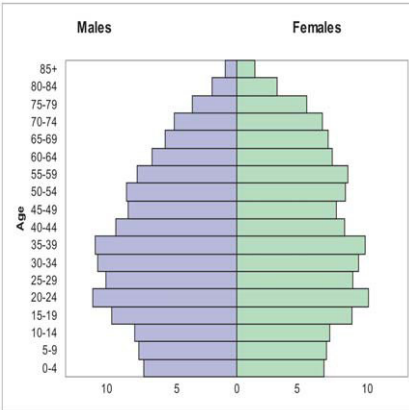
Maramures



Satu-Mare



Salaj



Appendix 2. CLUJ COUNTY INCIDENCE AND MORTALITY

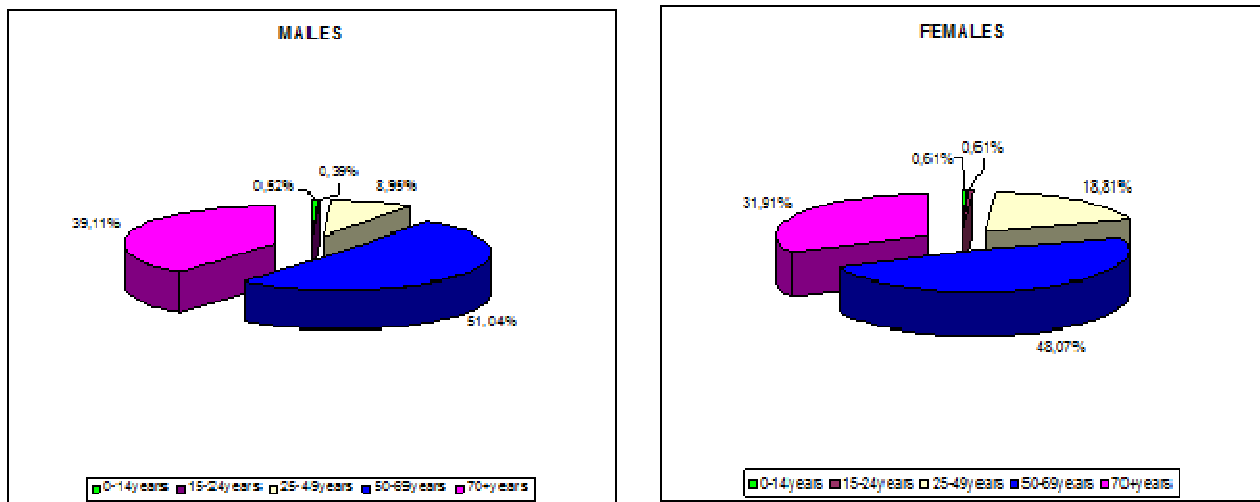
Cluj County

The county of Cluj is situated in the central-western part of Romania, in the middle of the **historic province of Transylvania**. The county **capital** is the **city of Cluj-Napoca**, a strong economic, cultural and university center, with an old academic tradition.

It has a **surface of 6674 km²**, or 2.8% of the Romanian geographic territory, and a population of **676.476 inhabitants**, or 3.15% of the total population of the country.

INCIDENCE

In 2008, 3209 new cancer cases were registered, of which 1632 were men and 1577 women.



In women, breast cancer is the most frequent (303), followed by **cervical cancer (216)**, colon cancer (89) and corpus uteri cancer (78), that is 52% of all the new cancer cases.

Cervical cancer is on the first place for female patients of 15 – 49 years old, while for the age group over 50 years breast cancer prevails.

For women, the **cumulative risk** of breast cancer was 5.87% (one woman out of 17), **4.27% for cervical cancer (one out of 23)** and of 1.44% for colon cancer (one out of 69).

In women, the following sites registered a consistent growth: colon, rectum, pancreas, lungs, breast and corpus uteri. The sudden **increase of cervical cancer cases in 2008 (216 cases) compared to 2007 (161 cases) can be explained by the registration of *in situ* cancers (83 cases in 2008)**, according to the new Ministerial Order issued in January 2008.

The lifetime risk of developing cancer (0 – 74 years), in absence of any other death cause is presented in the next table.

ICD-10	Site	Males	Female
C00- 96	All sites	30.57	24.14
C00-14	Mouth, pharynx	2.73	0.44
C15	Oesophagus	0.64	0.02
C16	Stomach	2.72	0.95
C18	Colon	2.61	1.56
C19-21	Rectum, rectosigmoid, anus	2.14	1.17
C22	Liver	1.12	0.51
C25	Pancreas	1.05	0.78
C32	Larynx, epiglottis	1.2	0.02
C33-34	Lung, trachea	7	1.13
C43	Melanoma of the skin	0.6	0.61
C50	Breast	0	5.92
C53	Cervix uteri	0	4.28
C54	Corpus uteri	0	1.51
C55	Uterus, other	0	0.22
C56	Ovary	0	1.42
C61	Prostate	4.36	0
C62	Testis	0.22	0
C64	Kidney excl. renal pelvis	1.02	0.5
C67	Bladder	1.65	0.27
C70-72 D42-43	Central nervous system	0.6	0.61
C73	Thyroid gland	0.14	1.13
C81	Hodgkin lymphoma	0.1	0.04
C82-85	Non-Hodgkin lymphoma	0.61	0.59
C91-95	Leukaemia	0.97	0.76

MORTALITY

In 2008, there were 1828 deaths, 1082 in men and 746 in women. The first causes of death from cancer in women: first ranks breast cancer (129), followed by lung (64), ovary (57) and stomach (56), which account for 42% of all deaths.

Cervical cancer is situated only on the seventh place in the hierarchy of cancer mortality in female patients; the mortality decrease could be correlated with the identification in early stages, after correct information of women about the Babes – Papanicolaou smear with the occasion of the screening organized between 2002 and 2008 in Cluj County (which covered almost 20% of 25-64 years old women population of the county). This explanation could be sustained by the increasing percentage of cases discovered in stage 0 (in 2008, over a third of the cases were diagnosed in stage 0).

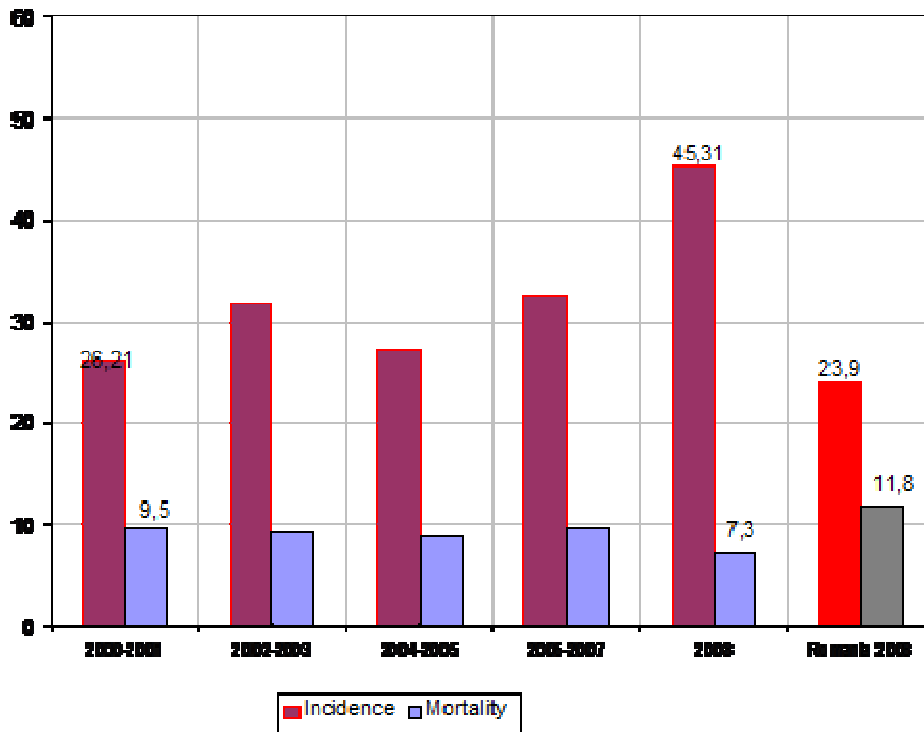
TRENDS IN INCIDENCE AND MORTALITY RATES 2000-2008

In Cluj County, between 2000 and 2008, the age standardized incidence (compared to the world standard population) in cancer (all sites) has increased significantly in both sexes, from 195‰ to 308.51‰ in men and from 165.38‰ to 266.4‰ in women in 2008.

In parallel, during the same interval, the age standardized mortality (compared to the world standard population) for all sites has increased slightly in male patients from 187.74‰ to 198.23‰ whereas in women it remains constant around a value of 105‰.

In women, most cancers show increasing incidence rates, with few exceptions: esophageal and laryngeal cancers. The divergence between incidence and mortality is seen in breast cancer, cervical cancer, corpus uteri cancer and leukemia, for which the decreasing mortality could be attributed to treatment improvement or earlier diagnosis.

The rise in mortality rates is due to the absence of organized cancer screening programs, excepting cervical cancer screening pilot which showed some impact on early detection of cervical cancers.



Trends of age-standardized incidence and mortality (world standard population), by cervical cancer, Cluj County, 2000-2008 and Romania 2008

Appendix 3. Screening implementation situation NW Romania Region.

Romania is the birth place of cervical screening. It was in 1927 that Victor Babes presented the first evidence that cervical cancer could be diagnosed by cervical smears to the Gynaecology Society in Bucharest. A year later, he published his findings in the prestigious medical journal *Presse Médicale*. Another 15 years were to pass before these findings were sufficiently understood to use as the basis for a practical screening tool. The man responsible for this work was, George Papanicolaou, who gave his name to the Pap test.

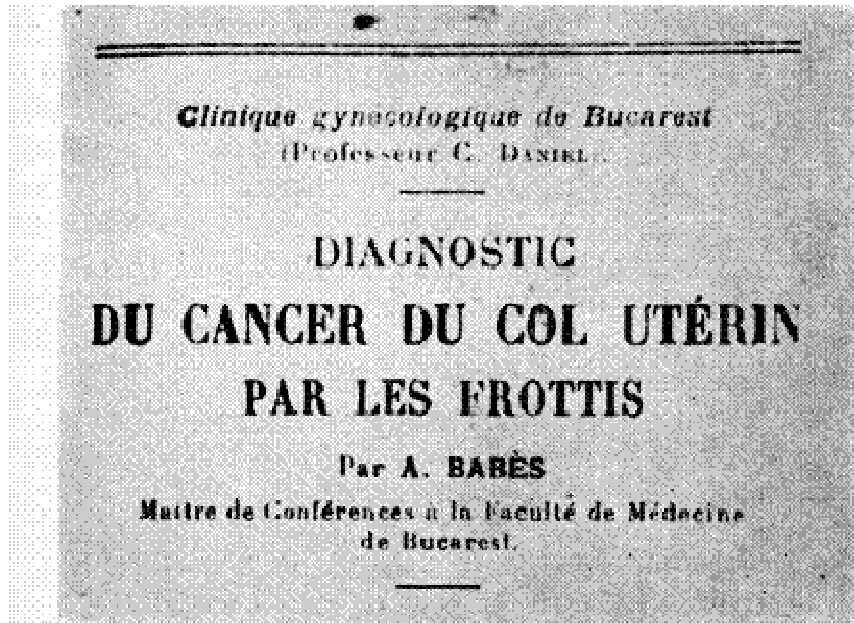


Fig. 7 — Fotografia titlului articolului lui A. Babeş apărut în *Presse médicale*, 1928, 36, 451 — 454.

Women in many countries across the world are benefitting from national quality controlled screening programs using this test. Romania, in contrast, has no such program, despite having one of the highest rates of death from cervical cancer in the world.

In Romania, in NW region comprehensive cancer centers for treatment and prevention existed since 1920-ies too, and sporadic and opportunistic use of Babes-Papanicolau tests in cervical cancer prevention has a very long history. A very good school of citopathology existed since the very beginning of the method.

Unfortunately, due to everlasting political misunderstanding of the matter, since our days no organized population screening program ever was considered, excepting a Pilot organized in Cluj some years ago covering almost 20% of women target population at risk 25-64 years old. National rollout is delayed from almost 4 years and promises existed from last two governments to start it since 2009, not yet accomplished.

Romanian women are towards those 2% European Community women not covered by free Babes-Pap tests either in opportunistic or organized manner.

Appendix 4. Experience from the Cluj pilot cervical screening project

A pilot regional cervical cancer screening program was organized in 2002-2008 in Cluj with this distribution of financed tests:

Year	Nr.
2002	14395
2003	16630
2004	17395
2005	15300
2006	21400
2007	27397
2008	11373
Total	123890

Smears taken by

Family doctors	16775	13.5%
Gynecologists	107115	86.5%
Total	123890	

Family doctors were resistant to such activities in our experience, even intensively stimulated. Initially we gave to a lot of them with gynecologic tables, lamps, sterilization resources, we paid them for taking smears, we trained them twice in our institute and in a program with American assistance, and still they covered only 14% from smears taken in the pilot, and mainly family doctors in cities. In rural almost no family doctor took smears despite all our efforts.

The most and only effective resource of taking smears in rural areas was the mobile unit.

Tests performed by mobile unit were:

County	2003	2004	2005	2006	2007	2008	Total
Cluj	560	2135	2258	1215	2027		
Bistrita-Nasaud			2172	2548	1275		
Maramures		382	22		380		
Salaj			895	167			
Satu-Mare			827	1218	94		
Total test	560	2517	6174	5148	3776	0	18175

A very important issue here was population information, both of women at risk and husbands, as religious and ethnical disparities appeared to be extremely important. Sanitary mediators in isolated areas were used with huge success, in Roma communities or in the mountain villages, in Maramures ethnical communities, in Hungarian population of some villages. The response was very good, especially in Maramures where we had two villages with over 90% population at risk covered, in Hungarian villages with more than 80% (here mobile unit finally competed with family doctors), Roma non traditional communities where we tested hundreds of women and we treated few dysplasia, as despite the fact that these women are usually living in an important sanitary promiscuity, their sexual behavior is based on fidelity and we can assume that HPV infections rates are low – this may be the reason we found less than 10 cases which needed to be treated with only two invasive lesions.