

R E P O R T

on implementation of milestones of the 2 quarter of the forth year
of the Joint Ukrainian-American Scientific Project

**“Study of Thyroid Cancer and Other Thyroid Diseases in Ukraine
Following the Chornobyl Accident”**

Project Manager

Dr. M. Tronko

(September - October - November 1999)

(i) Management and administration

2.15 *To organize screening by mobile medical teams, of cohort members residing in Chernihiv raion of Chernihiv oblast.*

Screening by mobile medical teams, of cohort members who are residing in Chernihiv raion of Chernihiv oblast, has been organized. 341 cohort members have been examined.

2.16 *To organize screening by mobile medical teams, of cohort members residing in the town of Chernihiv.*

Screening by mobile medical teams, of cohort members who are residing in the town of Chernihiv, has been organized. 180 cohort members have been screened.

2.17 *To organize screening by mobile medical teams, of cohort members residing in Ripky raion of Chernihiv oblast*

Screening by mobile medical teams, of cohort members residing in Ripky raion of Chernihiv oblast, has been organized. 158 cohort members have been examined.

2.18 *To organize, on the basis of the Clinic of the Institute of Endocrinology and Metabolism of the AMS of Ukraine, screening by stationary medical team, of cohort members who have been evacuated to the City of Kyiv from the raions of Ukraine controlled according to the Project Protocol.*

It has been organized, on the basis of the Clinic of the Institute of Endocrinology and Metabolism of the AMS of Ukraine, screening by stationary medical team, of cohort members who have been evacuated to the City of Kyiv from the raions of Ukraine controlled according to the Project Protocol. 141 cohort members have been screened.

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2.19 *To organize, on the basis of the Clinic of the Institute of Endocrinology and Metabolism of the AMS of Ukraine, screening by stationary medical team, of cohort members residing in Kozelets raion of Chernihiv oblast.*

On the basis of the Clinic of the Institute of Endocrinology and Metabolism of the AMS of Ukraine, screening by stationary medical team, of cohort members residing in Kozelets raion of Chernihiv oblast, has been organized. 80 cohort members have been examined.

2.20 *To prepare meetings with US Project executors.*

The following meetings with US Project executors have been organized and held during their visit to the Institute:

- Meeting devoted to organization and epidemiology support of the Project - September 13-15, 1999 (I. Masnyk, J. Howe, D. Burch, D. Heitjan , L. Zablotska);
- Meeting devoted to dosimetry and epidemiology support of the Project - September 22, 1999 (D. Howe, A. Bouville, L. Zablotska);
- Meeting devoted to Data Coordination Center operation - October 13, 1999 (I. Masnyk, D. Howe);
- Meeting of the Ukraine and US Advisory Committees of the Project - October 14, 15, 1999 (I. Masnyk, J. Howe, A. Bouville, D. Fink, R. Shore, B. Napier, G. Burrow, R. McConnell, J. Robbins, T. Thomas
- Meeting devoted to epidemiology support of the Project and Data Coordination Center operation - October 16, 1999 (J. Howe J. Thomas).

1.37. *To prepare a meeting of Ukraine and US Advisory Committees of the Project.*

Meetings of Ukraine and US Advisory Committees of the Project have been organized and held on October 14-15 1999.

2.15 *To prepare the Heads of structure subdivisions of the Project in order to report the results of Project implementation at the National Cancer Institute of the U.S.A.*

The Heads of structural subdivisions of the Project have been prepared for reporting the results of Project implementation at the National Cancer Institute of the U.S.A.

2.16 To organize meetings of Project's Management in order to discuss progress in Project implementation

Meetings of Project's Management for discussing progress in Project implementation have been organized and held.

2.17 To prepare custom clearance documentation for shipments received in the framework of the Project.

Custom clearance documentation for shipments received in the framework of the Project, has been prepared.

2 Establishment of cohort

2.15 To continue identifying settlements with substantial number of patients, resettled from contaminated areas, and clarify the possibilities of their examining.

Continued an address search of persons, resettled from the study raions. For the examination in the framework of Project will be invited people who currently live within the borders of Kyiv, Zhitomyr and Chernihyv oblasts of Ukraine.

The largest number of cohort members were resettled within Kyiv oblast. In the raions of Kyiv oblast, not being mentioned in the Protocol, currently live 1148 study candidates, 951 lives in Kyiv city.

In the Zhytomyr oblast outside of the study raions live 881 persons. Out of them – 227 in Brusiliv raion, 70 – in the Zhitomyr city.

In Chernihiv oblast number of such persons just 144.

Numbers mentioned above include only people with known mailing address, there exist a group of people known to live within Kyiv, Zhitomyr and Chernihyv oblasts of Ukraine oblast, but their mailing address needs to be clarified.

All those cohort members will be invited for screening by mail and based on the answers received fixed or mobile screening teams will be involved in the screening.

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Significant number of cohort members were resettled within Ukraine, but to the different oblast. Unfortunately, distant situation of those oblast from Kyiv, spreading cohort members within oblast, often missing mailing address makes it impossible to invite them for screening now.

Table 2.1. Number of cohort members resettled outside of Kyiv, Zhitomyr and Chernihiv oblast of Ukraine.

2. Oblast of Ukraine	Number of cohort members moved to oblast
Vinnitsa	43
Volin'	16
Luhansk	11. 24
Dnepropetrovsk	37
Donetsk	31
Zakarpat'ye	19
Zaporizhskaya	72
Ivano-Frankivsk	11
Kirovograd	61
Krimea	34
Lviv	43
Mikolayiv	28
Odessa	50
Poltava	93
Rivne	14
Sumi	71
Ternopil'	22
Kharkiv	76
Herson	39
Khmel'nit'skyi	65
Cherkassy	91
Chernivczi	6
Total	946

2.15 To finish an address search of cohort members in Kyiv oblast using data of the Chornobyl Department of Kyiv oblast.

The search of current address of 681 cohort members who used to live in the Chornobyl city and Chornobyl raion and remain not found in a card index of Chornobyl Department of Kyiv oblast. Information revealed will be entered into Project database and analyzed in December 1999.

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2.15 *To perform a search of cohort members in the Chernihiv oblast using data military enlistment offices, Chornobyl Department of Chernihiv oblast, oblast taxation agency.*

To the Chernihiv city military enlistment office were delivered lists of cohort members not found earlier for manual search (355 persons). This task will be finished in December 1999. Were prepared and sent to Chernihiv city lists of people not found earlier (2182) to be matched towards existing indices of oblast taxation agency and Chornobyl Department. Possibility and terms of accomplishment of this job currently being considered.

2.17. *To summarize obtained address information.*

Current situation in the field of tracing of addresses of cohort members is presented in tables 3.2, 3.3

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Study Raion	Total In 20,000 Cohort in 1986	Identification Of Current Address of 1986 Cohort										01.12.99		
		Total Living Identified	%	Deceased	%	Duplicate Records	%	Moved to Unknown Address	%	Emigrated	%		Not Yet Found	%
Town of Pripiat	1584	1179	74%	4	0%	80	5%	4	0%	71	4%	246	16%	
Polesky	1399	662	47%	4	0%	38	3%	1	0%	5	0%	689	49%	
Ivankiv	737	619	84%	2	0%	15	2%	24	3%	3	0%	74	10%	
Chornobyl	1484	779	52%	2	0%	20	1%	0	0%	1	0%	682	46%	
Kyiv Oblast total	5204	3239	62%	12	0%	153	3%	29	1%	80	2%	1691	32%	
Kozeletsky	2089	1320	63%	9	0%	17	1%	121	6%	24	1%	597	29%	
Ripinsky	1377	1017	74%	14	1%	45	3%	42	3%	77	6%	182	13%	
Chernihiv	2858	2079	73%	16	1%	150	5%	242	8%	26	1%	345	12%	
City of Chernihiv	1192	762	64%	5	0%	2	0%	18	2%	17	1%	388	33%	
Chernihiv Oblast total	7516	5178	69%	44	1%	214	3%	423	6%	144	2%	1512	20%	
Narodychi	4279	2709	63%	20	0%	871	20%	4	0%	43	1%	632	15%	
Ovruch	3072	2293	75%	23	1%	69	2%	139	5%	116	4%	432	14%	
Zhytomyr Oblast total	7351	5002	68%	43	1%	940	13%	143	2%	159	2%	1064	14%	
Total	20071	13419	67%	99	0%	1307	7%	595	3%	383	2%	4267	21%	

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Study Raion	Total Living Identified	Total Living in Raion	Status of Cohort with Identified Current Addresses						01.12.99
			%	Living in Same Oblast	%	Living in Other Oblast	%	Temporarily Absent	
Town of Pripiat	1179	16	1%	786	67%	375	32%	2	0%
Polesky	662	117	18%	477	72%	66	10%	2	0%
Ivankiv	619	539	87%	55	9%	21	3%	4	1%
Chornobyl	779	139	18%	590	76%	46	6%	4	1%
Kyiv Oblast total	3239	811	25%	1908	59%	508	16%	12	0%
Kozeletsky	1323	1025	77%	76	6%	133	10%	86	7%
Ripinsky	1015	722	71%	201	20%	48	5%	46	5%
Chernihiv	2079	1685	81%	302	15%	50	2%	42	2%
City of Chernihiv	762	652	86%	62	8%	23	3%	25	3%
Chernihiv Oblast total	5179	4084	79%	641	12%	254	5%	199	4%
Narodychi	2709	1043	39%	1030	38%	609	22%	27	1%
Ovruch	2293	1832	80%	125	5%	303	13%	33	1%
Zhytomyr Oblast total	5002	2875	57%	1155	23%	912	18%	60	1%

3.20. *To perform an address search of cohort members not found in the Zhytomyr oblast earlier in raion military enlistment offices.*

An attempt is being undertaken to locate 1364 cohort members lived in 1986 in Zhytomyr oblast, not found earlier, with a help of military enlistment office of Kyiv oblast, in the Department on questions of extreme situations and protection of the population of Zhytomyr oblast state administration, in the Department of social security of population of Zhytomyr oblast state administration, in the state taxation administration of Zhytomyr oblast.

572 study candidates are being located in the Department of education of Zhytomyr oblast state administration.

3. An invitation of patients to endocrinological screening.

3.20. *To continue obtaining and analysing information on people who did not come for the examination in all raions under study where examination already took place (Ovruch and Narodychi raions of Zhytomyr oblast; Kozelets, Ripky and Chernihiv raions of Chernihiv oblast).*

An analyses of primary search and invitation for an examination of cohort members dwelling in Narodychi raion (1275 persons) and Ovruch raion of Zhytomir oblast (1275 persons) performed by local medical staff of corresponding raions.

Table 1. Results of the initial search and invitation to screening of the members of cohort of the Ukr. Am. Project, living in Narodichy and Ovruch raions of Zhytomyr oblast.

N	Possible results	Narodichy raion	Ovruch raion	Total
1	Total number of cohort members for an initial search and invitation for an examination	1275	2118	3393
2	Number of cohort members with a preliminary address for an initial search and invitation for an examination (% out of 1)	704 (55.22%)	828 (39.09%)	1532 (45.15%)
3	Number of cohort members with known address	571 (44.78%)	1290 (60.91%)	1861 (54.85%)

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N	Possible results	Narodichy raion	Ovruch raion	Total
	for an invitation (% out of 1)			
4	Number of missing data for analyses (% out of 1)	112 (8.78%)	4 (0.19%)	116 (3.42%)
5	Number of present data for analyses (% out of 1)	1163 (91.22%)	2114 (99.81%)	3277 (96.58%)
6	Cohort member came to an examination (% out of 5)	90 (7.74%)	621 (29.38%)	711 (21.70%)
7	Cohort member agreed to come for an examination but didn't come (% out of 5)	46 (3.96%)	26 (1.23%)	72 (2.20%)
8	Cohort member refused to come to the examination in suggested time (% out of 5)	4 (0.34%)	1 (0.05%)	5 (0.15%)
9	Cohort member refused to come for examination(% out of 5)	32 (2.75%)	13 (0.61%)	45 (1.37%)
10	? Cohort member moved (% out of 5)	138 (11.86%)	636 (30.08%)	774 (23.62%)
11	Cohort member moved but there living relatives, which can send information about study to him (% out of 5)	3 (0.26%)	82 (3.88%)	85 (2.59%)
12	Cohort member is not found (% out of 5)	243 (20.89%)	503 (23.79%)	746 (22.77%)
13	Cohort member died (% out of 5)	6 (0.52%)	20 (0.95%)	26 (0.79%)
14	No answer (% out of 5)	591 (50.82%)	212 (10.03%)	803 (24.51%)
15	Has been examined earlier (% out of 5)	5 (0.43%)	0 (0.00%)	5 (0.15%)
16	Double record (% out of 5)	2 (0.17%)	0 (0.00%)	2 (0.06%)
17	Doesn't meet eligibility criteria (% out of 5)	3 (0.26%)	0 (0.00%)	3 (0.09%)
18	Number of cohort members with answers received , 6-13	562	1902	2464
19	Number of cohort members invited for screening, 6-9 (% out of 18)	172 (30.60%)	661 (34.75%)	833 (33.81%)
20	Number of cohort members not invited for screening, 10-13 (% out of 18)	390 (69.40%)	1241 (65.25%)	1631 (66.19%)
21	Number of cohort members who came to an examination (% out of 19)	145 (84.30%)	246 (37.22%)	391 (46.94%)

3.20. To perform an invitation for screening of study subjects currently living in the city Chernuhiv

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An invitation of persons not being invited earlier and repeated invitation of cohort members who didn't come for an examination previously.

Were mailed invitations for screening to all cohort members with known mailing address dwelling in Chernihiv – 613 invitations.

Mobile teams of the Institute examined 185 cohort members - inhabitants of the Chernihiv city.

Were analyzed cards with responses of cohort members from the city of Chernihiv, list of people agreed to participate was assembled and handed to the Chernihiv city medical staff for a further invitation of a cohort members on a certain date to be examined by mobile teams.

3.21. *To mail invitations for cohort members dwelling in Kyiv city, based on the answers received, make a schedule of work for a fixed center.*

In Kyiv were mailed 579 invitations for cohort members.

Table 3.2 A yield of mailing an invitations in Kyiv

Invitations Sent	Cards with responses returned	Cards with responses were not mailed back	Agreed to participate	Refused to participate	Returned by post service because of wrong address
579	170 (29%)	409 (71%)	153 (26%)	1 (0,1%)	16 (2%)

For all cohort members who send their written agreement to participate in the examination dates of appointments were suggested by telephone contact. (many of them didn't attend the first one and therefore were rescheduled)

Out of 153 Kyiv cohort members, who send back card with an agreement to participate, 105 attended their appointments in the reported period.

Using data base of telephone reference service telephone numbers of 246 cohort members dwelling in Kyiv were found.

So, invitation by the telephone has been performed even in those cases when card with a response was not returned. 36 persons from this group of patients came to examination. Invitation by

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telephone will be continued and sending of a repeated invitation will be performed in the next quarter.

3.20. *To perform a repeated invitation for screening of cohort members in the Chernihiv and Ripki raions of Chernihiv oblast, invite people who were not invited before make a schedule of work for mobile team.*

A work on in invitation for screening of a group of patients from Ripki (338 persons) and Chernihiv raion.

158 cohort members were examined in Ripki raion, 312 – in Chernihiv raion of Chernihiv oblast.

3.21. *To invite for a examination by fixed center cohort members from Kozelets raion of Kyiv oblast*

For an examination by fixed center were invited cohort members from Kozelets raion.

105 appointments were made, 82 cohort members(78%) attended their appointments. Study candidates were brought to Kyiv by bus.

In order to achieve better knowledge of study candidates about tasks and goals of Project, in the reported period were developed new editions of information documents which will be used for the study purposes (An invitation, Thank you letter and others). Information brochure "Information of the participant of the Ukrainian – American Project" were solved organizational issues of printing and mailing of a correspondence to cohort members who already were examined and to those who are being invited.

A documentation for registration of contacts with cohort members has been changed.

Total number of people examined for the reported period presented in the table 3.3

Table 3.3. Number of persons invited and examined in September – November 1999.

Raion	invited	examined	
		Mobile teams	Fixed center
Ovruch raion	50	25	

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Chernihiv city	613	-	185	-
Chernihiv raion			312	
Kozelets raion				80
Kyiv city				141
Ripki raion	338		154	
Number of cohort members examined by facility			676	221
Totally examined in the quarter			897	

A.

B. Table 3.4 Total number of cohort members examined by study raions on 01.12.1999

Raion	In 20,000 cohort in 1986	Found within raion (to date)	examined	% (out of number found)	Left to be examined	% (out of number found)
Kyiv oblast	5204	2957	729	24,6	2228	75
Ivankiv	737	574	191	33,2	383	66
Polissya	1399	126	0	0	126	100
Chornobyl	1484	142	45	31,6	97	68
Pripiat'	1584	16	0	0	16	100
Kyiv city		951	491	51,6	460	48
Other raions of Kyiv oblast		1148	2	0	1144	100
Zhitomyr oblast	7351	3617	1610	44,5	2007	55,4
Narodichi	4279	957	535	55,9	422	44
Ovruch	3072	1779	992	55,7	787	44,2
Brusiliv		227	64	28,1	63	71
Other raions of Kyiv oblast		654	19	2,9	635	97
Chernihiv oblast	7516	4577	2473	54	2014	44
Ripki	1377	769	596	77,5	173	22,5
Chernihiv raion	2858	1709	657	38,4	1052	61,5
Chernihiv city	1192	907	527	58,1	380	41,9
Kozelets	2089	1010	687	68	323	32

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Other raions of Chernihiv oblast		144	- 6	4	138	94
Other oblast of Ukraine			5			
Total	20000	11151	4817	43,19	6249	56,8

Table 3.5 Distribution of cohort members by dose group.

III.	High C	Med B	Low A	Total
IV. Umber in dose FILE	10075	18741	46533	75349
V. Umber In 1-ST Sample	10075	4959	5037	20071
Umber Of addresses found	6364	3627	3697	13688
Number Of invited to participate	3142	2288	2618	8048
Number Of screened	2052	1364	1401	4817
Number of thyroid cancer	10	1	0	11

Table 3.6. Sex, age and dose distribution of subjects screened

Age (at the time of screening)	High dose		Middle dose		Low dose		All dose groups	
	m	f	m	f	m	f	m	f
11-17	620	618	315	331	174	193	1109	1100
18-21	157	202	141	159	147	172	445	533
22-31	247	199	216	207	295	424	758	830

Total - 4817 subjects from all groups were screened

(a) 4. Endocrinologic examination of the subjects

7.1. *To perform screening by mobile teams of cohort members residing in Ripky and Chernigov raions of Chernigov oblast.*

7.2. *To perform screening by fixed team, on the base of the Institute of Endocrinology and Metabolism, of cohort members residing in Kozelets raion of Chernihiv oblast.*

For the reported period, a total of 904 cohort members have been examined in Zhytomyr, Chernihiv oblasts and city of Kyiv (persons relocated from the town of Prypyat' in April-May 1986). No pathology has been revealed in 631 persons.

Thyroid pathology:

- Diffuse goiter, degree 1 - 192 cases
- Diffuse goiter, degree 2 - 38 cases
- Mixed goiter, degree 1 - 9 cases
- Mixed goiter, degree - 5 cases
- Nodular goiter - 10 cases (in one case intraoperative express-biopsy showed a follicular neoplasm, patient Tkachenko O.V., born Aug. 3, 1975, from Chernihiv raion of Chernihiv oblast)
- Multinodular goiter, degree 1 - 5 cases (in one case FNAB showed a papillary carcinoma, patient ,female, T.N., born , 1978, from the city of Kyiv, relocated from the town of Prypyat' in 1986; in one case express-biopsy showed a papillary carcinoma, patient, female, born 1977, from Chernihiv raion of Chernihiv oblast)

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- Multinodular goiter, degree 2 - 1 case -
- Congenital hypothyroidism - 1 case
- Papillary carcinoma (T₂N₀M_x) - 1 case (patient, female, . . . , aged 15 years, from the city of Kyiv, relocated from the town of Prypyat' in 1986)
- Follicular adenoma - 1 case (patient, male, . . . , city of Chernihiv, operated in November 1999)
- Autoimmune thyroiditis, hypertrophic form
- Mixed goiter, degree 1 - 1 case

Other endocrine pathology:

- Diabetes mellitus, type 1, severe form - 2 cases
- Growth and sexual development retardation - 1 case.

(b) 5. Operation of the Central Laboratory

5.2 To perform all laboratory investigations in the process of screening.

VI. Blood assays:

VII.

A. Thyrotropin: 672 persons, among which:

- normal level (0.3 - 0.4 mU/l) - 582 persons (86,6 %);
- below the normal level - 1 person (0.2%);
- above the normal level (4,1 - 5,0 mU/l) - 55 persons (8,2%);
- above the normal level (5,1 - 10 mU/l) - 35 persons (5,2%);
- over 10 mU/l - 0 person.

B. Anti-TPO: 504 persons, among which:

- normal level - 436 persons (86,5%);
- above the normal level (101-200 U/ml) - 48 persons (9,5%);
- above the normal level (201-500 U/ml) - 4 persons (0,8%);
- above the normal level (501-1000 U/ml) - 4 persons (0,8%);
- over 1001 U/ml - 12 persons (2,4%).

C. Thyroglobulin: 646 persons, among which:

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- normal level - 545 persons (84,4%);
- below the normal level - 18 persons (2,8%);
- above the normal level (60 - 100 ng/ml) - 57 persons (8,8%);
- above the normal level (101-200 ng/ml) - 24 persons (3,7%);
- above the normal level (201-500 ng/ml) - 2 persons (0,3%).

D. Parathormone: 171 persons, among which:

- normal level (11-62 pg/ml) - 124 persons (72,5%);
- below the normal level - 45 persons (26,3%);
- above the normal level - 2 persons (1,2%)

E. Calcium: 881 persons, among which:

- normal level (1,13 - 1,32 mmol/l) - 562 persons (63,8%);
- above the normal level - 48 persons (5,5%);
- below the normal level - 4 persons (0,4%);
- without correction - 267 (30,3%).

VIII. Biopsies of thyroid neoplasms have been performed in 29 persons, among which 1 case of malignant tumour and 2 cases of suspected carcinoma have been reported.

IX.

III. Urinary iodine tests

X.

For the reported period, urinary iodine excretion tests have been performed in 450 persons examined who were children and adolescents at the moment of the Chernobyl accident and are residing in settlements of Narodychi and Ovruch raions of Zhytomyr oblast. Investigation of iodine excretion was being performed using cerium-arsenite method according to R. Gutekunst technique modified by A.D. Dunn. Urinary iodine excretion under 20 $\mu\text{g/l}$ was reported in 20.34 % of the persons examined; iodine concentration from 20 to 50 $\mu\text{g/l}$ was found in 35.07 % of study subjects. Urinary iodine excretion from 50 to 100 $\mu\text{g/l}$ has been revealed in 31.34 % of the persons examined. Iodine excretion over 100 $\mu\text{g/l}$ was reported in 13.25 % of study subjects. The results obtained point out a moderate and low degree of iodine deficiency, according to WHO criteria, in persons examined from controlled regions of Ukraine.

(i) 6. Operation of Data Coordinating Center

7.1. *To continue entry of screening data into Project DB (medical records, dynamics of patients' invitation, all paper screening Forms).*

During the reported period, Data Coordination Center has been performing entry of the following data:

Entry of data on patients examined from medical records of mobile and stationary teams.

Entry of data from medical records of magneto-optical disks. Archiving and copying of digital images of thyroid gland. Quality control performance of images by analysis of test images of phantom measurement.

Entry of results of contacts from cards of a potential study subject. Data for Ovruch and Narodychi raions, cities of Kyiv and Chernihiv have been entered.

Raion	Number of data entered from cards
Narodychi	29
Ovruch	1016
City of Kyiv	198
City of Chernihiv	250

Data entry was being performed from all paper screening Forms into Project database. Status of Form entry for the end of the reported period is represented in the following Table:

Name of the Form	Total number of Forms entered for the end of the reported period
Control Form	1220
Anamnesis	1220
Blood collection and processing	1210
Results of blood examination	1210
Final conclusion	1196
Palpation 1	1223
Palpation 2	1207
Preliminary conclusion	1226
USI Form	1224

7.1. *To develop DB and software for introduction of Fine Needle Aspiration Biopsy (FNAB) Form.*

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A database and a programme for data-entry from FNAB Form have been developed and established. DB structure is represented in the following Table:

Structure of Table **BIOPSIA.DB** which reflects information contained in FNAB Form.

(* - key fields)

№	XI. FIELDS' NAME	TYP E	XII. COMMENTS
1.	ID	A(8)*	Identification number
2.	_DATE	D*	Date of filling in the Form
3.	Kod_Zap	A(3)	Code of the person having filled in the Form
4.	Kod_Input	A(3)	Code of the person having entered into PC
5.	Preparation	S	Preparation of patient under sonographic control 1 – yes
6.	ThicknessNeedle	A(3)	Needle thickness
7.	TireoidKnot	S	Thyroid nodule (1 – yes)
8.	TireoidKnotCount	S	Number
9.	LimfoKnot	S	Lymph node (1 – yes)
10.	LimfoKnotCount	S	Number
11.	Zob	S	Goiter (1 – yes)
12.	Knot 1Material_1	S	Nodule 1. Biopsy. Submitted material. Cellular 1 – yes
13.	Knot 1Material_2	S	Nodule 1. Biopsy. Submitted material. Colloid 1 – yes
14.	Knot 1Material_3	S	Nodule 1. Biopsy. Submitted material. Blood. 1 – yes
15.	Knot 1Material_4	S	Nodule 1. Biopsy. Submitted material. Cystic fluid 1 – yes
16.	Knot 1Material_4Color	S	Nodule 1. Cystic fluid: color: 1 – transparent 2 – colourless 3 – yellow 4 – hemorrhagic
17.	Knot2Material_1	S	Nodule 2. Biopsy. Submitted material. Cellular 1 – yes
18.	Knot2Material_2	S	Nodule 2. Biopsy. Submitted material. Colloid 1 – yes
19.	Knot2Material_3	S	Nodule 2. Biopsy. Submitted material. Blood 1 – yes
20.	Knot2Material_4	S	Nodule 2. Biopsy. Submitted material. Cystic fluid 1 – yes
21.	Knot2Material_4Color	S	Nodule 2. Cystic fluid: colour: 1 – transparent 2 – colourless 3 – yellow 4 – hemorrhagic

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22.	Knot3Material_1	S	Nodule 3- Biopsy. Submitted material. Cellular 1 – yes
23.	Knot3Material_2	S	Nodule 3. Biopsy. Submitted material. Colloid 1 – yes
24.	Knot3Material_3	S	Nodule 3. Biopsy. Submitted material. Blood 1 – yes
25.	Knot3Material_4	S	Nodule 3. Biopsy. Submitted material. Cystic fluid 1 - yes
26.	Knot3Material_4Color	S	Nodule 3. Cystic fluid: colour: 1 – transparent 2 – colourless 3 – yellow 4 – hemorrhagic
27.	Knot4Material_1	S	Nodule 4. Biopsy. Submitted material. Cellular 1 – yes
28.	Knot4Material_2	S	Nodule 4. Biopsy. Submitted material. Colloid 1 – yes
29.	Knot4Material_3	S	Nodule 4. Biopsy. Submitted material. Blood 1 – yes
30.	Knot4Material_4	S	Nodule 4. Biopsy. Submitted material. Cystic fluid 1 - yes
31.	Knot4Material_4Color	S	Nodule 4. Cystic fluid: colour: 1 – transparent 2 – colourless 3 – yellow 4 – hemorrhagic
32.	Complications	S	Complications: 1 – yes 2 – no

Structure of subordinated Table **BIOPS_P1.DB** reflecting information contained in item 5
'Complications: describe' of FINE NEEDLE BIOPSY Form. (* - key field)

№ п.п.	XIII. FIELDS' NAME	A) T YPE	COMMENTS
1	2. ID	A(8)*	Identification number
2	Complications	S*	Complication. Substitution from the reference book of Complications.

6.33 To develop DB and software for introduction of Hospitalization Form

A database has been developed and established, as well as a programme for data entry from Hospitalization Form. DB structure is represented in the following Table.

Structure of the Table **HOSPITAL.DB** which reflects information contained in
"HOSPITALIZATION FORM" (* - key field)

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№	XIV. FIELDS' NAME	A) T YPE	XV. COMMENTS
1.	ID	A(8)*	Identification number
2.	_DATE	D*	Date of filling in the Form
3.	Kod_Zap	A(3)	Code of the person having filled in the Form
4.	Kod_Input	A(3)	Code of the person having entered into PC
5.	NumberPassport	A(12)	Passport's number
6.	Date	D	Date
7.	NumberHistory	S	Case record's number
8.	NameClinic	S	Clinic's name: 1 – <i>Komisarenko Institute of Endocrinology</i> 2 – <i>other.</i>
9.	NameClinicOther	M	Name of another clinic.
10.	DivergenceScDiagnosis	S	Discrepancy with screening diagnose: 1 – <i>yes</i> ; 2 – <i>no.</i>
11.	VOZDiagnosisKod	S	WHO/Other codes of diagnosis.
12.	OtherDiagnosis1	S	1 Other diagnoses. Diagnosis. Substitution from the reference book of Diagnoses.
13.	OtherDiagnosisKod1	S	1 Other diagnoses. Disease's code
14.	OtherDiagnosis2	S	2 Other diagnoses. Diagnosis. Substitution from the reference book of Diagnoses.
15.	OtherDiagnosisKod2	S	2 Other diagnoses. Disease's code
16.	OtherDiagnosis3	S	3 Other diagnoses. Diagnosis. Substitution from the reference book of Diagnoses.
17.	OtherDiagnosisKod3	S	3 Other diagnoses. Disease's code
18.	OtherDiagnosis4	S	4 Other diagnoses. Diagnosis. Substitution from the reference book of Diagnoses.
19.	OtherDiagnosisKod4	S	4 Other diagnoses. Disease's code
20.	OtherDiagnosis5	S	5 Other diagnoses. Diagnosis. Substitution from the reference book of Diagnoses.
21.	OtherDiagnosisKod5	S	5 Other diagnoses. Disease's code
22.	Operation	S	Operation: (1 – <i>yes</i> ; 2 – <i>no</i>)
23.	DateOperation	D	Date of operation
24.	FIOSurgeonIE	A(3)	Surgeon's code in case the patient has been operated on at the IEM
25.	FIOSurgeon	A(50)	Surgeon's Surname, First name and Patronymic
26.	VolumeOperation	S	Volume of operation: 1 – <i>Total thyroidectomy</i> 2 – <i>Subtotal thyroidectomy</i> 3 – <i>Hemithyroidectomy</i> 4 – <i>Modified dissection of cervical fat</i> 5 – <i>Modified dissection of cervical fat with preservation of internal jugular vein and sterno-</i>

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			<i>cleidomastoid muscle</i> 6 – <i>Radical dissection of cervical fat</i> 7 – <i>Paratracheal dissection of fat</i>
27.	LimfoDen	S	Lymphadenectomy: (1 – <i>да</i>).
28.	LimfoDenVolume	S	Lymphadenectomy. Volume: 1 – <i>median</i> 2 – <i>right-side</i> 3 – <i>left-side</i> 4 – <i>median, right-side</i> 5 – <i>median, left-side</i>
29.	Complications	S	Complications: 1 – <i>Hypoparathyroidism</i> 2 – <i>Paresis of vocal cords: unilateral</i> 3 – <i>Paresis of vocal cords: bilateral</i>
30.	PostOperationTer	S	Postoperative gammatherapy.
31.	PostOperatTerDoze	S	Postoperative gammatherapy. Single dose
32.	PostOperatTerTotalDoze	S	Postoperative gammatherapy. Total dose
33.	RadiationTherapy	S	Radioiodine therapy: 1 – <i>yes</i> .
34.	RadiationTherapyDoze	S	Radioiodine therapy. Dose
35.	PostOperatTerOther	M	Postoperative treatment. Other

Structure of subordinated Table **HOSPT_P1.DB** reflecting information contained in item 2
'Main diagnosis' of HOSPITALIZATION FORM (* - key field)

№	FIELDS' NAME	A) T YPE	XVI. COMMENTS
1.	KodExamination	I*	Examination's code
2.	Diagnosis	S*	Code of diagnosis. Substitution from the reference book of Diagnoses.

Structure of subordinated Table **HOSPT_P2.DB** which reflects information contained in item 9
'Complications': Others in "HOSPITALIZATION FORM" (* - key field)

№ п.п.	XVII. FIELDS' NAME	A) T YPE	XVIII. COMMENTS
1	1. ID	A(8)*	Identification number
2	Complications	S*	Complication. Substitution from the reference book of Complications.

7.1. *To start developing DB and software for introduction of Pathomorphological Examination Form.*

Together with Pathology Group, a database has been developed and established for storage and representation of information contained in Pathomorphological Examination Form. DB

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structure is represented in the following Table.- A programme for data entry from paper forms into DB will be worked out in the following quarter.

XIX. Structure of Table PatMorf1.DB.

This Table reflects information contained in Pathomorphological Examination Form.

* - key fields

& - one of the following meanings: 1 – *D(dominant)*, 2 – *S(secondary)*, 3 – *M(minor)*.

№	FIELDS' NAME	TYPE	COMMENTS
1.	ID	A(8)*	Identification number
2.	date_oper	D*	Date of operation
3.	Fam	A(15)	Patient's Surname
4.	Im	A(10)	Patient's First Name
5.	Ot	A(15)	Patient's Patronymic
6.	Date_Birth	D	Date of birth
7.	Sex	A(1)	Patient's sex ('m', 'f')
8.	place_oper	S	Place of operation (1- IEM, 2-other)
9.	place_oper_NP	A(8)	Place of operation – town
10.	place_oper_Not	M	Place of operation – comments
11.	Type_oper	S	Type of operation: 1- resection of the nodule 2- hemithyroidectomy 3- subtotal thyroidectomy 4- total thyroidectomy 5- total thyroidectomy + lymph nodes dissection.
12.	Date_exam	D	Date of examination
13.	Place_exam	M	Place of examination
14.	Gist_number	A(30)	Histological number
15.	Material1	S	Submitted material (Fresh tissue) 1-yes
16.	Material2	S	Submitted material (Fixed) 1-yes
17.	Material3	S	Submitted material (Paraffin blocks) 1-yes
18.	Material4	S	Submitted material (Histologic slides) 1-yes
19.	Material5	S	Submitted material (Only final pathological diagnosis) 1-yes
20.	Weight_R	S	Weight of right lobe
21.	Weight_L	S	Weight of left lobe
22.	Weight_P	S	Weight of isthmus
23.	Size_H_R	S	Right lobe, size H
24.	Size_W_R	S	Right lobe, size W
25.	Size_L_R	S	Right lobe, size L
26.	Size_H_L	S	Left lobe, size H
27.	Size_W_L	S	Left lobe, size W

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28.	Size_L_L	S	Left lobe, size L
29.	Size_H_P	S	Isthmus, size H
30.	Size_W_P	S	Isthmus, size W
31.	Size_L_P	S	Isthmus, size L
32.	Type_R	S	Right lobe: 1-Diffuse enlargement 2-Single nodule 3-Multiple nodules
33.	Type_L	S	Left lobe: 1-Diffuse enlargement 2-Single nodule 3-Multiple nodules
34.	Type_P	S	Isthmus: 1-Diffuse enlargement 2-Single nodule 3-Multiple nodules
35.	Surface_R	S	Right lobe surface: 1 – smooth 2 – irregular
36.	Surface_L	S	Left lobe surface: 1 – smooth 2 – irregular
37.	Surface_P	S	Isthmus surface: 1 – smooth 2 – irregular
38.	Surface_R1_O	S	Cut surface - right lobe – nodule 1 (1-homogeneous; 2- heterogeneous; 3-hemorrhagic; 4 – homogeneous-hemorrhagic; 5- heterogeneous-hemorrhagic)
39.	Surface_R2_O	S	Cut surface - right lobe – nodule 2 (1-homogeneous; 2- heterogeneous; 3-hemorrhagic; 4 – homogeneous-hemorrhagic; 5- heterogeneous-hemorrhagic)
40.	Surface_R3_O	S	Cut surface - right lobe - nodule 3 (1-homogeneous; 2- heterogeneous; 3-hemorrhagic; 4 – homogeneous-hemorrhagic; 5- heterogeneous-hemorrhagic)
41.	Surface_R4_O	S	Cut surface - right lobe - nodule 4 (1-homogeneous; 2- heterogeneous; 3-hemorrhagic; 4 – homogeneous-hemorrhagic; 5- heterogeneous-hemorrhagic)
42.	Surface_L1_O	S	Cut surface - left lobe - nodule 1 (1-homogeneous; 2- heterogeneous; 3-hemorrhagic; 4 – homogeneous-hemorrhagic; 5- heterogeneous-hemorrhagic)
43.	Surface_L2_O	S	Cut surface - left lobe - nodule 2 (1-homogeneous; 2- heterogeneous; 3-hemorrhagic; 4 – homogeneous-hemorrhagic; 5- heterogeneous-hemorrhagic)

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44.	Surface_L3_O	S	- <i>Cut surface - left lobe - nodule 3 (1-homogeneous; 2- heterogeneous; 3-hemorrhagic; 4 – homogeneous-hemorrhagic; 5- heterogeneous-hemorrhagic)</i>
45.	Surface_I4_O	S	<i>Cut surface - left lobe - nodule 4 (1-homogeneous; 2- heterogeneous; 3-hemorrhagic; 4 – homogeneous-hemorrhagic; 5- heterogeneous-hemorrhagic)</i>
46.	Surface_P1_O	S	<i>Cut surface - isthmus - nodule 1 (1-homogeneous; 2- heterogeneous; 3-hemorrhagic; 4 – homogeneous-hemorrhagic; 5- heterogeneous-hemorrhagic)</i>
47.	Surface_P2_O	S	<i>Cut surface - isthmus - nodule 2 (1-homogeneous; 2- heterogeneous; 3-hemorrhagic; 4 – homogeneous-hemorrhagic; 5- heterogeneous-hemorrhagic)</i>
48.	Surface_P3_O	S	<i>Cut surface - isthmus - nodule 3 (1-homogeneous; 2- heterogeneous; 3-hemorrhagic; 4 – homogeneous-hemorrhagic; 5- heterogeneous-hemorrhagic)</i>
49.	Surface_P4_O	S	<i>Cut surface - isthmus - nodule 4 (1-homogeneous; 2- heterogeneous; 3-hemorrhagic; 4 – homogeneous-hemorrhagic; 5- heterogeneous-hemorrhagic)</i>
50.	PerformFabric	S	Characterization of extranodular thyroid tissue <i>1 – normal; 2 – DIFFUSE HYPERPLASTIC PROCESS; 3 – FOCAL HYPERPLASTIC PROCESS; 4 – presence of microcysts.</i>
51.	GistStructureNorm	S	Characterization of extranodular thyroid tissue. Histological structure. Normofollicular. &
52.	GistStructureMacro	S	Histological structure. Macrofollicular. &
53.	GistStructureMicro	S	Histological structure. Microfollicular. &
54.	GistStructurePap	S	Histological structure. Papillary. &
55.	GistStructureSol	S	Histological structure. Solid. &
56.	CellTypeNorm	S	Cellular type. Normal. &
57.	CellTypeOks	S	Cellular type. Oxyphilic. &
58.	CellTypeS_cell	S	Cellular type. C-cells. &
59.	CellTypeSkv	S	Cellular type. Squamous. &
60.	CellTypeLigth	S	Cellular type. Clear cells. &
61.	NucleusesNormal	S	Nuclei. Normal. &
62.	NucleusesUnTypical	S	Nuclei. Atypical. &
63.	StromaChanges	S	Characterization of extranodular thyroid tissue. Stroma. Sclerotic changes. <i>1 –Mild 2 – MODERATE 3 – Severe</i>

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64.	StromaPsammom	S	Stroma. Psammoma bodies (1 – yes)
65.	StromaCa	S	Stroma. Calcifications (1 – yes)
66.	TiroiditLimfo	S	Characterization of extranodular thyroid tissue. Lymphocytic thyroiditis: 1 – focal; 2 – diffuse
67.	TiroiditUnderAcute	S	Subacute thyroiditis (1 – yes)
68.	TABEffect	M	Characterization of extranodular thyroid tissue. FNA effect
69.	SpecialResearches	M	Characterization of extranodular thyroid tissue. Special studies (immunohistochemistry, etc.)
70.	FragmentsTimus	S	Characterization of extrathyroid tissue. Thymus fragments (1 – yes)
71.	FragmentsPRSG	S	Characterization of extrathyroid tissue. Parathyroid gland fragments (1 – yes)
72.	Klass_T	S	Classification of carcinoma T (0,1,2,3,4)
73.	Klass_N	S	Classification of carcinoma N (0,1,2)
74.	Klass_M	S	Classification of carcinoma M (0,1)
75.	Conclusion	M	CONCLUSION
76.	FIOPatomorf	A(30)	Pathomorphologist's Surname, First Name, Patronymic
77.	Date	D	Date
78.	FIOExpert	A(30)	Expert's Surname, First Name, Patronymic
79.	ConclusionExpert	S	Conclusion: 1 - agree, 2 – disagree.
80.	NotesExpert	M	Comments
81.	DateExpert	D	Date of expertise

XX. Structure of Table **PatMorf2.DB**.

This Table reflects information contained in item 4 "Gross anatomy of the thyroid mass" of Pathomorphological Examination Form.

№.	FIELDS' NAME	A) TY PE	COMMENTS
1.	ID	A(8)*	Identification number
2.	date_oper	D*	Date of operation
3.	LobeCode	S*	Lobe's code 1- right lobe, 2- left lobe, 3 – isthmus
4.	NodeCode	S*	Code of the nodule (1, 2, 3, 4)
5.	LocCode	S	Localization
6.	MaxD	S	Max. diameter
7.	Caps	S	Capsule (1- absent, 2-partial, 3-complete)
8.	Form	S	Margin (1- regular, 2-irregular)
9.	CONSIST	S	Consistency: 1-soft

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			2-hard 3-with calcification 4-soft with calcification 5- hard with calcification
10.	Kistchange	S	Cystic changes: 1-complete 2-partial
11.	Color_Y	S	Yellow color (1 –yes)
12.	Color_B	S	Brown color (1 – yes)
13.	Color_R	S	Red color (1 –yes)
14.	Color_W	S	Pale color (1 –yes)
15.	Color_T	S	White color (1 –yes)
16.	Numberblock	S	Summary of blocks taken

XXI. Structure of Table PatMorf3.DB.

This Table reflects information contained in item 5 "Gross anatomy of lymph nodes" of Pathomorphological Examination Form.

№ п.п.	FIELDS' NAME	TYPE	COMMENTS
1.	ID	A(8)*	Identification number
2.	date_oper	D*	Date of operation
3.	LobeCode	S*	Lobe's code: 1 – right lobe, 2 – left lobe, 3 – isthmus
4.	NodeCode	S*	Nodule's code (1, 2, 3, 4)
5.	LocCode	S	Localization
6.	numberSize1	S	Number < 1cm
7.	numberSize2	S	Number 1 – 2 cm
8.	numberSize3	S	Number >2 cm
9.	Numberblock	S	Summary of blocks taken

XXII. Structure of Table PatMorf4.DB.

This Table reflects information contained in item 6.3 "Characterization of benign thyroid nodules" of Pathomorphological Examination Form.

№	FIELDS' NAME	TYPE	COMMENTS
1.	ID	A(8)*	Identification number
2.	Date_Oper	D*	Date of operation

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3.	LobeCode	S*	Lobe's code: 1 – right lobe, 2 – left lobe, 3 – isthmus
4.	NodeCode	S*	Nodule's code (1, 2, 3, 4)
5.	LocCode	S	Localization
6.	GiperPlastic	S	Hyperplastic (1 – yes)
7.	DeGeneration	S	Degenerating (1 – yes)
8.	Fibros	S	Fibrotic (1 – yes)
9.	MicroKista	S	Presence of microcysts (1 – yes)
10.	Adenomatous	S	Adenomatous (1 – yes)
11.	Adenoma	S	Adenoma (1 – yes)
12.	KistoAdenoma	S	Cystadenoma (1 – да)
13.	Capsula	S	Capsule: 1 – absent 2 – partial 3 – complete
14.	GistStructureNorm	S	Histological structure. Normofollicular. &
15.	GistStructureMacro	S	Histological structure. Macrofollicular. &
16.	GistStructureMicro	S	Histological structure. Microfollicular. &
17.	GistStructurePap	S	Histological structure. Papillary. &
18.	GistStructureSol	S	Histological structure. Solid. &
19.	GistStructureTrab	S	Histological structure. Trabecular. &
20.	CellTypeNorm	S	Cellular type. Normal. &
21.	CellTypeOks	S	Cellular type. Oxyphilic. &
22.	CellTypeLight	S	Cellular type. Clear. &
23.	CellTypeSkv	S	Cellular type. Squamous. &
24.	CellTypeMus	S	Cellular type. Mucinous. &
25.	NucleusesNorm	S	Nuclei. Normal. &
26.	NucleusesPolimorf	S	Nuclei. & Pleomorphic. &
27.	NucleusesUnTypical	S	Nuclei. Atypical. &
28.	StromaChanges	S	Stroma. Sclerotic changes. 1 - Mild; 2 - Moderate; 3 - Severe
29.	GemorChanges	S	Hemorrhagic changes. (1 – yes)
30.	NekroChanges	S	Necrotic changes. (1 – yes)
31.	Calcium	S	Calcifications. (1 – yes)
32.	Amiloid	S	Amyloid. (1 – yes)
33.	LimfositTiroiditOch	S	Lymphocytic thyroiditis. Focal. (1 – yes)
34.	LimfositTiroiditDf	S	Lymphocytic thyroiditis. Diffuse. (1 – yes)
35.	LimfositTiroiditPer	S	Lymphocytic thyroiditis. Perinodular. (1 – yes)

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36.	TABEffect	M	FNA-effect
37.	SpecialResearches	M	Special studies (immunohistochemistry, etc.)
38.	IntraOperatAnalysis	M	Intraoperative analysis (frozen sections, cytology of smears)

XXIII.

XXIV. Structure of Table **PatMorf5.DB**.

This Table reflects information contained in item 6.4 "Characterization of thyroid carcinoma" of Pathomorphological Examination Form.

Nº	FILEDS' NAME	TYPE	COMMENTS
1.	ID	A(8)*	Identification number
2.	Date_Oper	D*	Date of operation
3.	LobeCode	S*	Localization. Lobe's code: 1 – right lobe, 2 – left lobe, 3 – isthmus
4.	LocCode	S	Localization (according to the code)
5.	Type_	S	Type: 1 – Papillary (PTC); 2 – Follicular (FTC); 3 – Medullary (MTC); 4 – Anaplastic (ATC); 5 – Lymphoma (LYM); 6 – Other.
6.	UnderType	S	Subtype of PTC: 1 – Papillary; 2 – Follicular; 3 – Solid; 4 – Mixed (Solid-follicular); 5 – Mixed (Papillary-follicular); 6 – Mixed (Papillary-solid); 7 – Diffuse-sclerotic; 8 – Microcarcinoma; 9 – Other
7.	UnderTypeNotes	M	Subtype of PTC. Other
8.	Capsula	S	Capsule: 1 – Absent 2 – Partial 3 – Complete
9.	CellTypeNorm	S	Cellular type. Normal. &
10.	CellTypeOks	S	Cellular type. Oxyphilic. &
11.	CellTypeLight	S	Cellular type. Clear. &
12.	CellTypeHigh	S	Cellular type. Tall. &
13.	CellTypeVeret	S	Cellular type. Spindle. &
14.	CellTypeBig	S	Cellular type. Giant. &
15.	CellTypeSmall	S	Cellular type. Small. &

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16.	CellTypeSkv	S	Cellular type. Squamous. &
17.	CellType	S	Cellular type. Mucinous. &
18.	NucleusNorm	S	Nuclei. Normal. &
19.	NucleusSize1	S	Nuclei. Enlarged. &
20.	NucleusSize2	S	Nuclei. Small. &
21.	NucleusPolimorf	S	Nuclei. Pleomorphic. &
22.	NucleusRound	S	Nuclei. Round. &
23.	NucleusIncorrectForm	S	Nuclei. Irregular. &
24.	NucleusSuperimpose	S	Nuclei. Overlapping. &
25.	NucleusHourGlasses	S	Nuclei. "Ground-glass" appearance. &
26.	NucleusInclusions	S	Nuclei. Intranuclear inclusions. &
27.	NucleusGrooves	S	Nuclei. Nuclear grooves. &
28.	NucleusMitos	S	Nuclei. Mitoses. &
29.	StromaChangesYN	S	Stroma. Sclerotic changes. (1- yes)
30.	StromaChanges	S	Stroma changes: 1 - Mild; 2 - Moderate; 3 - Severe.
31.	GemoChanges	S	Hemorrhagic changes. (1- yes)
32.	NekroChanges	S	Necrotic changes. (1- yes)
33.	LimfositTiroiditYN	S	Lymphocytic thyroiditis. (1- yes)
34.	LimfositTiroiditOch	S	Lymphocytic thyroiditis. Focal. (1- yes)
35.	LimfositTiroiditDif	S	Lymphocytic thyroiditis. Diffuse. (1- yes)
36.	LimfositTiroiditPer	S	Lymphocytic thyroiditis. Peritumoral. (1- yes)
37.	PsamomBody	S	Psammoma bodies. (1- yes)
38.	Calcium	S	Calcifications. (1- yes)
39.	Amiloid	S	Amyloid. (1- yes)
40.	PenetrationTumour	S	Invasion. Into tumor capsule. (1- yes)
41.	PenetrationIron	S	Invasion. Into gland capsule (1- yes)
42.	PenetrationTiroid	S	Invasion. Into adjacent thyroid tissue. (1- yes)
43.	PenetrationGrowth	S	Invasion. Multifocal growth. (1- yes)
44.	PenetrationLimfo	S	Invasion. Into lymphatic vessels. (1- yes)
45.	PenetrationBlood	S	Invasion. Into blood vessels. (1- yes)
46.	PenetrationForIron1	S	Invasion. Outside the gland. Into connective tissue. (1- yes)
47.	PenetrationForIron2	S	Invasion. Outside the gland. Into muscles. (1- yes)
48.	PenetrationForIron3	S	Invasion. Outside the gland. Into trachea. (1- yes)
49.	PenetrationForIron4	S	Invasion. Outside the gland. Into esophagus. (1- yes)
50.	TABEffect	M	FNA effect
51.	SpecialResearches	M	Special studies (immunohistochemistry, etc.)
52.	IntraOperatAnalysis	M	Intraoperative analysis (frozen sections, cytology of smears)

XXV.

XXVI. Structure of Table **PatMorf6.DB**.

This Table reflects information contained in item 6.5 " Characterization of metastases of thyroid carcinoma" of Pathomorphological Examination Form.

Nº	FIELDS' NAME	TYPE	COMMENTS
1.	ID	A(8)*	Identification number
2.	Date_Oper	D*	Date of operation
3.	LobeCode	S*	Localization. Lobe's code: 1 – right lobe, 2 – left lobe, 3 – in the middle.
4.	NodeCode	S*	Nodule code (1, 2, 3, 4)
5.	LocCode	S	Localization (according to the code).
6.	CountLimfo	S	Number of lymph nodes.
7.	CountLimfoM	S	Number of lymph nodes. With metastases.
8.	CountLimfoNoM	S	Number of lymph nodes. Without metastases.
9.	GistType1	S	Histological type. Same as primary tumor. (1- yes)
10.	GistType2	S	Histological type. Different from primary tumor (1- yes)
11.	GistType3	S	Histological type. Extra lymph node capsule spread (1- yes)
12.	NotesGist	M	Description of histological peculiarities

7.1. *To introduce the system of quality control developed.*

It has been planned to establish a system of logical data editing, as well as a system of cross-checks; to introduce a system of control of information entered from paper forms (verification of completeness of different attributes of the form, value falling outside the limits of the range). Since it has been decided to hand over form entry to a department of UIC Center (Center for Pediatrics, Obstetrics and Gynecology) which has its own methods of data processing and editing, further development of a system of quality control by the Data Coordination Center has been provisionally stopped.

Nevertheless, in the framework of the programme complex, control of entry of main specific variables is being performed.

- ◆ ID numbers are checked for nondigital symbols; control sum and availability of such a number are being tested.
- ◆ Passport data (Name, Patronymic) are being checked for empty values.

- ◆ Complete check of correctness of dates¹ entry (check of nondigital symbols and of real existence of the date being entered).
- ◆ The fact of filling in all key fields.
- ◆ Data on contacts, dynamics of invitation and examinations are going through a logical validation for correctness and conformity.

7. Pathology support for diagnosis of various forms of thyroid pathology.

7.1. To continue collecting and pathological examination of morphologic material from all patients born in 1968 and later from cohort oblasts and having been operated at the Institute of Endocrinology for different thyroid diagnoses. Pathomorphologic analysis of collected material.

In order to provide to epidemiologists additional information on general cohort members concerning the possibility of surgical treatment for thyroid pathology before invitation for screening, collection of biopsy material has been continued in the form of paraffin blocks and histological preparations from patients born in 1968 and later, who reside in Kyiv oblast (including city of Kyiv), Chernihiv, Zhytomyr oblasts and have been operated during the reported period for different forms of thyroid pathology at the Clinic of the Institute of Endocrinology or in other clinics of Ukraine. In the latter case, paraffin blocks have been provided to the Laboratory for a consultative conclusion. For the period September-November 1999, material has been collected from **32 cases of surgical thyroid pathology, among which 16 cases represented thyroid carcinoma** (4 from Kyiv oblast, 4 from Chernihiv oblast, 3 from Zhytomyr oblast, and 5 from the city of Kyiv); **4 cases represented a follicular adenoma** (3 from Chernihiv oblast and one from the city of Kyiv); **7 cases of nodular goiter** (2 from Kyiv oblast, 2 from Zhytomyr oblast, and 3 from the city of Kyiv); **3 cases of multinodular goiter** (one from Chernihiv oblast and 2 from Zhytomyr oblast); and **2 cases of diffuse toxic goiter** (both from the city of Kyiv).

For diagnostic purpose, 170 blocks have been embedded in paraffin, and more than 300 histological preparations studied at light microscope.

Among 16 studied cases of thyroid cancer, 14 cases represent a papillary carcinoma, and 2 cases a follicular carcinoma.

In turn, among papillary carcinomas, 2 tumors were removed in children aged 13 and 14 years (they were aged 5 months and 18 months at the time of the accident); 3 tumors in

adolescents aged 15 (they were 1,8 to 2 years-old at the moment of the accident), and 9 tumors in young adult patients aged 19 to 30 (they were aged 6 to 17 years at the time of the accident).

Follicular carcinomas were identified in one boy aged 14 and in one young female aged 20 years.

As to their histological structure, papillary carcinomas in 4 cases (28 %) had a typical papillary structure; in 2 cases (14 %) a dominant follicular structure; in 2 cases (14%) a mostly solid structure; in 3 cases (22 %) a mixed follicular-solid structure with papillary areas; and in 3 cases (22%) they represented oxyphilic-cell tumors of papillary and microfollicular structure. Regional lymph node metastases of papillary carcinoma were morphologically determined only in 3 cases (21%).

Follicular carcinomas in both cases had a dominant microfollicular-solid structure (one carcinoma manifested signs of oxyphilic-cell metaplasia), were characterized by the presence of invasive growth to certain blood vessels of tumor's capsule, what allowed to identify them as minimally invasive carcinomas.

Follicular adenomas were found only in 2 adolescents aged 15-16 and in 2 young adults aged 20 and 26; these tumors had a dominant microfollicular-solid structure.

Nodular solitary goiters have been revealed in 2 children aged 13 (one of them was born in June 1986 and is referred to "in utero" category); in one adolescent aged 17; and in 4 young adults aged 19 to 26 years. These goiters were characterized by a heterogeneous morphological structure with presence of macrofollicular, microfollicular areas and loci of papillary hyperplasia.

Multinodular adenomatous goiters have been identified in a girl aged 13 and in 2 young adults aged 26-27 years. They had a dominant microfollicular-solid structure and were characterized by marked oxyphilic-cell changes.

Diffuse toxic goiters have been removed in a girl-adolescent aged 15 and a young female aged 22 years. As in previous investigations, the goiters had a dominant microfollicular-solid structure with signs of focal thyroiditis.

7.2. Preparation of additional histological specimens for the morphologic data bank of the Ukr.-Am. Project (after identification of concrete patients included in the cohort).

A detailed information on the above cases, which included patient's passport data, place of residence during the accident and to date, as usual, has been provided to the Dosimetry

Department of the Scientific Center of Radiation Medicine and to DCC, in order to identify those persons who had direct measurements of thyroid activity and are included in the general cohort.

It has been established that among the subjects who have been operated within the reported period, only those patients who have been revealed by mobile teams in the process of screening examinations, belong to the cohort (see 7.3).

- 7.3. *To ensure intraoperational diagnosis, histological processing and pathomorphologic analysis of specimens received from patients selected for surgery after screening. Preparation of additional histological specimens for the morphologic data bank of the Ukr.-Am. Project.*

As a result of screening examinations performed by mobile teams, 8 patients have been identified for surgery and operated on within the reported period. In 4 of them a thyroid carcinoma, and in 4 ones benign thyroid pathology have been verified.

Thyroid carcinomas were identified in one girl-adolescent aged 15 (dose group "C", exposure dose 447.4 cGy) and in 3 young adults: a female aged 22 (dose group "C", exposure dose 176.2 cGy); a male aged 24 (dose group "C", exposure dose 133.4 cGy); and a male aged 30 years (dose group "C", exposure dose 208.2 cGy).

Tumors were identified in right lobe (2 cases), in left lobe (1 case), and in isthmus (1 case). Tumor size varied from 13 to 17 mm. In one case it was an encapsulated tumor, in one case a partially encapsulated tumor, and in 2 cases a nonencapsulated tumor.

Intraoperatively, diagnosis of thyroid carcinoma has been established in 3 cases. In one case an encapsulated tumor (13 mm diameter) was identified as a follicular neoplasm.

A postoperative pathomorphologic analysis showed in 3 cases the presence of a papillary carcinoma with follicular and papillary-follicular structure. In one of these cases (intraoperatively follicular neoplasm) the tumor had a microfollicular structure, being composed of oxyphilic cells, without signs of vascular or marked intracapsular invasion. The diagnosis has been established only by nuclear features (nucleus enlargement, irregular outline, presence of a great number of grooves and isolated intranuclear inclusions). Two other tumors had obvious signs of papillary carcinoma, being characterized by sclerotic changes, lymphatic invasion, invasion into glandular capsule, and in one case - outside gland capsule into adjacent connective tissue.

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One carcinoma (intraoperatively papillary carcinoma) had a heterogeneous structure with clear-cell solid areas and tall-cell papillary areas, and it needs additional immunohistochemical investigations with antibodies to thyroglobulin and calcitonin.

No metastases of carcinoma to regional lymph nodes have been identified in any case.

Benign thyroid neoplasms have been revealed only in young adults: a female aged 20 (dose group "C", exposure dose 116.0 cGy); a male aged 26 (dose group "C", exposure dose 451.2 cGy); a female aged 27 (dose group "B", exposure dose 45.2 cGy), and a male aged 26 years (dose group "A", exposure dose 5.7 cGy).

In two cases solitary nodules in right or left lobes (16 mm diameter) were revealed, separated by a clear-cut capsule. In one case numerous nodules (3 to 10 mm diameter) were identified in both lobes, and in one more case two nodules (17 and 25 mm diameter) have been found in right lobe.

Intraoperatively, solitary nodules have been qualified as a follicular neoplasm, and multinodular lesions as multinodular adenomatous goiters.

A postoperative analysis allowed to establish in one case a follicular adenoma with a dominant solid structure with signs of polymorphism of tumor cell nuclei; in one case a clear-cell follicular adenoma of microfollicular-solid structure; in one case a multinodular oxyphilic-cell goiter with heterogeneous structure; and in one more case a multinodular adenomatous goiter of microfollicular structure with signs of focal enlightening and nucleus polymorphism, as well as isolated indistinct intranuclear inclusions. In the latter case the patient (female) needs a special care and permanent follow-up.

In all the above cases, additional histological specimens have been prepared from paraffin blocks of the nodules removed and extratumoral tissue for the morphologic data bank of the Ukr.-Am. Project, and for additional verification by an international Panel of experts in pathology.

Thus, to date, owing to active screening examinations, 11 thyroid carcinomas and 8 cases of benign thyroid pathology (5 follicular adenomas, 1 fibrotic nodule and 2 multinodular adenomatous nodules) have been established.

Besides, it should be stressed that **two patients with thyroid cancer and one with diffuse toxic goiter** have also been screened in summer 1999, but already after having been operated (see report for the previous quarter).

7.4. To fill in the Pathology Forms for the patients with revealed cases of thyroid pathology, included in the cohort under study.

Pathology Forms (Russian and English-version) for the cases identified following screening examinations and operated on within the reported quarter, have been filled in on paper. Here are the results of an additional verification of cases of thyroid pathology by an international group of experts in pathology during the International Pathology Panel Meeting which has been held on August 27, 1999 in Milan, Italy. Out of the group of active screening, it has been submitted for consideration of the experts 7 cases of papillary carcinoma (all diagnoses confirmed) and 4 cases of benign thyroid pathology: 3 follicular adenomas and one fibrotic nodule with degenerative changes (it has been decided to qualified 2 follicular adenomas as well differentiated thyroid tumors without additional verification: WDT NOS, and the diagnosis of fibrotic nodule remained unchanged). WDT NOS diagnosis does not exclude the benign nature of the neoplasm and does not require any changes in the volume of operation. In experts' opinion, this must lead to a more thorough follow-up of these patients, and to a more detailed study of histological preparations of such tumors. Two cases of papillary carcinoma and one case of diffuse toxic goiter from patients having been invited for screening after their surgical treatment, have been completely confirmed.

In addition, preparations of 23 cases of papillary carcinoma and 10 cases of benign thyroid pathology which we have identified in general cohort's members, have been submitted to the experts. These patients were operated in previous years according to the results of the so-called "passive" screening in the process of prophylactic medical examinations: in kindergartens, schools, during current examination by an endocrinologist, etc. So far, these patients are not yet included in study cohort, but they may be included in the future when increasing cohort volume; therefore, presence of accurate information concerning diagnosis, is, from our point of view, rather useful for the epidemiologists.

Among the above 23 cases of papillary carcinoma all the diagnoses have been confirmed. Among 10 cases which we have identified as benign pathology, one of the nodules of a multinodular adenomatous oxyphilic-cell goiter in a girl aged 14 years was determined as a malignant one (minimally invasive follicular carcinoma in the presence of a multinodular oxyphilic-cell goiter), and 2 follicular adenomas were also qualified as WDT NOS (see above). In all other 7 cases diagnoses completely coincided.

Thus, an essential change in diagnosis, which however needs an additional examination of most of preparations at the following International Pathology Panel Meeting, took place only in one of the 47 submitted cases, what points out, from our point of view, a rather successful pathomorphologic support of the Project.

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8.30.	Operations Manual for Dosimetry: description of the organization and implementation of the direct thyroid measurements (progress report)	8.0
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