REPORT

on implementation of milestones of the 3 quarter of the third year
of the Joint Ukrainian-American Scientific Project

"Study of Thyroid Cancer and Other Thyroid Diseases in Ukraine Following the Chornobyl Accident"

(December 1998 - February 1999)

Management and administration

1.14 To organize screening of cohort members residing in Kozelets raion of Chernihiv oblast on the base of the Clinic of the Institute of Endocrinology and Metabolism of the Acad.Med.Sci. Ukraine, by fixed team.

Screening examinations of cohort members residing in Kozelets raion of Chernihiv oblast have been performed on the basis of the Clinic of the Institute of Endocrinology by fixed medical team. The participants in screening have been transported to the city of Kyiv from Kozelets by a coach which has been leased in the Kozelets transport organization. In February 1999, 79 cohort members have been examined by the fixed medical team.

1.15 To perform a work in order to use databases of oblast and raion departments of passport registration and migration work of Kyiv, Chernihiv, Zhytomyr oblasts, and of corresponding Department of the Ministry of Internal Affairs of Ukraine in order to specify addresses of residence of potential cohort members.

Dr. A.M. Serdyuk, Minister of PublicHealth of Ukraine, has applied with a letter to Mr. Yu.R. Kravchenko, Minister of Internal Affairs of Ukraine, with a request to lend support in searching cohort members who have left the settlements where they were living at the moment of the Chornobyl accident (copy of the letter enclosed). In answer to this letter, the Ministry of Internal Affairs has sent to all oblast Departments of the Ministry of Internal Affairs of Ukraine instructions in order that they provide all necessary information to the staff of the Institute of Endocrinology and Metabolism of the AMS of Ukraine and to the specialists of raion medical establishments (copy of instructions enclosed).

For the reporting period, the Project's Management has established direct contacts with the Main Departments of the Ministry of Internal Affairs of Ukraine in Kyiv and Chernihiv oblasts, and city of Kyiv.

1.16 To organize a regular meeting devoted to Project implementation (Ministry of Public Health of Ukraine, administration and participants in the Project).

A regular joint Meeting devoted to Project implementation has been organized and held on February 11, 1999, with participation of the Ministry of Public Health of Ukraine, the Project's Management and executors. The plan of realization of measures provided for by the resolution of the Meeting and approved by Dr. R.V. Bogatyryova, Minister of Public Health of Ukraine, is enclosed.

1.17 To prepare customs clearance documentation for shipments which arrive in the framework of the Project, and to receive these shipments.

Custom clearance of shipments received in the reporting period has been performed. The list of reagents and supplies is enclosed.

Establishment of the cohort

Identification Of Current Address of 1986 Cohort

Table # 1

Study Rayon	Total In 20,000 Cohort in 1986	Total Living Identified	%	Deceased	%	Duplicate Records	%	Moved to Unkown Address	%	Not Found	%
Town of Pripriat	1584	360	23%		0%	11	1%		0%	1213	77%
Polessky	1399	9	1%		0%	5	0%		0%	1385	99%
Ivankiv	737	630	85%	3	0%	19	3%	37	5%	46	6%
Chornobyl	1484	114	8%		0%	14	1%		0%	1356	91%
Kozelets	2089	1421	68%	8	0%	17	1%	88	4%	555	27%
Ripkinsky	1377	1021	74%	11	1%	39	3%	54	4%	252	18%
Chernihiv	2857	1998	70%	14	0%	149	5%	244	9%	452	16%

City of Chernihiv	1193	1024	86%		0%		0%		0%	169	14%
Narodychi	4278	2742	64%	10	0%	816	19%		0%	710	17%
Ovruch	3072	2087	68%	10	0%	327	11%		0%	648	21%
Total	**20070**	**11406**	**57%**	**56**	**0%**	**1397**	**7%**	**423**	**2%**	**6786**	**34%**

Status of Cohort with Identified Current Addresses

Table # 2

Study Rayon	Total Living Identified	Total Living in Rayon	%	Living in Same Oblast	%	Living in Other Oblast	%	Emigrated	%	Temporarily Absent	%
Town of Pripriat	360		0%	360	100%		0%		0%		0%
Polessky	9		0%	9	100%		0%		0%		0%
Ivankiv	630	581	92%		0%		0%		0%		0%
Chornobyl	114	0	0%	114	100%		0%		0%		0%
Kozelets	1421	1154	81%	69	5%	134	9%	13	1%	51	4%
Ripkinsky	1021	743	73%	117	11%	54	5%	64	6%	43	4%
Chernihiv	1998	1500	75%	355	18%	84	4%	23	1%	36	2%
City of Chernihiv	1024	1024	100%		0%		0%		0%		0%
Narodychi	2742	992	36%	1093	40%	616	22%	32	1%	9	0%
Ovruch	2087	1672	80%	50	2%	293	14%	72	3%		0%
Total	**11406**	**7666**	67%	**2167**	19%	**1181**	10%	**204**	2%	**139**	1%

2.10 To find addresses of possible cohort members whiñh were resettled for Chornobyl and raion, Prypyat, Polisya raion to other oblasts of Ukraine using database of Kyiv oblast healthcare system and oblast passport office.

During the letter exchange between the Ministry of Public Health and Ministry of Internal Affairs became evident, that there is no centralized address bureau in Ukraine. For obtaining information about migration of the population from the Chornobyl and raion, Prypyat, Polesskiy raion we were advised to apply to the oblast passport departments. So, it is impossible to use the possibilities of computerized data linkage with one large file containing information with the whole population of the Ukraine.

There was a meeting with the chief of the Passport Office of Kyiv oblast, who explained that there is no computerized database in the oblast. Information on former inhabitants of the Chornobyl and Prypyat is stored on a hard copies in the archives situated in the Ivankiv and Slavutych, respectively.

It has been performed a search in Ivankiv archives of Chornobyl passport office. The us of this particular data source is virtually impossible due to a number of reasons:

- Information stored there mostly reflects the situation in 1986. Although appropriate orders were given that information should be sent from the new place of dwelling of the evacuated people to the above mentioned archives, such data were almost never send. Therefore, Chornobyl inhabitants are still listed as dwelling in Chornobyl or Chornobyl raion.
- Special forms were filled in only on those who already received a passport. The majority of cohort members didn't reach passport age when evacuation took place.
- Information on children is usually in the card of one of the parent. If the child's information is in the father's card and the child's patronymic name in known, it's still quite possible to find a child, but if it is in the mother's one – it's not possible at all.
- In some rare cases when it is known that the person left, further address written only approximately, just as oblast or raion .

To determine the usefulness of the work with passport office a work has been undertaken with 2 more card indices available in the Ivankiv passport office ;

- Card index people, resettled to Ivankiv raion from Chornobyl raion.
- Card index of people currently registered in Ivankiv or those who were registered in Ivankiv earlier

The search was performed among those 418 persons not found during the manual search.

229 patients have been found (31% from all 20,000 cohort members in Ivankiv raion). It become clear, that according to the data available in the passport office, 157 still live in Ivankiv raion.

In the process of this work were clarified and changed :

Surname - in 38 persons,

Name – in 7,

Patronymic name – in 10 ,

Date of birth - in 117,

In 53 – month of birth

Year of birth - in 12 persons .

It became evident that in this group of people 2 persons moved abroad, 2 are in the Army, one have died, 7 - are dublicate records. In the card index of people resettled to Ivankiv raion from Chornobyl raion 6 persons where found lived earlier in Chornobyl raion. Taking into account data obtained during the work with passport office of Ivankiv raion situation with finding people in Ivankiv raion can be presented as follows (table 1).

Table 1. Comparison of different sources of address information which were used for the searching of cohort members dwelling in Ivankiv raion of Kyiv oblast

Source of Information	*Found in this source (number of people)*	*Percentage of total number of members of 20,000 - cohort in the raion*	*Currently live in the raion*	*Moved from the raion*
Found by manual search by medical staff of Ivankiv polyclinics	319	43	273	46
Found in the Chornobyl Registry	373	50		
Found in two sources (manual search, & Chornobyl Registry)	176	24		
Found in passport office out of 418 not found by manual search	229	31	151	78
Found in two sources (Chornobyl Registry & in passport office)	117	16		
Found by manual search only	121	16		
Found in Chornobyl Registry only	80	10		
Found in Passport office only	112	16		
Found - 630 persons				
Percentage of found from the total number of cohort members in Ivankiv –84%				
Number of persons from 20,000 cohort in Ivankiv – 737				

Since 49% of persons found were Identified in only one source of address information, it seems to be necessary to use all data sources mentioned earlier.

Was composed a list for repeated invitation for screening in the Ivankiv raion. An instruction was prepared on the work with card index of passport offices. Local medical staff of raions under study is performing search in the passport offices now.

Another possible source of address information on people, resettled from Chornobyl and Pripyat is the Chornobyl Department of Kyiv oblast. The work of the staff of the Institute started in the card index of Chornobyl Department. Unfortunately, it's not possible to use there computerized data linkage, because all information is on the hard copies. Another limitation of this data source is that address information they have is valid for 1991 and was not updated since that time.

2.11 To identify settlements with substantial number of patients, resettled from contaminated areas and clarify thr possibilities of their examining.

It was started a work on identification of the settlements with a significant number of cohort members outside of the raions under study.

In this connection was rather promising the work with population of the Brusiliv raion of the Zhytomyr oblast. With respect of the information collected during the manual search in Narodychi raion, 316 persons were resettled from Narodychi raion to the Brusylov raion. Still, work of local medical staff in Brusilov raion has shown, that only 89 (28%) of these people are in this raion. Place of residence of the 227 persons still remains unknown.

It was proposed to the 89 found persons to come for examination and 67(75%) did so.

According to the data entered from the results of manual search, approximately 370 cohort members moved to Kyiv (above 413 resettled to Kyiv from the Chornobyl and Prypyat found earlier) whose mail address needs further clarification. In the Zhitomir oblast (outside of the raions under study) there is a significant number of cohort members (approximately 1000: Radomyshl raion 120, Zhytomyr – 105 and so on). Work will start the on clarifying their addresses with the help of appropriate raion passport offices and local medical staff.

INVITATION OF PATIENTS FOR ENDOCRINOLOGIC SCREENING

3.1 To complete invitations by the telephone of the cohort members currently living in Kyiv, who were resettled from Chornobyl and Prypyat.

In the reported period examination of the people left unexamined in Kyiv continued. In the period of time from 01.12.98 to 1.03. 99 for the screening by fixed center 71 appointments were assigned. 38 patients (53%) came for examination. 20 of them came just to the 2-nd or 3-d suggested date.

We continued receiving of cards with the responses from the study subjects. Later we have received some more cards. Totally, we have received back 34 cards by mail, out of 119 cards sent. 23 cards were received back with positive answer, and these persons were examined; 9 cards with definitive refusal; 3 persons are willing to participate but cannot afford time right now. We continue contacting with the remaining 85 persons, we try to find out their telephone numbers through the telephone exchange.

Up to now, 79 persons in Kyiv remained unexamined, out of 413.

TABL. 2 DISTRIBUTION OF PATIENTS LEFT UNEXAMINED IN KYIV

	Number	Percent
Total subjects	413	100
Number examined in Kyiv	333	81
People left unexamined	79	19
Do not live at the address provided	15	4
Do not want to be examined according to the postal card	9	2

Do not want to be examined (according to the postal card + Telephone contact)	22	5
Telephone number remains unknown	11	3
Agreed to come for examination but did not come	17	4
Moved to Russia and other countries	4	1
Has been operated due to a thyroid cancer abroad (Brussels)	1	0,2

3.6 To complete examination of study subjects who currently live in Ovruch raion, Zhitomir oblast.

In Ovruch raion for the reported period invitation did not take place.

3.10 To obtain consent to take part in screening from cohort members who reside in Narodychi raion, Zhytomyr oblast.

997 persons found in Narodychi raion have been invited. Consent to take part in the study was obtained by medical staff of local polyclinics. On the first suggested date 332 persons or 33% of total number of people invited came.
358 persons were invited for the second time, 130 appointment were made, which were attended by 94.

Totally for the reported period in the raion 426 persons have been examined. 43 % from the number of people found and 10% from the number of cohort members in the Narodychi raion.

Epidemiologists – members of mobile teams continued collecting information on the reasons of the refusal to come for examination.

Now we are analyzing the reasons of refusals to come for the examination in prder to study the possibility of repeated invitation of the study subjects to the examination.

3.11 To obtain and analyse information on study subjects who didn't come for examination in Ovruch raion, Zhytomir Oblast

Have been prepared lists on 902 persons left unexamined in Ovruch raion and referred to the raion to clarify the reasons of their not coming to the screening and to find out possibilities of their repeated invitation.

Patients from the 3 raions not planned before (Kozelets, Chernihiv, Brusyiv) have been invited. 89 patients currently living in the Brusyliv raion of the Zhytomir oblast were invited to the examination. 67 persons (75%) were examined. 1025 invitations were prepared and given to the local medical staff in Kozelets raion. 103 appointments were made for the fixed team and 72 - to the mobile team (Tabl. 3)

1498 invitations for the cohort members found were prepared and given to the local medical staff in Chernihiv raion. Examination in this raion started in march 1999.

***Table 3*. Screening activities in the December 1998 – February 1999**

	Raion	**Appointments made**	**Screened**	**%**
Fixed team	Kyiv	71	38	53
	Kozelets	103	79	76

Mobile team	Narodychi	690	332	48
	Kozelets	120	72	69
	Brusylov	89	67	75
Total		1073	588	54

Other screening activities in the reported period:

Reappointments were made made in Narodychi raion – 130. 94 persons attended those dates.

Total of 682 persons attended their appointments in the reported period.

Tabl. 4 Invitation for screening on 01.03.1999

	Raion	**Totally in 20,000 cohort**	**Found and live in raion**	**Were examined**		
				N	% of number of found	% of number of members of 20000 cohort
1	Ivankiv	747	581	145	24	19
2	Former Chornobyl raion Gornostaypol selsky sovet	84	-	37	-	44
3	Ovruch	3073	1672	770	46	25

4	Narodichi	4277	985	426	43	10
5	Kozelets	2089	1157	285	24	14
6	Kyiv	-	412	333	81	-
7	Brusilov	-	89	67	75	
8	Chernigov	2857	1498	0		
Totally			6394	2063		

Endocrinologic examination of the subjects

4.6 To perform screening by mobile teams of cohort members residing in Narodychi raion of Zhytomyr oblast.

4.7 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.

A total of 563 cohort members have been examined by three mobile teams, and 117 cohort members by fixed team. Final results will be assessed after obtaining the results of laboratory tests, but at this preliminary stage the mobile teams have revealed 6 patients with nodular goiter, and in 3 of them, after fine needle aspiration biopsy with punctate cytology, papillary thyroid carcinoma has been diagnosed, confirmed after surgical treatment by pathology investigations.

Operation of the Central Laboratory

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

1. TSH assay:

A total of 846 assays have been performed, including:

a) 803 cases (98.5 %) without departure from the norm (0.3 - 4.0 IU / l);
b) not a case of decreased TSH;
c) 7 cases (0.8 %) of increased (4.1 - 5.0 IU / l) TSH;

d) 4 cases (0.5 %) of increased TSH (5.1 - 10 IU / l);

e) 2 cases (0.2 %) - above 10IU / l.

2. Anti-TPO assay:

A total of 902 assays have been performed, including:

a) 829 cases (91.9 %) without departure from the norm (0 - 100 U / ml);

b) 41 cases (4.5 %) of increased (101 - 200 U / l) anti-TPO;

c) 14 cases (1.5 %) of increased (201 - 500 U / l) anti-TPO;

d) 10 cases (1.1 %) of increased (501 - 1000 U / l) anti-TPO;

e) 8 cases (0.9 %) - above 1001 U / l.

3. Ca^{++} level assay:

A total of 644 assays have been performed, including:

a) 496 cases (77 %) without departure from the norm (1.13 - 1.32 mmol / l);

b) 118 cases (18.3 %) - above the norm;

c) 29 cases (4.5 %) - without correction below the norm;

d) 1 case (0.16 %) - with correction below the norm.

4. Urinary iodine tests

For the reporting period, urinary iodine has been tested in 635 persons examined who were children and adolescents at the moment of the Chornobyl accident and reside in Narodychi and Brusyliv raions of Zhytomyr oblast, and Kozelets raion of Chernihiv oblast. Iodine content was tested using cerium-arsenite method according to R. Gutekunst technique modified by A.D. Dunn. Urinary iodine concentration below 20 μg/l was reported in 14.4 % of persons examined. Iodine

concentrations from 20 to 50 μg/l was revealed in 53.8 % of the persons tested. Urinary iodine content from 50 to 100 μg/l was found in 26.6 % of the persons examined. Iodine excretion above 100 μg/l was reported only in 5.2 % of the subjects examined. The data obtained are evidence of a high iodine deficiency in the persons examined from the controlled regions of Ukraine.

Operation of Data Coordinating Center

6.15. To develop software for image processing and introduction from magneto-optical disks into Project database.

Software has been developed for input of data of registration journals from magneto-optical disks into computer. The DB of the journal of magneto-optical disks has the following structure:

The structure of DB "Journal of magneto-optical disks" Jornal_Mo.DB
- reflects information contained in the "Registration journal of magneto-optical disks"
(* - key fields)

NAME OF FIELDS	TYPE	COMMENTS
NMOLog	S *	Registration journal's number
NMOIMAGE	S *	Image's number on disk
KODTEAM	S	Code of the team having performed examination
ID	A(8)	Identification number

The structure of DB "File of patients with indication of names of files with their magneto-optical image "File_Id.DB"
- reflects information: to what patients what files correspond on magneto-optical disks.
(* - key fields)

NANE OF FIELDS	TYPE	COMMENTS
NMOLog	S *	Registration journal's number
ID	A(8) *	Identification numbers
FILENAME	A(8) *	Name of the file-image

The format of system files archiveq.db, which are recorded by CAMTRONICS device, has been studied.

The program reads the data from system files archiveq.db recorded by CAMTRONICS device, analyses the data from the file and data from the journal DB of magneto-optical disk. As a result, the program identifies correspondence between the image (the file on magneto-optical disk) and the patient (ID-number), and carries the image into Project DB.

6.16. To continue data input from Locator Forms into Project database.

Intensive input of data from Locator Forms of screening into Project DB is being performed. 1769 Locator Forms have been introduced (what represents nearly 93 % from the number of persons examined at present moment).

Besides, simultaneously with input of Locator Forms, passport data of cohort member are being changed (supplemented) in the main database (change of surname, verified date of birth, change of place of residence).

After input of 1769 Locator Forms, the following number of changes have been introduced in the passport section of cohort DB:

Parameter	N	% (out of 1769 Locator Forms introduced)
Error (change) in the surname	364	20
First name verified	156	8
Patronymic verified	539	30

Date of birth verified	1367	76

A general quality control of data input from Locator Forms has been performed.

5 incorrect dates of examination have been revealed in Locator Form DB. 3 of them had initially incorrect date of examination recorded in Locator Form (slips of epidemiologists during mobile examinations); 2 dates - errors of data input into computer (incorrectly recorded year: mechanical error of input). All the errors have been corrected.

6.17. To develop software for data input from Primary Registration Form.

A database for storage and input of data from Primary Registration Form has been developed. The DB has the following structure:

The structure of DB "Primary Registration Form " PRIMARY.DB"

- reflects information contained in "Primary Registration Form"

(* - key fields)

NAME OF FIELDS	TYPE	COMMENTS
ID	A(8)*	Identification number
Date	D *	Date of completing the Form
KOD_ZAP	A(3)	Code of the person who has filled in the Form
KOD_INPUT	A(3)	Code of the person having set data into computer
SOURSEINFO	S	Source of information: 0- Polyclinics of the IEM 1- Local polyclinics 2- Dispensary
COMMENTSOURSE	Memo	Comments to information source
NPASPORT	(13)	Number of patient's passport or birth-certificate

SOCSTATUS	S	Social status: 0 – unmarried, lives with his (her) parents; 1 – married, lives with his wife (her husband); 2 – married, lives alone; 3 – unmarried, lives alone
DIAGNOZ1	S	Code of diagnosis (diff. Goiter)
DATE1	D	Date of diagnosis
NPMO1	A(8)	Settlement of medical Establishment
MEDORGAN1	Memo	Name of medical Establishment
DIAGNOZ2	S	Code of diagnosis (nod. Goiter)
DATE2	D	Date of diagnosis
NPMO2	A(8)	Settlement of medical Establishment
MEDORGAN2	Memo	Name of medical Establishment
DIAGNOZ3	S	Code of diagnosis (tumors)
DATE3	D	Date of diagnosis
NPMO3	A(8)	Settlement of medical Establishment
MEDORGAN3	Memo	Name of medical Establishment
DIAGNOZ4	S	Code of diagnosis (malignant tumors)
DATE4	D	Date of diagnosis
NPMO4	A(8)	Settlement of medical Establishment
MEDORGAN4	Memo	Name of medical Establishment
DIAGNOZ5	S	Code of diagnosis (thyroiditis)
DATE5	D	Date of diagnosis
NPMO5	A(8)	Settlement of medical Establishment
MEDORGAN5	Memo	Name of medical Establishment
DIAGNOZ6	S	Code of diagnosis (hypothyroidism) 1 – diagnosed
DATE6	D	Date of diagnosis
NPMO6	A(8)	Settlement of medical Establishment

MEDORGAN6	Memo	Name of medical Establishment
DIAGNOZ7	S	Diagnosis: hyperthyroidism 1 – diagnosed
DATE7	D	Date of diagnosis
NPMO7	A(8)	Settlement of medical Establishment
MEDORGAN7	Memo	Name of medical Establishment
DIAGNOZ8	S	Diagnosis: other
DATE8	D	Date of diagnosis
NPMO8	A(8)	Settlement of medical Establishment
MEDORGAN8	Memo	Name of medical Establishment
DATEOP1	D	Date of surgery
KODOP1	S	Type (code) of surgery. Substitution from the reference book Operat.db
NOTESOP1	Memo	Comments to surgery
GISTNAMBE1	A()	Histology conclusion's number
GISTNOTES1	Memo	Histology conclusion
DATEOP2	D	Date of surgery
KODOP2	S	Type (code) of surgery. Substitution from the reference book Operat.db
NOTESOP2	Memo	Comments to surgery
GISTNAMBE2	A()	Histology conclusion's number
GISTNOTES2	Memo	Histology conclusion
DATEOP3	D	Date of surgery
KODOP3	S	Type (code) of surgery. Substitution from the reference book Operat.db
NOTESOP3	Memo	Comments to surgery
GISTNAMBE3	A()	Histology conclusion's number
GISTNOTES3	Memo	Histology conclusion
DEATHDATE	D	Date of decease

FIOMAHTER	A(15)	Mother's surname
IMMAHTER	A(10)	Mother's first name
OTMAHTER	A(15)	Mother's patronymic
NAMERODDOM	Memo	Name of maternity hospital
NPRODDOM	A(8)	Location of maternity hospital

The structure of DB "Reference book of diagnoses "MORBUS.DB

- contains diagnoses. Used for substitution in the Form "Primary Registration Form".
- (* - key fields)

NAME OF FIELDS	TYPE	COMMENTS
MORBUSKOD	S*	Code of diagnosis
MORBUSNAME	A(45)	Name of diagnosis
MORBUS	Y	Belongs to what group

The program has been integrated in the main program module of work with the cohort

6.18 To transfer available software to SQL platform.

New software is being developed on the basis of SQL. The old programs have been partially translated into structured language of SQL-inquires. Besides, SQL-inquiries are effectively used for performing complex samples in DB. Complete transfer to SQL platform will be realized after development of software for input of all screening Forms will have been completed.

Besides, DCC has performed the following additional tasks:

- Computer network of DCC and Project Office has been installed (power cable installed, computer connected to the existing system, necessary software installed, rights for user's access to the server stated).

- A verification and completion of all software developed for operation with dates, taking into account 4 nonzero digits of year (considering the problem of passage to the year 2000) have been performed.
- A program has been developed for keeping and control of journals of examinations, as well as for input of data on the dynamics of patients' invitation (date of contact, result, causes of refusal, what team has performed examination). At present, the Epidemiology Group is carrying out intensive work with this program.
- A program has been developed and data have been introduced concerning the schedule of work of mobile teams (including information on their date of departure, date of arrival, number of persons examined, composition, and settlement of examination).
- Data have been set from paper into database on the results of manual search in Repky raion.
  The results and analysis of the data introduced are presented in Tables (see above chapter 2.11).
- Oblasts and raions which are not a part of 8 controlled raions, have been added to inquiry database of settlements.
- A program for scanning DB has been written, in order of a general quality control of the DB's passport section (incorrect dates, correctness of indication of the settlement of residence, status).
- DB has been prepared, and invitations and cards of potential participants in screening have been printed for Chernihiv (1498) and Kozelets (1025) raions. Tables reflecting dynamics of patients' invitation for these two raions have also been drawn up and printed.
- A list of persons who have not been found (with indefinite status), and who have left in unknown direction, has been prepared for Chernihiv raion in order of search in Chernihiv passport office (701 persons).
- An analysis of duplicates' data given by Dosimetry Group, has been performed. A DB containing 1498 duplicate records from the 100.000-cohort has been given by Dosimetry Group to DDC. Among them 588 (39 %) are real persons, the remaining 910 (61 %) are duplicates. 548 records out of 1498 (36 %) have been included in intensive cohort of screening. Among them 351 are real persons; 197 duplicates. Out of 197 duplicates 115 were already included in the cohort DB (on the basis of search by local medical staff) as duplicates; 79 (they included those who have not been found by manual search on the spot, and, therefore, they have not been noted as duplicates) have

been set into the main Project DB as duplicates, and they have not been noted in the main DB as duplicates, because manual search has shown that these are not duplicates but different persons.

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.

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 consultative conclusion. For the period December 1998 - February 1999, material from 45 cases of surgical thyroid pathology has been collected. They include 20 cases of thyroid carcinoma (3 cases from Kyiv oblast, 2 from Chernihiv oblast, 7 from Zhytomyr oblast, and 8 from the city of Kyiv); 7 cases of follicular adenoma (3 cases from Kyiv obalst, 2 from Chernihiv oblast, one from Zhytomyr oblast, and one from the city of Kyiv); 11 cases of nodular goiter (one case from Kyiv oblast, 3 from Chernihiv oblast, 2 from Zhytomyr oblast, and 5 from the city of Kyiv); 4 cases of multinodular goiter (one case from Kyiv oblast and 3 from Zhytomyr oblast); and 3 cases of diffuse toxic goiter (one case from Kyiv oblast, one from Chernihiv oblast, and one from the city of Kyiv).

With diagnostic purpose, 290 blocks have been embedded in paraffin, and more than 500 histological preparations have been studied at light microscope.

All the the studied cases of thyroid cancer represented a papillary carcinoma: 4 tumors of this type were removed in children aged 13-14 years (at the time of the accident these children were aged from 5 months to 1 year and 7 months); 5 tumors in adolescents aged 15 to 18 years, and 11 tumors were removed in young adult patients aged 19 to 28 years.

As to their histological structure, papillary carcinomas in 9 cases (45 %) had a typical papillary structure; in 7 cases (35 %) - a solid structure, and in 4 cases (20 %) a mixed follicular-solid structure with papillary areas, what points out that carcinomas of solid-follicular structure prevailed (55 %). In one patient (a boy aged 14 years who had been evacuated from Prypyat' in 1986 at the age of 1 year and 9 months) papillary carcinoma with solid structure was accompanied by an adenomatous multinodular goiter. Tumor metastases in regional lymph nodes have been morphologically established in 10 cases (50 %).

Follicular adenomas had a dominant microfollicular-solid structure with signs of alveolar papillary hyperplasia and oxyphilic-cell transformation.

Nodular solitary goiters were characterized by a heterogeneous morphologic structure; in 6 cases (55 %) cystic transformation was noted. In one case nodular goiter was established in the presence of diffuse toxic goiter, and in another case in the presence of chronic thyroiditis. It should be stressed that nodular goiter was observed in a girl aged 10 years, i.e. born after the Chornobyl accident: in 1988. This patient lives in Chernihiv oblast.

A multinodular goiter of heterogeneous histological structure has been verified in 2 children born in 1986 (one case "in utero" at the time of the accident) and in 2 young adults aged 21 and 29 years.

Diffuse toxic goiter was present only in young adult patients aged 22 to 30 years. In all three cases there were signs of alveolar papillary hyperplasia, sclerotic changes, signs of a concomitant chronic thyroiditis.

7.2. Preparation of additional histological specimens for the morphologic data bank of the Ukr.-Am. Project from patients including in the cohort.

A detailed information on the above cases, which included patient's passport data, exact date of birth, place of residence during the accident and to date, has been provided to the Dosimetry Department of the Scientific Center of Radiation Medicine and to DCC in order to identify persons who had direct measurements of thyroid activity and were included in the cohort. It has been established

that among the subjects who have been operated within the reported period, 7 patients belong to the cohort, and three of them have been revealed in the process of screening examinations in Ovruch and Narodychi raions of Zhytomyr oblast (see 7.3). In 6 patients a papillary carcinoma has been verified, 4 of which belong to the "main" 20000-cohort (3 in group "C" and one in group "B"), one subject (a boy aged 14 years evacuated from Prypyat') belongs to the 75000-cohort (Group "A"), and one subject belongs to the general 100000-cohort (group "A"). One patient (female) with follicular adenoma belongs to the main 20000-cohort (dose group "C"). Additional histological preparations have been prepared from the paraffin blocks of the tumors removed, extratumoral tissue and metastatically affected lymph nodes of the above cases, for the morphologic data bank of the Ukr.-Am. Project.

Thus, in the morphologic data bank of the Ukr.-Am. Project, among the cases identified after surgery in the cohort (persons who have been identified by screening examinations are not taken into account !), to date 24 cases of papillary thyroid carcinoma and 10 cases of benign pathology (3 follicular adenomas, 3 nodular solitary goiters, 3 multinodular goiters, and one diffuse toxic goiter) are established.

On the basis of an analysis of data from clinical-morphologic Registry, among the subjects identified in the cohort, 3 more cases of papillary thyroid carcinoma (2 cases from the 75000-cohort and one from the general 100000-cohort) have been additionally established; but in these cases operations have been performed in other clinics, and so far there are no paraffin blocks or histological preparations.

Thus, the so-called "passive screening" allowed to reveal among the subjects identified in the cohort 27 cases of papillary thyroid carcinoma and 10 cases of benign pathology.

Together with DCC, an additional analysis of the above cases has been made as regards patients' distribution in the 20000-cohort, 75000-cohort, and general 100000-cohort.

So, among 27 cases of thyroid carcinoma, 11 (41 %) belong to the 20000-cohort (all cases in dose group "C"), 10 cases (37 %) to the 75000-cohort (3 cases in group "B" and 7 cases in group "A"), and 6 cases (22 %) belong to the general 100000-cohort (one case in group "C", one case in group "B", and 4 cases in group "A").

Among 10 cases of benign thyroid pathology, one case (10 %) belong to the main 20000-cohort, 5 cases (50 %) to the 75000-cohort (one case in group "B" and 4 cases in group "A"), and 4 cases (40 %) belong to the general 100000-cohort (all cases in group "B").

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.

Screening examinations performed to date allowed to identify 3 patients for surgery, who have been operated on. Among them, one child, a girl aged 14 years from the Ovruch raion of Zhytomyr oblast (dose group "C"), and 2 young adults (a male aged 23 years, dose group "C", and a female aged 23, dose group "B", from the Narodychi raion of Zhytomyr oblast).

In all the above patients, a papillary carcinoma has been verified. The girl had a nonencapsulated tumor of dominant solid structure, identified in the left thyroid lobe, measuring 1.6 x 1.5 x 0.9 (cm) and characterized by signs of spreading in the gland, vessel invasion and sclerotic changes, without tumor metastases in regional lymph nodes.

In the second case (a male aged 23 years) the tumor measuring 1.1 x 0.8 x 0.8 (cm) was localized in the right thyroid lobe, partially encapsulated, also of dominant solid structure with signs of invasive growth to the glandular capsule and beyond the limits of it. There was also metastatic lesion of one of the lymph nodes of middle group.

In the third case (a female aged 23 years) the tumor occupied the greater part of left thyroid lobe, measuring 3.2 x 1.8 x 1.2 (cm), and, had also a dominant solid structure with signs of extrathyroidal spreading. Metastases of papillary carcinoma, of a dominant solid-follicular structure, have been revealed in a lymph node adjacent to the left lobe, in pretracheal and paratracheal left lymph nodes.

In all cases, additional histological preparations have been prepared from the paraffin blocks of the tumors removed, extratumoral tissue and metastatically affected lymph nodes, for the morphologic data bank of the Ukr.-Am. Project.

7.4 To fill in the Pathology Forms for the patients with revealed cases of thyroid pathology, included in the cohort under study. To set these data into the computer and provide them to DCC (after receipt of computers).

The Pathology Forms for the all the cases having been identified in the cohort, have been filled in on paper. The Laboratory has been provided with a computer which was formerly (before installation of new modern equipment) used in DCC. After the DCC staff will have developed appropriate programs, the Forms will be completed on computer; but, so far, data transfer to DCC is impossible, because of problems with network communication and incompatibility of diskette size between the computer provided to the Laboratory and new computers installed in DCC.