

**UkrAm Study of Thyroid Cancer and Other Thyroid Diseases in Ukraine  
Following the Chernobyl Accident**

Progress Report for Quarter Beginning 16 May and Ending 31 August 2000

Project Manager

Dr. M. Tronko

## **I. Executive Summary**

For the reported period, further intensification of screening examination of the cohort was a top priority in the work of Project staff. Within this period, search of cohort members of selection 2 with the help of local medical staff of the raions controlled by the Project protocol has been completed.

Tracing of cohort members of selection 2 by means of passport bureaux of Chernihiv and Kyiv oblasts has been completed. In Zhytomyr oblast tracing of cohort members of selection 2 has been performed with the help of Oblast Passport Bureau, Oblast Military Registration and Enlistment Office, Oblast Departments of Education, Social Security, Oblast Department of Chornobyl.

For the reported period, 2403 invitations to take part in screening have been sent out to members of selection 2.

As a result of the work performed from May 16 to August 31, 2000, 2894 cohort members, including 531 subjects from selection 1 and 2363 members of selection 2, have undergone primary medical screening examination. Mobile teams have examined 2177 cohort members, fixed team - 2177 cohort members.

A nodular goiter has been revealed in 52 patients; they have been referred for fine needle aspiration biopsy (FNA) which has been performed in 41 out of these patients. 11 patients have not come to examination, new invitations have been sent out to them. According to FNA findings, in 6 patients cytological study pointed out a thyroid carcinoma. In 4 out of them this diagnosis has been confirmed by postoperative histological study. In one patient the results of postoperative histology confirmed a follicular thyroid adenoma, in one patient histological findings revealed an adenoma consisting of B-cells.

For the reported period, 1391 final medical conclusions have been prepared and sent out to screening subjects in controlled raions.

The Central Laboratory has performed within the reported period TSH blood assays in 1250 cohort members; antiTPO in 1302 persons; thyroglobulin in 1277 persons; calcium in 1938 persons.

The Data Coordination Center (DCC) have prepared and provided within the reported period 3000 complete sets of Screening Forms to the Data Processing Center of the University of Illinois.

Participation in the Minsk Meeting devoted to clinical issues of implementation of the joint Thyroid Project has been ensured.

## **II. Report on Tasks**

### 3. Trace subjects to determine current address

#### 3.3 Trace subjects for current address

In the current quarter, information on current place of residence of cohort members has been obtained from the following data sources:

| Name of the data source used (Selection 1) | Number of cohort members in the list that has been processed | Established and current address in one of the 3 study oblasts (exact address) | Live in Ukraine (outside of the 3 oblasts) | Emigrated | Temporarily absent | Died | Not found | Double records |
|--|--|---|--|-----------|--------------------|------|-----------|----------------|
| Manual search in Ovruch raion              | 2539   | 1386  | 117  | 58        | 37                 | 14   | 919       | 8              |
| Manual search in Narodychi raion           | 791  | 138   | 17   | 7         | 4                  | 8    | 595       | 22             |
| Manual search in Ivankiv raion             | 899  | 182   | 7  | 8         | 14                 | 6    | 681       | 1              |
| Passport Bureau of the town of Slavutysh   | 1455   | 36  | 0  | 0         | 0                  | 0    | 1406      | 3              |
| Manual search in Chernihiv raion           | 2344*  | 0*  | 0*   | 0*        | 0*                 | 0*   | 2344*     | 0*             |
| Passport Bureau of Chernihiv oblast        | 7373   | 4097  | 70   | 35        | 12                 | 23   | 3110      | 26             |
| Passport Bureau of Kyiv oblast             | 3096   | 1790  | 99   | 17        | 2                  | 12   | 1160      | 16             |
| Manual search in Polisyia raion            | 25   | 2   | 0  | 0         | 2                  | 2    | 19        | 0              |

\* Input of obtained information on addresses into Project database is being continued

Address search of Selection 2 cohort members with the help of local medical staff in Narodychi and Ovruch raions of Zhytomyr oblast, Kozelets, Chernihiv, Ripky raions, and town of Chernihiv of Chernihiv oblast, Ivankiv raion of Kyiv oblast has been completed.

Tracing of Selection 2 cohort members by means of Passport Bureau of Chernihiv oblast has been completed.

Tracing of Selection 2 cohort members with the help of Passport Bureau of Kyiv oblast has been completed.

Tracing of cohort members by means of Passport Bureau of Zhytomyr oblast, Military Registration and Enlistment Office, Department of Education, Chernobyl Department, Department of Social Security of Zhytomyr oblast is under way.

Tracing of Selection 2 cohort members in Passport Bureau of Narodychi raion has been completed.

### **3.4 Trace subjects who did not respond to invitation for current address**

In the current quarter, local medical staff in Project raions have invited for screening those subjects who did not answer to invitation by mail. Information on changes in current address of cohort members was being collected.

## **4. Enroll and maintain participation of subjects in the study**

### **4.2 Send out initial invitation with information brochure**

In the current quarter initial invitations for Selection 2 cohort members with information brochure have been sent to:

Narodychi raion, Zhytomyr oblast – 150 invitations

Ovruch raion, Zhytomyr oblast – 705 invitations

Town of Chernihiv, Chernihiv oblast – 198 invitations

Chernihiv raion, Chernihiv oblast - 200 invitations

Kozelets raion - 550 invitations

Ripky raion – 400 invitations

Ivankiv raion, Kyiv oblast - 200 invitations

## **5. Conduct initial screening examination of subjects**

### **5.4 Sent invitation letters to schedule appointments for examination**

Invitation letters fixing the day of examination were sent out only to inhabitants of Kyiv (354), to inhabitants of raions where insignificant number of cohort members are living and to which visits of mobile teams are not being planned. Kyiv oblast - 82 invitations; Chernihiv oblast - 90 invitation letters. For the rest of raions the appointment day was fixed by medical staff based on the results of personal contacts with cohort members.

New invitations have been sent out to those subjects who had not presented themselves for aspiration biopsy (86), suggesting that they should come on a fixed date.

### **5.5 Conduct screening examinations**

From May 16 to August 31, 2000 primary examination of 2894 cohort members has been performed. In 448 persons examined diffuse goiter, in 52 patients - nodular goiter has been reported (all of them have been referred for FNA of thyroid nodules). 41 patients have undergone FNA (11 patients have not come to the clinic for additional examination). According to FNA data, in 6 patients cytological changes corresponded to thyroid carcinoma. In 4 of these patients ( . . . . . born in 1980; . . . . . born in 1974; . . . . . born in 1981; . . . . . born in 1985) the diagnosis of thyroid cancer has been confirmed by histological study after surgery. In 2 patients

cytological changes in the nodule corresponded to an adenoma with microfollicular structure. In one of them (born in 1973) the diagnosis of follicular thyroid adenoma has been established by cytological study after surgery. In one patient (female) cytological changes in the nodule revealed by FNA corresponded to an adenoma consisting of B-cells. In 2 patients according to cytological conclusion there was a suspicion of papillary carcinoma. In one patient cytological changes corresponded to a nodule with microfollicular structure (born in 1969). This patient has been operated in September 2000.

### **5.6 Notify subjects of final screening results**

For the reported period, local medical staff of study raions received for further distribution the following number of final medical conclusions:

|   | <b>Raion</b>      | <b>Number of final medical conclusions</b> |
|---|-------------------|--|
| 1 | Narodychi raion   | 187  |
| 2 | Ovruch raion      | 267  |
| 3 | Ivankiv raion     | 100  |
| 4 | Kozelets raion    | 256  |
| 5 | Ripky raion       | 183  |
| 6 | Chernihiv raion   | 356  |
| 7 | Town of Chernihiv | 317  |
|   | <b>Total</b>      | <b>1666</b>                                |

## **7. Determine which subjects have developed thyroid cancer or other thyroid diseases**

### **7.2 Conduct FNA on appropriate subjects and refer appropriate subjects for surgery**

FNAs have been performed to 41 patients. Malignant neoplasms - 8

### **7.3 Provide final pathomorphologic diagnosis after surgery**

For the reported period, following screening examinations, 6 patients have been operated, among which 2 persons belonged to selection 1, and 4 subjects to selection 2 (Table 9).

In 4 cases (two adolescents and two young adults) a papillary thyroid carcinoma has been diagnosed both by intraoperative and postoperative pathomorphologic analysis of biopsy material.

In one boy-adolescent aged 15 (ID 05845426, exposure dose 1.32 Gy, group "C", selection 1) a non-encapsulated tumor (maximum size 32 mm) was characterized by a papillary-solid structure, but previously signs of a marked spreading of tumoral foci were present as in diffuse-sclerosing variant (within and outside the gland) in the presence of sclerotic changes and signs of chronic thyroiditis. A unilateral metastatic lesion of regional lymph nodes was also reported (T4N1MX).

In one girl-adolescent aged 18 from Narodychi raion of Zhytomyr obalst (ID 10444417, exposure dose 0.876 Gy, group "C", selection 1) the tumor was non-encapsulated, with a maximum diameter 11 mm and dominant follicular-solid structure.

In one girl-adolescent aged 18 from Kozelets raion of Chernihiv oblast (ID 01850115, zero-level exposure dose, i.e. lower than the level of minimum detected activity, group "A", selection 2) a partially encapsulated papillary carcinoma, diameter 23 mm, having a heterogeneous structure, with presence of unilateral metastases (T2N1MX) has been reported.

In one male aged 25 years from Kozelets raion of Chernihiv oblast (ID 10125211, exposure dose 0.02 Gy, group "A", selection 2) a bilateral non-encapsulated tumor with maximum diameter 35 mm, also having a follicular-solid structure, with signs of spreading outside the gland's capsule and presence of bilateral metastases to regional lymph nodes (T4N2MX) has been revealed.

Besides, benign thyroid pathology was reported in 2 cases (Table 9). So, in one female aged 26 from the town of Kozelets, Chernihiv oblast (ID 05767429, zero-level exposure dose, i.e. lower than the level of minimum detected activity, group "A", selection 2) a nodular goiter, diameter 8 mm, with normo-macrofollicular structure, and in one male 27 years old from the same Kozelets raion of Chernihiv oblast (ID 01233009, exposure dose 0.06 Gy, group "A", selection 2) a follicular adenoma, diameter 10 mm, with solid-microfollicular structure have been reported.

Histological processing of biopsy material has been performed. Additional histological specimens have been prepared from paraffin blocks of the tumors removed, extratumoral tissue, and tumor metastases to regional lymph nodes for the morphologic data bank of the Ukraine-US Project, and for additional verification by the International Panel of experts-pathologists. Appropriate Pathology Forms have been filled in (Russian and English versions).

Besides, in order to provide the epidemiologists with additional information on cohort members regarding the possibility of their surgical treatment for thyroid pathology before invitation to screening, collection of data and biopsy material has been continued in patients born in 1968 and later, who are living in regions under study and have been operated during the reported period. Among 31 such cases cohort members have not been reported.

## **7.5 Complete laboratory tests for subjects examined**

I. The following blood tests have been performed:

I. Thyrotropin: 1250 persons,

among which:

normal level (0.3 - 4,0 mU/l) - 1145 (91,6 %);

below the normal level - 4 (0.3%);

above the normal level - 101 (8.1 %),

among which:

above the normal level (4,1 - 5,0 mU/l) - 55 (4.4 %);

above the normal level (5,1 - 10,0 mU/l) - 41 (3,3%);

over 10,0 mU/l - 5 (0,4%).

2. Anti-TPO: 1250 persons,

among which:

normal level (0-60 U/ml) - 1117 (89.36 %);

above the normal level - 133 (10,64 %),

among which:

above the normal level (101-200 U/ml) - 53 (4.24 %);

above the normal level (201-500 U/ml) - 24 (1.92 %);

above the normal level (501-1000 U/ml) - 12 (0.96 %);

over 1000 U/ml - 44 (3.52 %).

3. Thyroglobulin: 1250 persons,

among which:

normal level (2,0 - 10 ng/ml) - 1157 (92.56 %);

below the normal level - 36 (2.88 %)

above the normal level - 57 (4.56 %),

among which:

above the normal level (71 - 200 ng/ml) - 55 (4,40 %);

above the normal level (201-300 ng/ml) - 1 (0,08 %);

over 400 ng/ml - 1 (0,08 %).

4. Calcium: 2271 persons,

among which:

informative – 1938;

among which:

normal level (1,05 - 1,35 mmol/l) - 1781 (91.90 %);

below the normal level - 50 (2.58 %)

above the normal level - 107 (5.52 %);

For the reported period, urinary iodine excretion tests have been performed in 350 persons examined who were children and adolescents at the moment of the Chernobyl accident and are living in settlements of Narodychi and Ovruch raions of Zhytomyr oblast, Chernihiv and Ripky raions of Chernihiv oblast, and Ivankiv raion of Kyiv oblast. Urinary iodine excretion was being determined using cerium-arsenite method according to R. Gutekunst technique modified by A.D. Dunn. Urinary iodine excretion under 20 µg/l was reported in 4.6 % of the persons examined. Iodine concentration from 20 to 50 µg/l was found in 39.1 % of the study subjects. Urinary iodine contents from 50 to 100 µg/l has been revealed in 44.3 % of the persons examined. Iodine excretion over 100 µg/l was reported in 12 % of study subjects. The results obtained point out a moderate and low degree of iodine deficiency in the persons examined from controlled regions of Ukraine.

#### **7.6 Complete final endocrine summary for each subject**

In the current quarter 1391 final endocrinological conclusions have been prepared. The Forms have been transferred to DCC in order to sent out the results of examination to the patients examined.

#### **7.9 Conduct expert reviews of thyroid pathology for subjects who had surgery**

Histological preparations from 5 cases of papillary carcinoma and 5 cases of benign thyroid pathology, determined at previous and present stages of the Project, will be presented at the regular meeting of the International Panel of experts-pathologists (Nagasaki, Japan, October 15-17, 2000) for additional verification.

### **8. Develop data management system, and key enter data collected for the study**

#### **8.3 To enter information from Data Collection Forms into the database**

Data entry from Aspiration Biopsy Form and Cytologic Conclusion Form has been performed. 35 and 43 Forms, respectively, have been entered for the reported period.

Data have been entered on those patients who need to repeat blood collection in order to specify their diagnosis. Data on subjects having not undergone FNA have been entered as well. All necessary materials have been prepared for all these cohort subjects, and invitations have been sent out by mail (86 invitations for FNA have been sent out).

The following number of complete sets of Forms (Screening Questionnaires, Blood Tests, Final Conclusion) have been prepared and transferred to the Data Processing Center of the University of Illinois (Institute of Pediatrics, Obstetrics and Gynecology):

| Date of transfer | Number      |
|------------------|-------------|
| 19.05.2000       | 300         |
| 24.05.2000       | 300         |
| 06.2000          | 1075        |
| 07.2000          | 325         |
| 15.08.2000       | 1000        |
| <b>Total</b>     | <b>3000</b> |

Every set of Forms for each of subjects was packed in an individual envelope, marked, and registered in the database.

Final conclusions and copies of blood tests have been prepared for sending out to patients in the raions under study. The number of conclusions sent out and distribution by raions are presented in the Table of **Subtask 5.6**.

#### **8.4 Conduct routine batch edits of data base**

For the reported period, input of the following data and correction of corresponding tables of the database has been performed:

- Correction of the passport file of the cohort based on lists of search and Registration Screening Forms (verification of identification information, dates of birth, verification of address and status of cohort members). The data on the results of tracing of cohort members of selection 1 and 2 have been processed and entered into DB: Manual search of selection 2 in Ovruch and Narodychi raions of Zhytomyr oblast; passport bureaus of Chernihiv and Kyiv oblasts. The number of data processed and distribution according to the results of search are given in Table of **Subtask 3.3**.
- Correction of the database of contacts. Data input on contacts with cohort subjects from postcards, lists, dynamics of patients' invitation. Data input based on the results of patients' invitation was being performed by local medical staff for mobile team and by Epidemiology Group for stationary team. A total of 3998 contacts with patients (3429 by medical staff, 482 phone calls, 87 invitations by mail) have been added to the database.
- Correction of the file of persons examined based on data from registration logs of stationary and mobile teams (Distribution of the subjects examined according to the place of screening is

given in Table 4).

Correction of the database of registration information on the status and location of the Forms. Correction of the passport file of DB of cohort subjects based on Screening Forms. Passport data (date of birth, address) have been verified and entered from the Forms for 1733 cohort members. Data input from registration logs of blood and urine collection was being performed. (Distribution according to the completeness of getting through all screening stations is presented in Table 5).

## **9. Calculate estimate of dose and uncertainty for each study subject**

### **9.1. Determine the appropriate methods for calculating I-131 dose.**

#### **9.1.1. Develop and field test dosimetry questionnaire.**

**Progress on subtask.** Version of the uniform Dosimetry Questionnaire prepared with the help of Terry Thomas was discussed. After translation into Russian this form was preliminary tested to estimate the time expenses for accomplishment (25-30 minutes per one person).

**Operational difficulties encountered in accomplishing the task.** No.

#### **9.1.3. Estimate parameters used for determining the temporal variation of the intake rates (duration of fallout, timing of pasture season, etc.) for specific areas.**

**Progress on subtask** Verification of radio-caesium body burdens model and surface body contamination model based on the Ukrainian data available were performed. For the sake of verification, we involved 3520 measurements of caesium body burdens, performed in settlements of Narodychi raion, Zhytomyr oblast, in the period from May 16 till May 19, 1986.

The model was verified using the following scheme:

1. For each settlement with applicable statistics on a fixed-age group (with more than 10 measurements), there was put together a vector of dosimetry model parameters (average daily  $^{131}\text{I}$  concentration dynamics in air in compliance with the atmospheric transfer model, average  $^{137}\text{Cs}$  density in soil, age consumption and metabolism parameters).
2. The ecological model was applied to estimate the dynamics of average  $^{131}\text{I}$ ,  $^{134}\text{Cs}$ ,  $^{136}\text{Cs}$ , and  $^{137}\text{Cs}$  activity contents in human body in 26/04/86 – 31/06/86.
3. Using the values of SRP-68-01 calibrations coefficients for each particular nuclide and the surface body contamination model, there was simulated the dynamics of gamma exposure (count rate) at stomach level for a patient belonging to this age group.
4. The Monte Carlo technique was applied to build up an uncertainty corridor for simulated dependence.
5. The simulated count rate value as of the measurement date was compared to the average (geometric mean) count rate for the measured group.

The model verification results reveal a reasonable concord between simulated and measured values. The results of this work were summed up in a presentation to be delivered during a dosimetry meeting on 27-29 September 2000, and were applied to lay down alternative directions for further validation of the thyroid dosimetry model.

**Operational difficulties encountered in accomplishing the task.** We believe that it is necessary to further validate the model using the results of late (i.e. June) thyroid count rate measurements performed with spectrometric devices in Ukraine. For this purpose it is advisable to make simulation measurements using the age phantoms of a human body. Objective of measurements: to assess the input of cesium contained in the body into a thyroid-level signal read on spectrometer's iodine window as a result of scattering of Cs-137 gamma-quanta. This will make it possible to validate the cesium body burden model as well as to assess the input of iodine-131 signal, which was registered during thyroid measurements carried out with spectrometers in 1986, into the total thyroid signal.

#### **9.1.4. Collect the available environmental radiation measurements made in the spring of 1986.**

**Progress on subtask.** During Dr Moroz's visit to Kiev in April 2000, we reached an agreement to look through St Petersburg-based archives for measurements of iodine-131 and other radionuclides contents in the environment and foodstuffs, which had been conducted with spectrometric devices in Ukraine in the spring of 1986. We received copies of pinpointed results (210 samples) in June 2000. Besides, we collected the results of various radionuclides measurements in 421 samples performed back in the spring of 1986 by scientists of Institute for Communal Hygienic (Marzeyev named) subordinated to Ukrainian Ministry of Public Health. Dr. Sergey Shinkaryov from Moscow-based Biophysics Institute sent us a computer file with measurement results on 23 samples taken in Ukraine. There were designed a computer data base to store the data collected (ENVIR\_IOD.mdb), developed a coding manual and data documentation. As of 31/08/2000, the main table of ENVIR\_IOD.mdb contains 1089 records on measurements of I-131, Te-132, I-132, Cs-134, Cs-136, Cs-137, Ce-141, Cs-144, Ru-103, Ru-106, Ba-140, Zr-95, Zr-95+Nb-95m, and other nuclides activity in environmental samples from April till September 1986. All the data were geo-coded and entered into the system of related DB of dosimetry group.

**Operational difficulties encountered in accomplishing the task.** Since the data were presented in completely different appearances, it is quite possible that certain samples have been duplicated. This risk must be tested and analyzed separately.

**9.1.9. Analyze the responses provided by the interviewees (completeness, reliability, statistical distributions , etc.).**

**Progress on subtask.** We continued analyzing the information in linked dosimetry questionnaires collected in 1988-89, 1992 and collected during the 1998-2000 screening provided by the same interviewees. There were selected groups of people who provided unreliable information, while characteristics of these groups were subject to an analysis.

The results will be delivered as a presentation at the joint dosimetric meeting in Kiev on September 27-29, 2000.

**Operational difficulties encountered in accomplishing the task.** No.

**9.1.10. Document: (1) the history of direct thyroid measurements.**

**Progress on subtask.** We kept on making electronic copies of primary dosimetric records for subsequent storage. Altogether, we have scanned 209 sheets of primary records.

There was continued the search for and interviewing of persons, who had taken part in the thyroid dose monitoring. We have been able to locate 2 participants of the thyroid dose monitoring and held interviews with 5 participants (including persons who was founded previously). In-depth results of searching for and interviewing dosimetrists are described in a report.

**Operational difficulties encountered in accomplishing the task.** We have not received any financial backup to purchase the claimed contemporary scanner, which can greatly speed up the work and facilitate storage of graphic files. We have found out that Mr. Apostolov, the dosimetrist who was in charge of thyroid dose monitoring in Chernigiv oblast and participated in measurement procedures in Kyivska and Lvivska oblasts, has emigrated to Germany and there is no chance to get in contact with him so far. This summer it was rather impossible to find the dosimetrists we are looking for because of the vacation season in Ukraine.

**In addition,** for the reported period the following tasks were carried out:

1. Develop methods for conducting initial tracing of subjects selected.

Progress on task of determination of duplicate records in the dose files is given from 16/05/2000 up to 31/08/2000 (See Table 1)

2. Conduct screening examinations (dosimetry interview) .

Progress on task is given from 16/05/2000 up to 31/08/2000 (See Table 2 and Table 3.)

**Operational difficulties encountered in accomplishing the task.** Pre-printed ID-labels were not always available for questionnaire forms in the current quarter. Therefore, interviewers had to inscribe ID codes on personal interview forms in pen, which posed a risk of unintentional errors.

**Table 1. Tracing of the Cohort**

|                        | Selection I<br>(Records Selected = 20,071) |       |                               | Selection II<br>(Records Selected = 14,021) |       |                               | Total<br>(# of Records = 34,092) |       |                               |
|------------------------|--|-------|-------------------------------|---|-------|-------------------------------|----------------------------------|-------|-------------------------------|
|                        | Cumulative Total                           |       | Change Since Previous Quarter | Cumulative Total                            |       | Change Since Previous Quarter | Cumulative Total                 |       | Change Since Previous Quarter |
|                        | #  | %     | #                             | #   | %     | #                             | %                                | #     |                               |
| Duplicate Record Found | 1363                                       | 6.8   | 5                             | 118   | 0.8   | 0                             | 1481                             | 4.3   | 5                             |
| Total Subjects         | 20071                                      | 100.0 |                               | 14021                                       | 100.0 |                               | 34092                            | 100.0 |                               |

**Table 2. Place of Screening for Subjects Who Were Interviewed with Dosimetry Questionnaire in Screening Cycle 1 (Baseline Examination Only)**

|                                       | Selection I<br>(Records Selected =20,071) |       |                               | Selection II<br>(Records Selected = 14,021) |       |                               | Total<br>(# of Records = 34,092) |       |                               |
|---------------------------------------|---|-------|-------------------------------|---|-------|-------------------------------|----------------------------------|-------|-------------------------------|
|                                       | Cumulative Total                          |       | Change Since Previous Quarter | Cumulative Total                            |       | Change Since Previous Quarter | Cumulative Total                 |       | Change Since Previous Quarter |
|                                       | #   | %     | #                             | #   | %     | #                             | %                                | #     |                               |
| Total Who Came to Dosimetry Interview | 7684                                      | 100.0 | 529                           | 2939  | 100.0 | 2350                          | 10623                            | 100.0 | 2879                          |
| 1. Examined at Fixed Center in Kiev   | 1859                                      | 24.2  | 178                           | 775   | 26.4  | 531                           | 2634                             | 24.8  | 709                           |
| 2. Examined by Mobile Team            | 5825                                      | 75.8  | 351                           | 2164  | 73.6  | 1819                          | 7989                             | 75.2  | 2170                          |

Table 3. Status of Screening Activities for Subjects Who Were Screened in Screening Cycle 1 (Baseline Examination Only)

|  | Selection I<br>(Records Selected = 20,071) |       |                               | Selection II<br>(Records Selected = 14,021) |       |                               | Total<br>(# of Records = 34,092) |      |                               |
|--|--|-------|-------------------------------|---|-------|-------------------------------|----------------------------------|------|-------------------------------|
|  | Cumulative Total                           |       | Change Since Previous Quarter | Cumulative Total                            |       | Change Since Previous Quarter | Cumulative Total                 |      | Change Since Previous Quarter |
|  | #  | %     | #                             | #   | %     | #                             | %                                | #    |                               |
| Total Who Came to Screening Examination                            | 7788                                       | 100.0 | 533                           | 2944  | 100.0 | 2351                          | 10732                            | 2884 |                               |
| Subject Missed Dosimetry Interview                                 | 104  | 1.3   | 4                             | 5   | 0.2   | 1                             | 109                              | 5    |                               |
| Subject Missed in DCC's Register but came to Screening Examination | 21   | 0.3   | 0                             | 13  | 0.4   | 6                             | 34                               | 6    |                               |

There are a few subjects from Selection 1 (4 subjects) and from Selection 2 (1 subject) in the Current Quarter, who took part in the screening, but did not participate in dosimetry interviews.

There are several subjects in the Current Quarter from Selection 2 (6 subject), who were invited to the screening, were interviewed, but were not mentioned on the list of registered subjects obtained by the dosimetry group from the DCC. The issue of these subjects will be discussed with the DCC and the epidemiologists' group.

After screening, the DCC changed ID codes for certain subjects without notifying the dosimetry group. In addition, personal identification information for subjects screened in the current quarter has been key-entered by DCC only particularly. As a result, it caused difficulties for computer linkage of screened and dosimetry interviewed subjects..

3. Accuracy of searching for cohort subjects, who had been screened prior to 15 May 2000, was checked and verified. There were carried out the following tasks:

- Generation of an algorithm applicable to verify the results of search for subjects;
- Software implementation this algorithm;
- Verification of accuracy of searching for subjects, who were screened before May 15, 2000;
- Classification of the verification results.

The verification results singled out 4 groups of subjects that had been screened prior to 15 May 2000, namely:

1) Group **Right**, i.e. subjects who are treated as the ones found correctly on the basis of the worked-out Rules.

2) Group **Addition**, i.e. subjects who do not meet the Rules criteria, but have additional information on. This information is found in the dosimetric file's primary data and can be used to determine the accuracy of a subject's search during supplementary interviews.

The additional information embraces:

- a) list of the class;
- b) the name of a summer camp (pioneer camp), to where the subject moved in May 1986, and the settlement, where this camp is located;
- c) information on brothers, sisters, mother, and father.

3) Group **Problematic**, i.e. subjects who neither meet the Rules criteria, nor have any additional information on.

4) Group **Mistaken**, i.e. subjects who were found incorrectly according to the Rules, namely:

- a) subject's year of birth is greater or equal to 1987;

- b) subject had a different surname back in 1986, while measurement relate to the present-day surname;
- c) during the 1986 accident, a subject was not in the raions, cities, and towns that figure in this project.

Search verification results on each subject are stored in Appoint15\_05.dbf file (7818 records) that has been handed over to the DCC. Table 4 presents the data on distribution of subjects by the mentioned groups.

**Table 4 Distribution of subjects screened up to 15 May 2000 by search verification result groups**

| Status of screening  | Number of subjects in Groups |            |                 |              |
|--|------------------------------|------------|-----------------|--------------|
|  | 1- Right                     | 2-Addition | 3 – Problematic | 4 – Mistaken |
| Registered and attended Dosimetry Interview  | 6716                         | 158        | 818             | 24           |
| Attended Dosimetry Interview and were subject to Screening, but were not registered by the DCC | 63                           | 3          | 34              | 2            |

**Operational difficulties encountered in accomplishing the task.** Since the cohort members' personal identification information from forms was not key-entered in the current quarter, it has been possible to accomplish this task only involving personal identification information from dosimetry questionnaires, because the latter are thoroughly key-entered.

Efforts should be made to hold supplementary interviews with the Group 2 subjects, additional information on which can be checked and verified.

As regards the Group 3 and 4 subjects, we believe that it is justified to set up a special epidemiologists group to make reasoned decisions on each relevant individual subject.

### **III. Work Planned for the Next Two Quarters**

The main tasks of implementing the Project for the period September-November 2000 is to complete formation of the 12000-cohort of Project subjects. With this purpose the following tasks are being planned for the second quarter:

1. To complete screening examination of potential cohort members of selection 1 who have changed their place of residence after the Chernobyl accident.
2. To continue screening examination of cohort members of selection 2.
3. To continue input of the results of screening examination into Project's database.
4. To perform at the Clinic of the Institute of Endocrinology a thorough medical examination of cohort members in order to find out abnormalities in thyroid status in the process of screening.
5. To prepare for second screening:
  - to introduce amendments into Operation Manual for Project implementation;
  - to introduce amendments into Screening Forms;
  - to print out Screening Forms;
  - to prepare directions for filling in Screening Forms;
  - to develop the procedure of invitation to re-screening;
  - to prepare an information letter for re-screening for cohort members;
  - to perform attestation of the staff involved in screening examination of cohort members.
6. To prepare for the Tri-National Meeting of leading Project staff in Bethesda.
7. To prepare a poster presentation at the 12th International Thyroid Congress in Kyoto