

**QUARTER REPORT
ON THE PROJECT**

**Study of Leukemia and Other Hematologic Diseases Among
Cleanup Workers in Ukraine Following the Chornobyl
Accident**

(time period from 1.10.2000 to 31.12.2000)

Task A. Specify methods for the buccal cells collection and storage.

A 1. Acquaint with the methods of the buccal cells collection and storage.

At present there are some methods of collection and storage of the buccal mucosal cells of the high-dose group. They are as follows: mouthwash and buccal swab technique.

The discussion is being carried out with Dr. Finch as to selection of the adequate method. Testing is anticipated for the next quarter.

C1-C2. Organize computer-aided places to work in for the epidemiologic group (EG) and the group for data management center (DMC) of the Project. Form local network of EG and DMC with servers of the Project Cohort and Leukemia Registry.

After moving of the epidemiologic group to the other premises and formation of the DMC some work has been performed for their effective functioning involving arrangement of the computer-aided places to work in (CAPW) for the members of the groups above as well as connection of the CAPW to the local computer network (LCN).

The work involved as follows:

- choice of the optimal variant for location of the hardware – LCN elements;
- design, laying and testing of the cable system;
- installation and connecting of the hardware;
- LCN maintenance.

The LCN hardware installed for the reported period accomplishment involve:

- cable system,
- concentrators,
- adapters of the local network,
- server,
- stations,
- printers.

The cable system was made basing on the technology of the twisted pair and is composed of the high-way cables UTP which connect concentrators ports with the network adapters installed in the server and work stations.

According to the technology the category 5 cables were made which ensures increased reliability of the data transfer in the cable system. The hardware set of the Project provides carrying capacity at least 10Mbps.

The **cable system** was installed in the premises of the RCRM as follows:

- room 801 (epidemiologic group)
- room 804 (epidemiologic group)
- room 806 (epidemiologic group)
- room 807 (epidemiologic group)

The total length of the cable system is about 100 m.

Fig. 1 shows how the LCN components are integrated with each other and are connected with the server of the Cohort database of the National Registry of Ukraine.

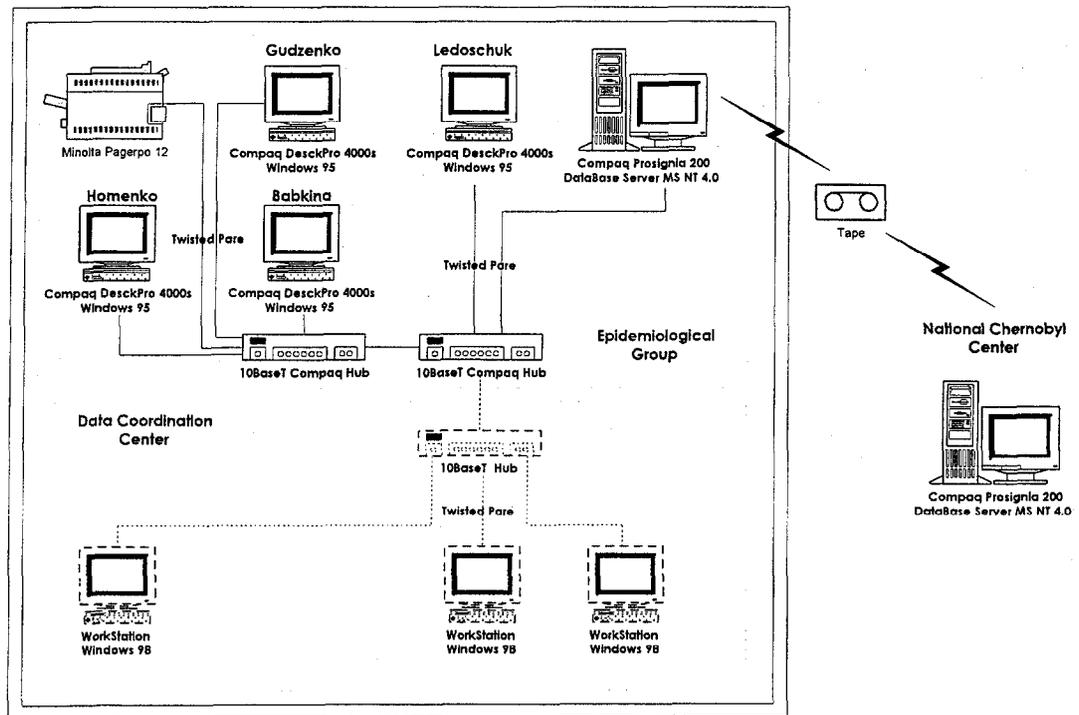


Fig. 1 Layout chart of the local computer network of the Project.

Concentrators are arranged in rooms 804 and 806. The concentrators are connected with all work stations of the EG and GDP located in rooms 801, 804, 806 and 807.

Concentrators.

Two concentrators Compaq 1009 8-Ports 10Base-T and BNC Unmanaged Hub are installed in the local network segment.

Adapters of the local network.

LCN adapters are involved in the server and work stations supply set therefore, they are not considered in the given document separately.

Server.

Server Compaq Prosignia200 6/233 M1 SCSI is installed in the LCN.

Stations

5 stations Compaq Deskpro 4000S DT 5200x 2.1 CD-20 (32MB 256k S3 V2/2 W95) are installed in the LCN.

Network printers.

2 network printers Minolta PagePro 12 are installed in the LCN.

Subsequent work as to the technical maintenance of the computer-aided information system consisted in:

- formation of the working group of the LCN users;
- administration of the resources distributed on the servers and work stations of the LCN;
- installation of the applied software on the work stations.

In the LCN of the Project the server Compaq Prosignia200 6/233 M1 is installed with the network name **LEDA** where the licensed network operation system MS Windows NT Server 4.0 English is installed for 10 clients.

Additionally a copier was installed and configured on the server for reserve data copying on the magnet tapes with 4 GB HP DAT Drive SCSI-2 size.

The server is connected with the continuous power supply Compaq-UPS T1000h. A special program software is installed and configured in it which makes it possible to control power supply to the servers unattended.

The disk space which consists of two winchesters on the hard magnetic disks of 4.3 Gb each, is divided into two logic devices, one being intended for arrangement of the network operation system, the other – for the data.

To provide users' collective access to the printing resources above two print-servers are arranged on the basis of two laser printers Minolta page Pro 12 equipped with the network adapters Minolta Network (Ethernet) .

In the LCN the working group of the users **Epid-Group** is formed which are granted the rights sufficient to get access to the resources of general usability of LEDA servers such as disk space for location of the Cohort data base, network laser printers Minolta Page Pro 12, etc.

5 work stations Compaq Deskpro 4000S DT 5200x /2.1 Gb HDD/ CD-20/ 32MB RAM/ 256 Kb Cache/ S2 V2/2 equipped with the operation system MS Window 95 are installed in the local network. The stations are connected to the working group Epidemiology.

The stations are also equipped with :

- the licensed office program software from the set MS Office 97 (32-Bit Windows Russian) – 5 items.

- the program software for general usability of the ink jet printers HP DeskJet 890C and laser printer Minolta Page Pro 6.

- program software to use modems Multitech MT-2834 ZDXI.

To prevent loss of useful information while maintaining the applied program software due to the unforeseen de-energizing the work stations are connected to the devices of continuous power supply Compaq-UPS T1000h.

The system–technical maintenance of the LCN segment consisted in the following:

- operating the server, work stations, passive and active network devices, cable system of the LCN , network printers, etc.

- maintenance and administrating of the network operation system of LEDA server and work stations of the Project;

- providing members of the epidemiologic group with the feasibility to use the network information resources;

- space optimization on the servers winchesters

- ensuring sanctioned access to the network resources and information stores;

- reserve data copying on the magnet tapes.

According to the schedule the requirements were specified as to the premises, equipment and other technical accessories of the group for the data preparation to arrange two places to work in for the data input into the Leukemia Registry.

The premises of the Project given for this purpose fully meet the necessary demands and up to now is equipped with two places to work in with PC suitable for the independent database maintenance. The program software installed in the PC meets the demands corresponding to the phases C and D of the Project.

The incoming and outgoing documents registration is organized to ensure safe keeping of the primary documents during the time they are in the premises of the GDP and operator's personal responsibility is determined for the quality and completeness of the input data.

A daily reserve copying of the accumulated data in other PC directories is anticipated and a weekly - on a separate disk involved in one of the computers.

Reference of a fixed form on the number of data collection form (DCF) and control data collection form (CDCF) is daily given to the office worker to make the respective report to the group leaders and the Project on the whole.

Reference on the number of the DCF and CDCF maintained for which there was no logical control with their prints are also transferred to the office worker according to the fixed procedure of decision making as to purification.

In all cases the procedure of the office work remains the same.

As to DATA MANAGEMENT CENTER shown in the layout chart (Fig. 1) it should be noted that the structure of the given section of the local network is only intended to solve tasks of the DCF and CDCF input and storage. On receiving the equipment ordered for the DMC it will be accordingly changed.

Task D. Obtain data for the Leukemia Registry from each oblast.

D1. Make schedule for local personnel

A schedule is made for the local personnel of the Dnipropetrovsk, Kyiv, Cherkasy, Chernihiv, Kharkiv oblasts and Kyiv-city. It specifies scope of work for each month at each institution involved in the Project.

Moreover, information is generalized as to the system of hematological care and information sources on the cases of the target diseases in Kyiv oblast and basic institutions of Kyiv-city. (Appendix 1).

D2. Specify scope of the work for local personnel. Provide the necessary methodical materials, consulting to accomplish the schedule.

The scope of work is preliminary determined at the main medical-prophylactic institutions involved in the Project (Table 1). The estimations are based on the number of the adults – residents on the territory and average annual number of the hematological beds at the institutions of the oblast or Kyiv-city.

During the whole period under study at all institutions it is anticipated to fill out 37,500 data collection forms (DCF) and control data collection forms (CDCF).

According to the estimations 5,200 DCF and CDCF will be obtained per 100 hematological beds.

Each oblast's specific weight in general number of the DCF and CDCF filled out depends first of all on the number of hematological beds and is the maximum for Kyiv-city – 36% (241 beds); in Dnipropetrovsk and Kyiv oblasts – about 18% each (120 and 110 beds, respectively).

Table 1.

Preliminary estimations of the scope of work to create the Leukemia Registry in the regions under study.

Territory and oblast code	Number of adults	Number of hematologic beds	Data collection forms (DCF)	Control data collection forms (CDCF)	Total	% of the total number
Dnipropetrovsk 4	3 110 000	120	6 300	600	6 900	18%
Kyiv 10	1 500 000	110	5 800	500	6 300	17%
Kharkiv 20	2 540 000	90	4 800	400	5 200	14%
Cherkasy 23	1 100 000	40	2 200	200	2 400	6,4%
Chernihiv 25	1 200 000	60	2 800	300	3 100	8,3%
Kyiv city 26	2 075 000	241	12 600	1 000	13 600	36%
Total:	11 525 000	661	34 500	3000	37 500	100%

During the Quarter 9 missions were made to the oblasts to render consulting, provide the local personnel with methodical materials and DCF copies, discuss problems arising in the process of work.

Furthermore, during the missions the quality control was made by repeated filling out 8% DCF of the original sampling (Table 2, Appendix 2).

Table 2

Missions made within the framework of the Project.

n/n	Oblast	Institution	Period	Family name of participants
	Kharkiv	KhOCOD* Railwaystation hospital KhIMR **	08.11.2000 – 10.11.2000	Dyagil I. Gudzenko N.
	Kharkiv	KhOCOD* Railwaystation hospital KhIMR **	11.12.2000 – 12.12.2000	Dyagil I. Gudzenko N.
	Chernihiv	ChOOD***	12.10.2000	Romanenko A. Dyagil I. Gudzenko N.
	Chernihiv	ChOOD***	18.10.2000	Howe J. Tomas T. Zvetkova O. Dyagil I. Gudzenko N.
	Chernihiv	ChOOD***	16.11.2000	Gudzenko N.
	Chernihiv	ChOOD***	11.12.2000	Gudzenko N.
	Cherkasy	ChOOD****	22.11.2000	Dyagil I.
	Cherkasy	ChOOD****	20.12.2000	Dyagil I.

* Kharkiv oblast clinical oncological dispensary

** Kharkiv Institute for medical radiology

***Chernihiv oblast oncological dispensary

****Cherkasy oblast oncological dispensary

Moreover, during the quarter the supervisors of Dnipropetrovsk and Cherkasy oblasts arrived to the RCRM and met with the curators of the oblasts. During the meeting the work performed was transferred, the plans of the work for the next period and the problems met during the work were discussed.

D3. Filling out DCF according to the developed schedule, forms conveying to the RCRM, their registration and archiving.

According to the schedule compiled by the curators of the oblasts from the RCRM groups and agreed with local personnel the work is initiated with the information sources at 14 medical institutions of the target oblasts of Ukraine. In Tables 3 and 4 the scope of work performed in each institution is presented (the number of the DCF and CDCF filled out for the Leukemia Registry).

The DCF were filled out by the technicians trained for this work under the guidance of a hematologist and supervisor according to the Instruction.

The problems arising during the work were solved with the help of the oblasts curators from the RCRM.

DCF and CDCF were transferred from the oblasts to the RCRM according to the Instruction.

In the epidemiological group of the RCRM the technology was elaborated for the DCF and CDCF registration, control and storage. For this purpose a special Instruction for the Office Work Organization, Reception, Registration, Transfer and Input of the DCF to the DB and Archive was elaborated (Appendix 3).

15,690 DCF and CDCF were received, registered and arranged in special folders as of Dec.20, 2000 (Tables 3 and 4).

Table 3.

The number of the DCF and CDCF received by the epidemiologic group from the oblasts as of Dec. 20, 2000

№	Oblast code	Oblast	DCF	CDCF	Total
1	2	3	4	5	6
1	04	Dnipropetrovsk	2021	212	2233
2	10	Kyiv	1513	242	1755
3	20	Kharkiv	1162	109	1271
4	23	Cherkasy	3459	121	3580
5	25	Chernihiv	776	68	844
6	26	Kyiv city	5392	615	6007
	Total:		14323	1367	15690

Table 4.

The number of the DCF and CDCF received by the epidemiological group from the institutions as of Dec. 20, 2000.12.2000 r.

№	Institution code	Institution	CDF	CDCF	Total
1	2	3	4	5	6
1	0401	Dnipropetrovsk local hospital № 11	828	89	917
2	0405	Dniprodzerzynsk local hospital № 9	465	39	504
3	0406	Krivy Rih local hospital № 4	728	84	812
	Total:	Dnipropetrovsk oblast	2021	212	2233
4	1001	Kyiv oblast hospital № 1	809	53	862
5	1002	Kyiv oblast hospital № 2	704	189	893
	Total:	Kyiv oblast	1513	242	1755
6	2001	Kharkiv oblast oncological dispensary	921	82	1003
7	2002	Kharkiv Railwaystation hospital	125	11	136
8	2003	Kharkiv institute of medical radiology	116	16	132
	Total:	Kharkiv oblast	1162	109	1271
9	2301	Cherkasy oblast oncology dispensary	3459	121	3580
	Total:	Cherkasy oblast	3459	121	3580
10	2501	Chernihiv oblast oncology dispensary	776	68	844
	Total:	Chernihiv oblast	776	68	844
11	2601	Kyiv local hospital № 9	3127	422	3549
12	2602	Central military hospital of MA of Ukraine	486	55	541
13	2603	Research Center for Radiation Medicine	1514	138	1652
14	2607	Kyiv local oncology hospital	265	265	
	Total:	Kyiv city	5392	615	6007
	Total		14323	1367	15690

D4. Quality Control Organization and Accomplishment.

According to the Instruction quality control (repeated filling out of the DCF for the cases under study) was accomplished in the scope of about 8% of the original sampling. The data were registered on the cases for one month of each year under study. The data were recorded in the CDCF differed from the original ones only in color.

During the reported period quality control was performed for 1987-1990 at all institutions under study. Data juxtaposition of the original and check forms was accomplished

manually. The main quality criterion was the number of the target disease cases not involved in the original sampling performed by the local personnel.

As a result of the quality control unsatisfactory proved the work quality for 1987,1988, and 1990 at Cherkasy oblast oncological dispensary, for 1988 at Kharkiv Institute for Medical Radiology and for 1987-1988 in hospital No.9 in Kyiv city.

It was agreed that at these institutions the operation will be performed repeatedly. At Cherkasy oblast oncological dispensary the operations with the data for 1987, 1988 and 1990 will be performed repeatedly during the quarter.

D.5. Selection and Training of the Personnel for the Data Input, Registration, Processing and Storage.

According to the schedule the personnel has been selected for the data input to the Leukemia Registry.

While selecting the personnel special attention was paid to the following criteria:

1. Computer usage: Windows 9x, Word processor of MS Office 9x, Explorer of the operation system Windows 9x for the data reserve copying;
2. Be able to maintain database;
3. Be able to input data blind using alphanumeric keyboard;
4. Be exacting, careful; to know "Instruction for operator" and other instructive documents.

At present two operators have been selected to meet the requirements above.

D. 6. Adaptation of the Leukemia Registry database to start the work and testing of the procedures developed for the data input.

According to the schedule to ensure continuity in the work with the forms of the previous specimen the software developed was adapted for the data input using the new forms. Moreover, it was provided that the database available must be used on the whole without repeated input.

Therefore, to implement the DCF and CDCF input module main attention was paid to preserve inner structure of the basic information table data intended for the data collection and storage. While this, the interface was appreciably changed to increase to the utmost observability and readability of the input data.

For this purpose all incoming data were divided into some logically connected groups, the basic ones being arranged on separate pages of the main dialogue.

To reduce to maximum operator's time for the data input unattended pages commutation is anticipated basing on the information on filling out the related input field.

At the beginning of work each operator opens several private files to store data from DCF and CDCF as well as some service files for the data intermediate location and storage. During the work some files are periodically updated and remain on the disk till the next updating, others are scratched if not necessary.

For objective assessment of the operator' input quality automatic control of the frequency of the operator's usage of "<" or " backspace" keys is envisaged.

Each input text correction by cancellation of the symbol and input of a new one instead is considered an error. These errors are grouped in the pages into which DCF and CDCF are divided. To bind the errors flow to the time input of each new entry to the main file is accompanied with recording of its time and other auxiliary information identifying the operator to a special private file.

Subsequent statistical processing of the entries of this auxiliary file makes it possible to construct two kinds of the errors distribution:

Errors distribution in the groups where the incoming information of DCF and CDCF was divided on the pages.

Errors distribution according to the working hours (from 10 a.m. till 6 p.m. with one hour's interval).

The information obtained may be used to specify optimum time of the operator's work and to define his errors weight coefficients.

Since up to now a part of the operating and check forms were filled out on the previous specimens the changed interface parts of the software were developed for the appropriate data input using those specimens.

Testing of the proposed adapted software intended for the data input of the operating and check forms of all specimens to the database showed its reliability and stability in operation.

D.7. Data Input from the Filled out DCF into the Leukemia Registry Database.

The database available so far, the software developed and two operators working full time allowed to eliminate completely lagging in the data input from the forms delivered from the institutions.

The rate of the forms input (200 items per day by one operator) makes it possible to plan partial or even full double input, if necessary.

At present 10% of the forms are anticipated for the repeated input. This figure will be specified in the nearest future as soon as the quality control of the data collection forms and operator's work has been completed.

All the input data are stored in the separate private operator's files for which daily reserve copying is anticipated and the data transfer on the other carrier (reserve hard disk not involved for other operations)

D.8. Prepare specification and software for the automated juxtaposition of the DCF and CDCF.

Terminology: Master-file is the file created as a result of transfer of the data input to the database by one or all operators and for which at least one quality control of the data collection has been carried out;

Unique index is a special index formed according to specific rules and allowing to guarantee identification of each entry in the master-file;

Logic control is an unattended or manual control of the DCF and CDCF intended to reveal logic discrepancies in the filled out forms fields.

The software intended for the unattended juxtaposition of the DCF and CDCF has the tasks as follows:

1. Perform the necessary logic control of the DCF and CDCF.
2. Reveal the forms for which no logic control has been done and to print their registration part for them.
3. Formation of Master-file based on the input DCF and CDCF.
4. Analysis of the Master-file records for the given data stream (at least 10,000) to form a unique index for each record involved in the Master-file.
5. Reveal records concerning separately the DCF and CDCF with matching and mismatching related fields..

6. Set a marker in the Master-file for the records transcribed in it from the file with the check records as mismatching with the main records available.

7. Establish complete matching of the Master-file records with the check ones.

8. Carry out statistical analysis of the mismatches revealed.

9. Unattended maintenance of all accountings as to the procedures above.

The software developed must be accomplished on the module base and have a clear, intuitively comprehensible interface.

D9. Unattended quality control.

At present an algorithm has been developed and a code has been written for some procedures of the unattended quality control.

D10. Start preparation of the Operation Manual for the tasks above.

During the Quarter 1 the subsequent chapters of the Operation Manual were prepared:

- Instruction on the clerical work organisation concerning the input of the DCFs and CDCFs, registration, transfer to the Data management center for input to the DB and transfer to the archive (Appendix 3).
- Instruction on the logical control of the leukemia Registry database records (Appendix 4).

E.

E.1. EPR-dosimetry.

EPR-activity was concentrated on study of impact of x-ray dental procedures on accuracy of doses reconstruction by method of EPR-spectroscopy of tooth enamel. The work was concentrated on study of two effects. First of all dose profiles were determined for teeth of different types due to their irradiation in side a human head phantom for the most typical x-ray diagnostic dental examinations. Also doses of irradiation of teeth in a control group were reconstructed. Let's remind that teeth were included into that group of individuals who did not take part in elimination of consequences of the Chernobyl NPP accident, not connected with professional irradiation and whose age was 18 and more in 1986. Further let's briefly touch upon basic results obtained during these studies. The results can be practically

implemented for clarification of EPR doses which were reconstructed for testing of different methods and also for more correct consideration of a dose component from x-ray diagnostic procedures in routine EPR-dosimetry by tooth enamel.

Irradiation of samples for study of doses profiles was implemented by the way of location of teeth the drilled shallows in a head of a phantom. Shallows were made in places representative location of teeth 4-8. Two x-ray investigations more frequently implemented in dentistry were simulated: local (routine) and panoramic dental x-ray diagnostics. In first case mainly several adjacent teeth are irradiated, meanwhile in second case practically all the teeth appear in the field of x-ray irradiation. Simulation of the first type was implemented at the "Minident 55" x-ray dentistry installation (Slovakia) with D5-1 tube type, another type - at RUM 20M x-ray diagnostic complex (produced in the ex-USSR). In both cases 6 teeth were put into a phantom (3 teeth into left and right parts of lower jaw of a phantom into positions of teeth 6-8). Let's point out that for both cases of simulation a phantom was located in such manner that x-ray irradiation was directed at a left cheek of a phantom. Herewith in case of simulation of routine investigation x-ray diagnostics was conducted for 7 left tooth, teeth 6 and 8 (left) appeared in the incident beam of irradiation, teeth 6, 7 and 8 (right) were irradiated by scattered irradiation. During simulation of panoramic image, x-ray diagnostics had a goal of teeth 6-8 of right jaw, though here teeth of its left part obtained maximum dose. To increase accuracy of dose reconstruction of one investigation, 50 images were made at the "Minident 55" installation and 30 images - at the RUM 20M installation. The installations functioned at typical parameters.

Data obtained with teeth irradiated inside a phantom were used for quantitative assessment of doses caused by one x-ray investigation. Reconstruction of ^{137}Cs -equivalent doses for such teeth showed that maximum dose values corresponds to teeth in position 7 left for both cases of diagnostics simulated. It appeared that enamel doses in case of local diagnostics considerably exceed appropriate values of panorama diagnostics: about 4 times for cheek part and 2 times for tongue part of teeth. The same effect, but with lower values of doses, was observed also for adjacent teeth (in position 6 and 8, left side). Meanwhile maximum dose for teeth 6-8, right side observed, as it was expected, for tongue parts, dose values were within 2-4 mGy for local and 0.5-1 mGy for panoramic diagnostics.

Results obtained show that the problem of x-ray contribution is enough important in EPR-dosimetry of tooth enamel, at least for the Ukrainian population and population of another republics of the ex-USSR, where similar equipment is used in dental x-ray diagnostics. Question arises how to use results of phantom studies for most accurate

determination of accidental component of doses. The following considerations could be taken into account in this aspect. Evidently, those teeth will have highest doses caused by x-ray diagnostic investigations which are located in the beam of irradiation near the x-ray tube. Only doses of such teeth are significant, taking into account real accuracy of retrospective EPR-dosimetry of tooth enamel. As it has been established, one x-ray diagnostic investigation could give contribution of about 10-15 mGy into cumulative dose even if only tongue parts of teeth are used for retrospective dosimetry. Because x-ray dental diagnostics is not a regular procedure in Ukraine, a typical clean-up worker could receive several x-ray investigations during his/her life (from 1 to 6, as a rule). It means that even during implementation of tongue part values of accidental components could be overestimated at 100 and more mGy if an x-ray component will not be taken into account correctly. Correctness of such conclusion is confirmed by direct experimental comparison of doses of lingual and buccal parts for 18 teeth in a control group.

Based on results obtained it is possible to suggest the following procedure of account of x-ray diagnostic doses for EPR-dosimetry of teeth. First, a dose of each tooth should be determined separately for lingual and buccal parts. Further difference of two doses is assessed. If it is within the experimental accuracy (about 40 mGy), the contribution from x-ray dose can be ignored, and mean value for buccal and lingual doses is accepted as a dose for a sample. If a difference exceeds 40 mGy, than possible number of x-ray irradiations is assessed. For this purpose difference of two doses (in mGy) is divided by 45 (average value of doses difference between buccal and lingual parts for one local investigation, taking into account that only such type of diagnostics gives significant contribution into x-ray doses of teeth). Then a value resulting is multiplied by 15 mGy (average value of dose of tongue part as a result of one local investigation) is deducted from appropriate tongue dose. Here it is assumed that an accidental component of a dose is similar for a lingual and a buccal parts being correct in case of the Chernobyl clean-up workers because they were irradiated by effective energy of several hundreds of keV.

Doses of control teeth calculated in concordance with the abovementioned procedure showed significantly better agreement with values expected. Average value was 6 ± 29 mGy. Here doses of several samples became negative after the procedure of correction. This fact shows quite significant uncertainty by the method suggested, which in general is about ± 50 mGy (one standard deviation).

E2. Collection of biodosimetric material.

With the purpose of upgrade of network of collection of dosimetric material two more oblasts (Chernihiv and Cherkassy) were to the existing network added. Seminars were conducted with representatives of dentistry services of those oblasts. Basic medical establishments and specialists are assigned for collection of dosimetric material. They are provided with manuals and also means for collection, temporary preservation and transfer of biological materials accumulated.

To make acquaintance with new conditions of material stimulation of collection of teeth of clean-up workers the same seminar has conducted in Kharkiv.

For the fourth quarter of this year 100 teeth were collected, from them: 99 – teeth from clean-up workers, 1 – control one.

E3. Modification of ADR-method.

After completion of preliminary meeting of experts in Chernobyl which took place in July 2000 at the beginning of this quarter testing was finished for a suggested method of realistic analytic dose reconstruction with assessment of bias (RADRUE). For all the 17 samples of tooth enamel which did not reveal any symptoms of x-ray irradiation in course of determination of EPR-doses, the doses were reconstructed by the RADRUE method which uses data of interview. Results of testing were considered at the meeting of the International Dosimetric Group which took place on 15-18, October, 2000 in Lyon, France. Besides, at that meeting a new software program was presented for work with data of radiation situation in the 30-km zone and on the Chernobyl NPP site.

Basic problems revealed during discussion:

- insufficient training of interviewers (quality of questionnaires);
- availability of additional materials not included into the general data base;
- lack of agreement between the experts as for consideration of “complex” cases;
- large number of independent episodes leads to unjustified reduction uncertainty of results;
- possibility of alternative routes.

In conclusion of the discussion it was decided

- 1) To conduct meeting of experts in Kiev for development of procedure of calculation, discussion of completeness of data base;
- 2) To conduct additional testing of RADRUE and EPR for 100 samples (it's necessary to represent 50 results in March, 2001).

The meeting is assumed to be conducted at the led of December, 2000.

For testing of RADRUE 258 individuals were selected who donated their teeth to the Bank of dosimetric biosamples, who fitted for reconstruction of a dose by the EPR taking into account x-ray component of a dose and who resided in Dnipropetrovsk, Kharkiv, Kiev oblast and the city of Kiev.

For checking correctness of home addresses and clarification of information whether a clean-up worker is alive it was decided to accomplish preliminary contact with those individuals. It's necessary to point out that earlier contact was already established with 58 individuals from that group (by post or telephone). Letters with information were sent to other clean-up workers who were donors of teeth and request to fill in a dosimetric mini-questionnaire.

E.5. FISH-dosimetry.

According to the working plan, the search of liquidators in National Register (20 persons) and Military Register (30 persons) with the official radiation doses 0.3 Gy and above for cytogenetical examination with the help of FISH method and verification of official dose records (ODR) have been began.

For FISH dosimetry the selection of the first representative group (15 liquidators) with ODR in range from 30 till 142 cCy have been performed, from which..

- the venous blood samples have been received;
- the culturing of peripheral lymphocytes have been established;
- the preliminary slides for quality control have been prepared;
- the bank of frozen fixed cells stored under the temperature - 20° C have been prepared;
- the slides from 10 persons have been prepared and coded for treating by DNA-probes according to FISH-technique.

The order of materials and reagents needed for cytogenetical investigation with the help of FISH method have been started.

Appendix 1.

Characteristics of the medical - prophylactic institutions of the Kyiv oblast to fill out the Data Collection Forms for the Leukemia Registry.

Introduction.

Kyiv oblast is one of the central oblasts of Ukraine. The capital of Ukraine Kyiv city is on the territory of Kyiv oblast. Population of Kyiv oblast is 1,939,100; among them urban population is 1,008,800; rural is 930,300. In 1886 population aged 18-60 was 617,000 people, among them males - 327,800 (53%), females - 289,500 people (46,9%).

Medical care of the population of Kyiv oblast is performed in the medical-prophylactic institutions of 4 types.

On the whole, 455,200 patients are hospitalized per year or 23,500 per 100 thousand of the Kyiv city residents.

Medical care of the patients with suspected hematological disease in Kyiv oblast.

An important stage is patients' examination at the divisional hospitals where general blood tests are made. On revealing even insignificant changes in the blood the patients are sent to the polyclinic of the district or city hospital for consulting by the district physician which is simultaneously the district hematologist not on permanent staff.

In case of suspected disease of the hemopoetic(?) system or blood disease diagnosis the hematologist immediately sends the patients to the hematologist's consulting room of the oblast hospital No.1 which involves all residents of the oblast or to the consulting room of the oblast hospital No.2 which involves clean-up workers and residents of the territories suffered as a result of Chernobyl accident.

In the consulting room of the oblast hospital No.1 or 2 the patient is examined by the hematologist and is hospitalized in the hematologic department of the oblast hospital No.2 or in the Kyiv oblast oncological dispensary, if necessary.

At present, there are two oblast specialized hematologic departments functioning - at the Kyiv oblast oncological dispensary (since 1998) and at the Kyiv

oblast clinical hospital No.2 (since 1992). Prior to 1998 the hematological department at the Kyiv oblast clinical hospital No.1 had been functioning. All these institutions are in Kyiv city.

The Kyiv oblast hospital No.1 was organized in 1931. At present it has 720 beds, 15 departments including gastroenterology, vascular neurology of the peripheral nerve system, allergology, pulmonology, surgery, orthopaedics, otolaryngology, oculist and reanimation. 20,000 patients are treated yearly. The hematologic department was organized in 1968 and had been functioning prior to 1997. The department had 60 beds; the average annual number of the patients treated at the department -857.

In 1998 the hematologic department for 70 beds was opened at the Kyiv oblast onco-dispensary.

The Kyiv oblast oncodispensary for 150 beds was organized in 1947. At present there are 310 beds. The dispensary involves the departments as follows: adult hematology, children hematology, otolaryngology, two surgical ones and gynaecological one. The hematological department for 70 beds has been functioning since 1998, the average annual number of the patients treated is 1,200 out of which more than 500 being males.

In Bila Tserkva town there is a town oncological dispensary for 60 beds involving 30 surgical, 20 gynaecological, 10 chemotherapeutical including hematological ones for the patients needing chemotherapy. All hematological patients registered are preliminary consulted and treated at the Kyiv oblast oncological dispensary.

The Kyiv oblast hospital No.2 was organized in 1982. In 1990 it was rearranged to hospitalize clean-up workers. There are 250 beds in it. There are the departments as follows: therapeutical -1 involving the therapeutical and endocrinological beds, therapeutical -2 involving hematological and gastroenterological beds; neurological, cardiological, surgical, urological, otolaryngological and gynecological departments. The average annual number of the patients treated -5,600.

In 1992 at the oblast hospital No.2 there were 25 hematological beds. Beginning from 1997 their number was reduced to 15, since 1998 and up to now there are 10 hematological beds, the average annual number of the patients treated is 250.

Information sources and their characteristics.

1. Logs of the hematologic departments are the main information sources on the cases for the Leukemia Registry in the Kyiv oblast clinical hospital No.1 and the Kyiv oblast clinical hospital No.2. The logs involve for each patient the information as follows: No. of the medical record, date of patient's hospitalization and discharge, family name, name, patronymic, age, address, diagnosis on hospitalization and discharge, date of death.

At the hematological department of the Kyiv oblast clinical hospital No.1 the logs are available for the whole period under study (1987-1997) and are stored in the hospital archive. The main disadvantage is lack in some of them of the individual entries on the date of discharge and diagnosis on discharge. However, it is not essential to form the Leukemia Registry.

2. At the hematological department of the Kyiv oblast clinical hospital No.2 the logs are available for the whole period except the period from Oct.,26,1996 to Jan.,03, 1997 and are stored in the hospital archive.

The records are careful, the handwriting on the whole is legible.

The main disadvantage is lack in some of them of the individual records on the date of discharge and diagnosis on discharge. However, it is not essential to form the Leukemia Registry.

3. Logs of the admittance units in Kyiv oblast clinical hospital No 2 may be used for the data collection during the period omitted in the logs of the hematological departments (from Oct.26, 1996 to Jan.03.1997). The log involves the following information on the patient treated: medical record number, date of hospitalization, surname, name and patronomic, age, address, diagnoses on hospitalization and department.

4. The in-patient medical records are stored during 25 years in the hospital archive. These records will be important for obtaining information to verify diagnoses in the diseased from the Cohort studied.

Report

On the mission to Chernihiv oblast on Oct.18, 2000

The group involved:

I.S.Dyagil and N.A Gudzenko (RCRM, Ac.Med.Sci., Ukraine))

Dr. Terry Thomas , Dr. Stuart Finch and Dr. O.A.Tsvetkova (National Cancer Institute, USA)

Purpose of the mission:

1. Acquaint American representatives with the local personnel, progress in the work accomplishment and conditions of hematological care in Chernihiv oblast.
2. Analysis of the materials availability for the Leukemia Registry formation including logs, archive, pathomorphological department.
3. Approval of the work performed by the local personnel.
4. Transfer of the DCF for subsequent work.
5. Consulting.

1. The local personnel involved in the Project accomplishment in Chernihiv oblast were introduced to the American colleagues. They are: supervisor V.M.Zotov, hematologist D.I.Dvorak and technician L.M.Rumyantseva. The discussion was held on the problems encountered during the work accomplishment to create the Leukemia Registry (auxiliary diagnoses, their coding). On the whole, the difficulties encountered were insignificant and did not delay the Project accomplishment.

V.M.Zotov spoke on the system of the medical care involving hematologic care to the oblast residents. This system involves small units staffed by paramedic, nurse and dentist-technician. There are 22 central rayon hospitals (CRH), 18 district hospitals (former – CDH). On the whole, in Chernihiv oblast about 900 medical institutions of different levels are functioning.

In the CDH polyclinic there is an oncologist's consulting room where all oncological patients have regular medical check-ups (the forms No.30 of the Cancer-Registry are stored there). One may say that specialized hematologic care starts on the

level of CDH where the complete blood analysis is made, there is a responsible physician. All patients with suspected oncohematological pathology are sent to the Chernihiv oblast oncological dispensary (ChOOD). In case of serious condition of the patient a visiting consulting is performed (the so-called sanitary aviation). All visits of the sanitary aviation are registered in special logs (they are told to be available for the whole period under study).

The patient sent to ChOOD (or went there on his own) is registered in the ChOOD polyclinic. An out-patient record is filled out to be stored in the registry office of the OOD polyclinic during the whole patient's life. An out-patient record is filled out both for the patient with oncological pathology and the patient with other hematological disorders. After patient's death the record is stored in the archive for 5 years. In the ChOOD polyclinic the hematologist's consulting room is functioning. In this room there is a copy of form No.30 for each oncohematological patient (700 patients for the time being). After patient's death form No. 30 is stored in the archive during 5 years.

The patient is sent to the hematologic department of OOD for treatment, if necessary. He is registered in the log of the admittance unit. The logs are stored during 25 years. They involve the information as follows: family name, name, patronymic, date of birth, home address, tel. of the next-of-kin, diagnosis on hospitalization, date of hospitalization and discharge, the result of the treatment (involving death), No. of the record.

If the patient was sent to another department and later on a hematologic diagnosis was ascertained, he is discharged from the former department and is registered in the log of the admittance unit as a new patient of the hematologic department. Thus, there are no losses at the expense of such patients.

In the admittance unit a record of the patient is filled out. It is stored during 25 years.

The ChOOD hematologic department is the only one in the oblast. Thus, all patients with the target pathology are sure to be involved in the sphere of ChOOD's attention. Moreover, as a rule, each patient is at least once hospitalized in the department (excluding seriously diseased).

As D.I.Dvorak states that there were no cases when the diagnosis of the oncohematologic pathology was made after death. In the pathomorphologic department there are protocols of autopsies for the whole period of the department

functioning.. The biological material and tissue blocks are stored during 2 years because of paraffin and glass shortage.

Once a year the head hematologist (D.I.Dvorak) in ChOOD meets with the responsible for hematologic care physicians of CDH. Every year D.I.Dvorak goes on mission to some districts (up to 6 ones per year) for consulting and control.

2. Availability of the materials.

2.1 The logs of the admittance unit are stored during 25 years. All logs for 1987-2000 are available.

2.2 There are no logs of the hematologic department.

2.3 Patients' records (in-patient's records) are stored during 25 years. All patients' records for the period studied (1987-2000) are available and they are stored in the archive on the shelves arranged according to the year of treatment and department.

2.4 Outpatients' records are stored in the registry office of the ChOOD polyclinic (for the alive patients) and in the archive during 5 years after patient's death.

2.5 Logs for juxtaposition with the oblast Statistical department concerning the deceased patients are stored beginning from 1994.

2.6 Form No.30 (dispensary record of the oncological patient) for the alive patients are stored in the hematologist's consulting room in the polyclinics of ChOOD and CDH, and 5 years after the patient's death in the ChOOD archive.

2.7 Cancer-Registry. DB contains data on the diseased beginning from early 1993, and for the deceased beginning from 1993. The hospital registry (formed using form No.66 data) has been functioning since 1996.

2.8 The department of oncopathology of the Chernihiv oblast patho-anatomic bureau functions on the ChOOD territory. The autopsy protocols are stored for an indefinite term, the section material is stored during 2 years, histological material – since 1990. Tissue blocks are not stored.

4. V.M.Zotov transferred the DCF for the cases hospitalized in 1987-1988.

5. The problems arisen while working with the DCF were discussed with the local personnel.

Conclusions.

1. It was found out that sufficient scope of material is stored to form the Leukemia Registry. The main source to form the Leukemia Registry is the log of the admittance unit. Additionally, data of the Cancer-Registry (starting from 1993) and hospital registry may be used.

2. To confirm the diagnosis the use will be made of : the medical records (available for the whole period), logs of the blood analyses and bone marrow (available from 1995), bone marrow smears (available beginning from 1992), histological material of the pathoanatomic department (available from 1990), protocols of the autopsies (available for the whole period), out-patient records (available for the alive and deceased patients during the recent 5 years).

3. The local personnel were informed as to the purpose and tasks of the mission of the American representatives of the Project.

4. The work for 1987-1988 was approved.

5. The remarks and proposals were made as to the work to form the Leukemia Registry.

6. 500 forms for the DCF were transferred to V.M.Zotov for the subsequent work.

7. D.I.Dvorak presented the list of the auxiliary diagnoses involving autoimmune thrombocytopenia and splenomegalia to input to the Leukemia Registry. Although in some cases there was no diagnosis in the log the DCF for these cases were filled out. It was recommended only to record in the DCF the diagnoses without any details.

During the reported period a number of missions were made to the target regions of Ukraine (Table 2).

The main purposes of the missions were:

1. Approval of the work performed by the local personnel;
2. Quality control by the repeated sampling;
3. Discuss schedule and the next meeting;
4. Consulting.

During the mission to **Chernihiv oblast** on **Nov.16, 2000** the following work was performed:

1. V.M.Zotov transferred 189 DCF for the cases hospitalized in 1989.
2. Quality control was carried out for 1987-1989 by repeated sampling in the scope of 8% of the original sampling. 13 DCF were filled out for 1987, 15 DCF for 1988 and 14 DCF for 1989.
3. It was agreed to meet during the period from Dec. 10, 2000 to Dec.20, 2000. During the time left prior to the meeting with the local personnel D.I.Dvorak presented auxiliary diagnoses to be involved in the Leukemia Registry (autoimmune thrombocytopenia and splenomegalia). Although in some cases there was no diagnosis the DCF for these cases were also filled out. It was recommended only to record in the DCF the diagnoses without any details.
4. Prior to the next meeting the work for 1990-1991 will be accomplished, bank accounts will be open and a report on the work done will be compiled.

During the mission to **Chernihiv oblast** on **Nov.,11, 2000** the following work was performed:

1. The work for 1990-1991 was approved. Accuracy and correctness of RF filling out was checked. Some drawbacks were revealed and discussed e.g. recording of the words "str.", "side str." "distr.", etc in the boxes only intended for the names of the streets, side streets, districts, etc. No other drawbacks were revealed.
2. The supervisor was transferred DCF copies for subsequent work.
3. The drawbacks revealed and the schedule were discussed.. The supervisor confirmed feasibility of a timely work accomplishment according to the schedule.

All the participants were presented results of juxtaposition of the check and original DCF for 1987-1989. According to these results the quality of the work performed by the personnel in Chernigiv oblast is very high (no omissions of the target diseases to be registered were revealed).

4. Quality control of the work performed was carried out (repeated DCF filling out) in the scope of about 8% for 1990-1991.
5. The Project Time Cards were filled out for the period of work

During the mission to **Dnipropetrovsk oblast** on **Nov.,3-4, 2000** the following work was performed:

1. Supervisor T.I.Chekmareva transferred DCF and CDCF on the leukemia cases and related diseases using the data of the medical institutions of the cities Dnipropetrovsk, Dniprodzerzhinsk and Krivy Rih.
2. Schedule for the next period in the cities above was discussed.
3. Search work is envisaged in the hospital for railwaymen in Dnipropetrovsk city.
4. The problems encountered in the region were discussed.

During the mission to **Kharkiv oblast** on **Nov.,8-10, 2000** the following work was performed:

1. The work was approved for 1988-(KhOCOD)
for 1988-1989 (Clinical hospital for railwaymen)
for 1987-1988 -(KhIMR)
2. A schedule for each institution was transferred.
3. DCF and CDCF copies were transferred to the supervisor.
4. The problems dealing with the diagnoses coding, necessity to register hemolytic anemia were discussed.
5. Quality control was carried out, CDCF were filled out for 1987-1990
6. An interview was carried out with the two technicians who started work for the KhIMR and the hospital for the railwaymen, the contracts being concluded with them.
7. The plan of the report on the medical care including the hematologic one was presented to the supervisor in Kharkiv oblast. The plan was discussed and the supervisor is to compile a report according to the plan.

During the mission to **Cherkasy oblast** on **Nov.,22, 2000** the following work was performed:

1. V.V. Paramonov handed over the DCF on the cases hospitalized in 1989.

2. Quality control for 1990-1991 was carried out by repeated sampling for two months yearly which made about 15% of the original one. The DCF for 1990 and 1991 were filled out.

3. It is agreed on the next meeting during the last ten days of December. No auxiliary diagnoses under which leukemia cases may be disguised were found. It was recommended only to record the diagnoses without any details.

4. It is envisaged to search the leukemia cases basing on the autopsy material in the pathomorphological department in Uman' city for the whole period under study.

During the mission to **Cherkasy oblast on Dec.,20, 2000** the following work was performed:

1. V.V. Paramonov transferred DCF on the cases hospitalized in 1990 and 2000.

2. Quality control was carried out for 1992-1994 by repeated sampling for two months yearly which is about 15% of the original one.

3. Search for the leukemia cases was performed using autopsy material in the pathomorphological department of Uman' city for the whole period under study.

Academy of Medical Sciences of
Ukraine
Research Center for Radiation
Medicine, AMSU

National Cancer Institute of the
USA

INSTRUCTION

On organization of the record-keeping,
approval, registration, transfer, input into DB and the archive
of the Data Collection Forms filled out

Project
“Study of Leukemia and Other Hematological Diseases among Clean-Up Workers
of the Chernobyl Accident in Ukraine”

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1 Introduction

The instruction is designated for registration of the Data collection forms (DCF) and Control data collection form (CDCF) filled out in the appropriate medical institutions of Kyiv city and five oblasts of Ukraine (Dnipropetrovsk, Kyiv, Kharkiv, Cherkasy, Chernihiv) included into the American-Ukrainian Project "Study of Leukemia and Other Hematological Diseases among Clean-Up Workers of the Chernobyl Accident in Ukraine". It will promote clear and timely transfer of DCF and CDCF to the epidemiological group, the data management Center (DMC) and to an archive. The Instruction defines the procedure of the documents circulation and reports on the work implemented. It will also allow to generalize results of the work implemented, to respond timely on the shortages revealed, to specify single demands as to the documents circulation.

2 Procedure of the documents circulation.

2.1 Epidemiological group

1) Curators of oblasts transfer DCF and CDCF to a person responsible for record-keeping and documents circulation (further referred as the Referent) within first 15 days of each month following the reported one according to the schedule agreed.

2) DCF and CDCF are transferred according to the approval document (Appendix 1) for 1 full year in one institution.

3) The referent performs visual control of the DCF and CDCF. In case of error detection (discrepancy of pages, records in the fields) the charts are transferred to curators of the oblasts for corrections or clarifications and, if possible, returned to the Referent on the same day.

4) The DCF and CDCF received are registered by the Referent in the log of the original documentation receipt (Appendix 2) and are input to the "Record-Keeping" Database, Data Income form (Appendix 3).

5) The DCF and CDCF registered are filed into the folders having the following marking:

- Folder No. (for instance, 5/26, where 5 is ordinal number, 26 is an oblast code);
- Name of the institution and department where the data were collected;
- The institution code;
- Years for which the data were collected (for instance, 1987-1989).

6) CDCF and DCF are kept in the same folders arranged according to the same institution and the same year.

7) The reports on the DCF received are in the "Record-Keeping" Database

(Appendix 4).

- 8) The reports are presented to the following persons:

Form of a report	Terms	Address
1	2	3
Form 1. Report on receipt of all the types of DCF from the oblasts for the whole period (for a month reported)	By 15th day of each month. On demand.	Administration of the Project. Managers of groups. Curators of oblasts.
Form 2. Report on receipt of all the types of DCF from the institutions for the whole period (for a reported month).	Once a week. On demand.	Managers of groups. Curators of oblasts.
Form 3. Report on receipt of all the types of DCF from the institutions according to the year of collection.	Once a week On demand.	Managers of groups. Curators of oblasts. Supervisors of oblasts.

2.2 Data management center (DMC)

1) The Referent hands over the packages (folders) of DCF to the operators of DMC for input into the "Leukemia" Database. The mark as to the extradition and return of the package (folder) of DCF (CDCF) is made in a log the DCF extradition-return (Appendix 5).

2) Information on transfer and return of DCF is input into the "Record-Keeping" Database, DataOut form (Appendix 6).

3) After the data input from DCF and CDCF in the "Leukemia" Database an operator makes a mark on a chart on the input. For this purpose an individual seal is given to each operator.

4) Double input of all the DCF and CDCF is made in the DMC. After double input of data the operators return a package (folder) of DCF (CDCF) as well as a list of charts input into the Database to the Referent (epidemiologic group) according to the following form:

Ordinal No.	Identification code of each chart
1	2

5) Once a week the manager of the DMC presents a report on the work implemented to the Director of the Project, to the managers of epidemiological and hematological groups, , curators of oblasts (Appendix 7).

Database, and a mark is made on it in the "Record-Keeping" Database in DataOut form in the field - Mark on depositing into an archive.

APPROVAL DOCUMENT

Of the original documentation of the "Leukemia" Project

We, undersigned, _____
Surname, name, patronymic, position

from one side, and _____
Surname, name, patronymic, position

from another side, have compiled this Approval document of the original documents – "Data collection form", obtained by data collection from the logs of admittance unit, hematology department, departments and rooms of medical statistics and other subunits:

name of a medical institution _____

in what unit (subunit) the data are obtained _____

information sources (logs, charts, etc.) _____

for what period the data are collected: from ____/____/____ till ____/____/____

number of the DCF: _____

Work started: ____/____/____ year.

finished: ____/____/____ year.

Surname, name and patronymic of the executors: _____

RETURNED:

Date:

RECEIVED:

Date:

“Record-Keeping” Database, DataIncome form

Name of a field	Characteristics of a field	Input to a form
DateIn	Date of registration of DCF and CDCF	Current date
KodZaklad	Institution code	Institution code
Source	Source Name	Admittance unit, hematological department etc.
KodPersonT	Code of operator/controller	Surname, name and patronymic of operator/controller
DateV_start	Date of collection start	Date from _____
DateV_end	Date of collection end	Date till _____
PerM	Reported month	Month
PerY	Reported year	Year
QuantRF	Number of DCF and CDCF	Number of DCF and CDCF
TypeRF	Type of DCF	Type of DCF 0 – simple DCF, 1 – CDCF
FolderN	No. of the folder where DCF and CDCF are kept	Folder No
	Mark on transfer for input	Mark on transfer for input

Forms of reports on receipt of DCF and CDCF in the epidemiological group

Form 1. Report on receipt of all the types of DCF from oblasts for the whole period (reported month).

Oblast code	Oblast	DCF	CDCF	Total
1	2	3	4	5
04	Dnipropetrovsk oblast			
10	Kyiv oblast			
20	Kharkiv oblast			
23	Cherkasy oblast			
25	Chernihiv oblast			
26	Kyiv city			
TOTAL:				

Form 2. Report on receipt of all the types of DCF from institutions for the whole period (for reported month).

Institution code	Name of an institution	DC F	CD CF	Total
1	2	3	4	5
0401	Dnipropetrovsk City Clinical Hospital No. 11			
0402	Dnipropetrovsk City Clinical Hospital No. 4			
0403	Dnipropetrovsk Oblast Clinical Oncological Dispensary			
0404	Dnipropetrovsk. Hospital for Railwaymen			
0405	Dniprodzerzhinsk city. City Hospital No. 9.			
0406	Krivy Rih city. Local Hospital No. 4.			
0407	Specialized Medical Expert Commission.			
Total for Dnipropetrovsk oblast:				
1001	Kyiv Oblast Clinical Hospital No. 1			
1002	Kyiv Oblast Clinical Hospital No. 2			
1003	Kyiv Oblast Oncological Dispensary.			
Total for Kyiv Oblast:				
2001	Kharkiv Oblast Clinical Oncological Dispensary			
2002	Clinical Hospital for Railwaymen of Kharkiv Station.			
2003	Kharkiv Research Institute for Medical Radiology			
2004	Specialized Medical Expert Commission			
Total for Kharkiv oblast:				
2301	Cherkasy Oblast Oncological Dispensary			
Total for Chehrkasy oblast:				
2501	Chernihiv Oblast Oncological Dispensary			
Total for Chernihiv oblast:				
2601	Kyiv City Clinical Hospital No. 9			
2602	Central Hospital of Armed Forces of Ukraine			
2603	Research Center for Radiation Medicine			
2604	Research Institute for Oncology and Radiology			
2605	Specialized Medical Expert Commission			

2606	Central Specialized Medical Expert Commission			
2607	Kyiv City Oncological Hospital			
2608	Hospital for Railwaymen			
2609	Central Hospital of Medical and Sanitation Association (Feofania)			
Total for the city of Kyiv:				
TOTAL:				

Form 3. Report on receipt of all the types of DCF from the institutions according to the years of collection (Sample)

Period of collection from till	Number of DCF	Number of CDCF	Folder No.
1	2	3	4
Institution code 2001	Institution name Kharkiv Oblast Clinical Oncological Dispensary		
Name of data source	Hematological department		
01.01.87 - 31.01.87		21	13
01.01.87 - 31.12.87	156		14
01.01.88 - 31.12.88	233		14
01.02.88 - 28.02.88		20	13
01.11.89 - 30.11.89		19	13
01.04.90 - 30.04.90		22	13
<i>Total for a department</i>	389	82	471
<i>Total for the institution</i>	389	82	471
2002	Clinical Hospital for Railwaymen of Kharkiv Station		
<i>Admittance unit</i>			
01.01.87 - 31.12.87		5	13
01.01.88 - 31.12.88	14		14
01.03.88 - 31.03.88		2	13
01.01.89 - 31.12.89	27		14
01.02.89 - 28.02.89		2	13
01.09.90 - 30.09.90		2	13
<i>Total for a department</i>	41	11	52
...
<i>Total for the institution</i>	49	16	65
...
Total for: Kharkiv oblast	497	109	606
TOTAL:	13196	1232	14428

Log

Of extradition -return of the Data Collection Forms

“Leukemia” Project

Date of DCF/C DCF extradition	Surname, name and patronymic of an operator (another person)	Package of DCF and CDCF extradited (year, number, folder No. _____)	Signature of an operator (another person)	Date of return of DCF/CDCF	Signature of an operator (another person)
1	2	3	4	5	6

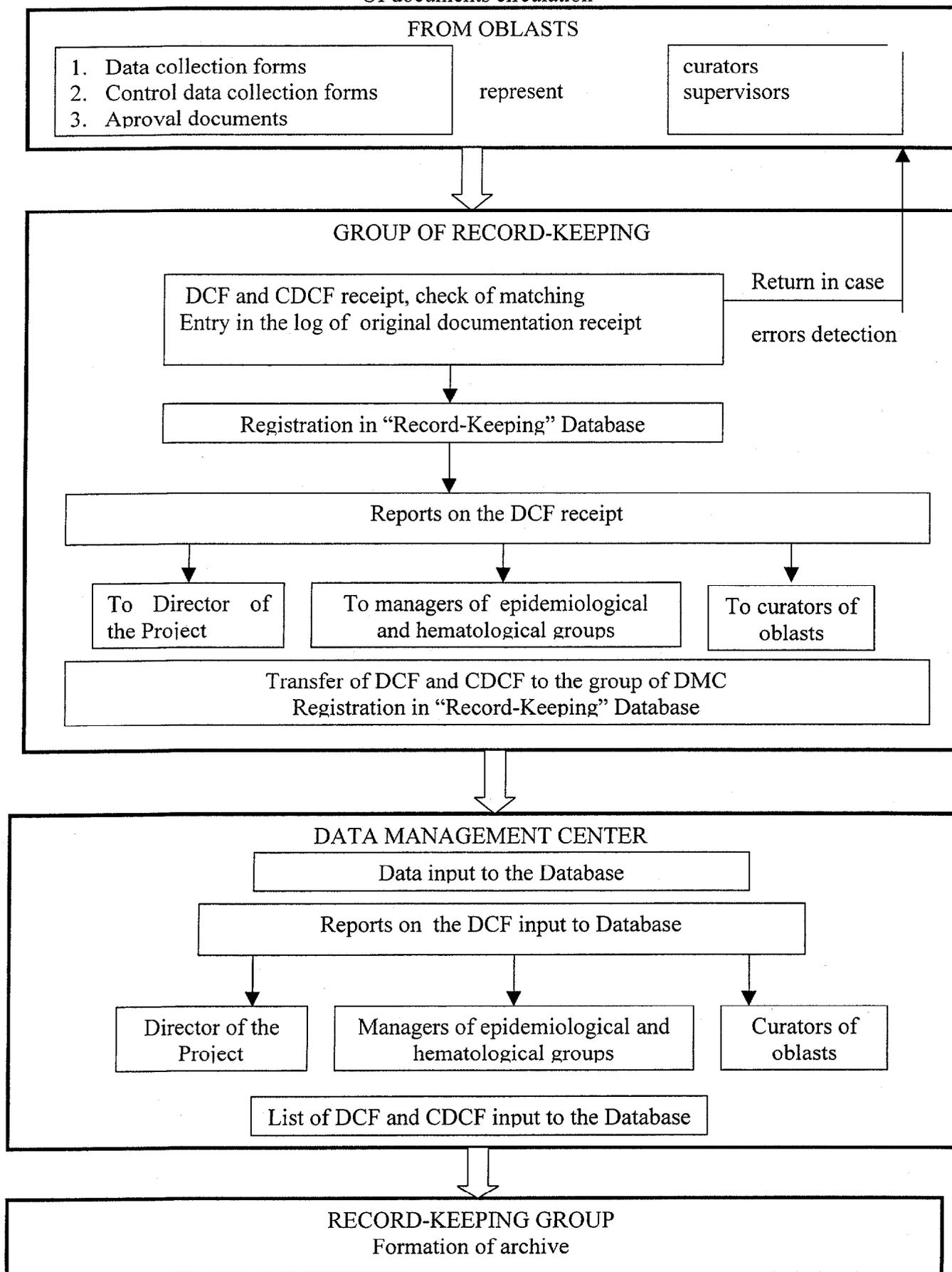
"Record-Keeping" Database, DataOut form

Name of a field	Characteristics of a field	Input to a form
Date_o	Date of the DCF and CDCF extradition	Date, month, year
KodZaklad	Institution code	Institution code
KodS	Data source	Admittance unit, hematological department etc.
DateV_start	Date of collection start	Date from _____
DateV_end	Date of collection end	Date till _____
QuantDCF	Number of DCF/CDCF	Number of DCF or CDCF
TypeDCF	Type of DCF	0 – simple DCF, 1 – CDCF
TypeVvod	Type of input into Database	1 – primary, 2 – secondary
Fio	Folder No, name and patronymic of operator	Surname, name and patronymic of operator
FolderN	Folder No.	Folder No.
Data_b	Date of return of DCF/CDCF	Date, month, year
Sklad	Mark on depositing to archive	Mark on depositing to archive

Form of report
on DCF and CDCF input into the "Leukemia" Database
For reported period

№ п/п	Time for DCF copy	Number of DCF, pages From _ till _	No. Of omitted pages	Initials of a technicia n	Period of CDCF copying	Number of CDCF,, pages From _ till _	No. of omitted pages	Initials of a controlle r
1	2	3	4	5	6	7	8	9
Institution code			Institution					
Code of data source								
TOTAL:								

SCHEME
Of documents circulation



INSTRUCTION

On the logic control of the data input to the Leukemia Registry
Data Base**General rules**

1. Logic control of the data input is accomplished with the purpose to increase the quality in the Leukemia Registry, control and correction of possible errors made during data input and filling out of Data Collection Form (DCF).
2. Logic control is accomplished regularly (once a week) by an operator.
3. Records are printed where logic errors are made. An identification code is included into a printout (institution code, source code, year, case record No (if not available – surname), entry No) and also a field (fields) by which a logic error or discrepancy is detected.
The entries printouts together with explanatory note are transferred to the record – keeper.
4. Technician of the epidemiological group compares entries with DCF used for the information input.
5. If the information sufficient for correction of a logic error (discrepancy) is detected in a DCF, a technician of the epidemiological group makes correction in the printout with a red ink pen.
6. Printouts with corrections are transferred to the operator for the corrections input to the Leukemia Registry Data Base.
7. If a DCF used for the data input doesn't contain any information necessary for the corrections input, a curator forms an inquiry to the supervisor delivers an inquiry to the supervisor of the oblast of the DCF origin.
8. An inquiry consists of a written appeal to a supervisor and a printout in the form of a table containing a list of all demands as of DCF. For each DCF an identification code is put in (institution code, source code, year, case record No, (if not available – surname), No of an entry). Besides, there are data with a logic error or discrepancy and also a vacant field (fields) is left for the corrected data input.
9. Corrections are made with a red ink pen.
10. A supervisor should send the results of the data clarified to the Research Center for Radiation Medicine within a week.
11. The data clarified are handed over to a technician for making corrections in the Leukemia Registry Data Base.

12. The manager of the DMC controls quantity and quality of errors made during the data input (for each operator) while filling out DCF (from the institutions and oblasts) made in the original document used for the data collection (incorrigible errors).

Particular rules

1. **Institution code (IC)** should be presented using four digits.
 - 1.1. First two digits of EC should not differ from 04, 10, 20, 23, 25, 26.
 - 1.2. If first 2 f digits of EC are equal to 04, next 2 digits should be within the range of 01-07.
 - 1.3. If first 2 digits of EC are equal to 10, next 2 digits should be within the range of 01-03.
 - 1.4. If first 2 digits of EC are equal to 20, next 2 digits should be within the range of 01-04.
 - 1.5. If first 2 digits of EC are equal to 23, next 2 digits should be 01.
 - 1.6. If first 2 digits of EC are equal to 25, next 2 digits should be equal to 01.
 - 1.7. next 2 digits should be within the range of 01-09.
2. **Source code (SC)** should be presented by one digit within the range of 1 – 5.
3. **Year** should be written using digits within the range of 1987-2000.
4. **No of a medical record** can be only presented using digit, or digits and letters, or digits, letters and a “/” symbol.
5. **No of an entry** should be presented using one digit.
6. **Surname** should be only written using letters, without digits and other symbols.
7. **Name**, like a surname, should be only written using letters, without digits and other symbols.
8. **Patronymic**, like a surname and a name, should be only written using letters, without digits and other symbols.
9. **Birth date** is only presented using digits
 - 9.1. A day in a birth date, like in a date of admittance, date of discharge, date of death, date of filling out should be presented using two digits within the range foreseen by the number of days for each calendar month or by digits “99”.

9.2. A month in a birth date, like in a date of admittance, date of discharge, date of death, date of filling out should be presented using two digits within the range of 01-12, or using digits "99".

9.3. A year of birth (YB) should be presented using four digits in the following ranges.

If in an identification line in a "Year" field "1987" is recorded , YB should be within the range of 1969-1926, or 9999.

If in an identification line in a "Year" field "1988" is recorded, YB should be within the range of 1970-1926, or 9999.

If in an identification line in a "Year" field "1989" is recorded, YB should be within the range of 1971-1926, or 9999.

If in an identification line in a "Year" field digits are recorded within the range of "1990-2000", YB should be within the range of 1972-1926, or 9999.

9.4. A year of birth should be earlier than a year in a date of admittance, date of discharge and date of death.

10. Age should be presented using two digits in following ranges.

If in an identification line in a "Year" field "1987" is recorded, age should be within the range of 17-62.

If in an identification line in a "Year" field "1988" is recorded, age should be within the range of 17-63.

If in an identification line in a "Year" field "1989" is recorded, age should be within the range of 17-64.

If in an identification line in a "Year" field "1990" is recorded, age should be within the range of 17-65.

If in an identification line in a "Year" field "1991" is recorded, age should be within the range of 18-66.

If in an identification line in a "Year" field "1992" is recorded, age should be within the range of 19-67.

If in an identification line in a "Year" field "1993" is recorded, age should be within the range of 20-68.

If in an identification line in a "Year" field "1994" is recorded", age should be within the range of 21-69.

If in an identification line in a "Year" field "1995" is recorded, age should be within the range of 22-70.

If in an identification line in a "Year" field "1996" is recorded, age should be within the range of 23-71.

If in an identification line in a "Year" field "1997" is recorded, age should be within the range of 24-72.

If in an identification line in a "Year" field "1998" is recorded, age should be within the range of 25-73.

If in an identification line in a "Year" field "1999" is recorded, age should be within the range of 26-74.

If in an identification line in a "Year" field "2000" is recorded, age should be within the range of 27-75.

11. Address.

- 11.1. An oblast code should be presented using two digits and not differ from 04, 10, 20, 23, 25, 26.
- 11.2. A rayon should be presented only using by two letters.
- 11.3. A settlement can be presented by letters only.
- 11.4. A street can be presented only using either letters, or letters and digits, or letters, digits and other symbols.
- 11.5. A house can be presented using digits, letters and "/" symbols.
- 11.6. A flat can be only presented using digits.

12. Telephone number can be only presented using digits.

13. Status of a clean-up worker can be presented using one digit "1" or "2".

14. Date of admittance can be only recorded using digits.

- 14.1. A date of admittance should be later than a birth date.
- 14.2. A date of admittance should be earlier than a date of discharge and date of death or coincide with them.
- 14.3. A day in a date of admittance, like in a birth date, date of discharge, date of death, date of filling out, should be presented using two digits within the range foreseen by number of days for a calendar month in this date, or using digits "99".
- 14.4. A month in a date of admittance, like in a birth date, date of discharge, date of death, date of filling out should be presented using two digits within the range of 01-12 or using digits "99".
- 14.5. A year in a date of admittance should be presented using four digits within the range of 1987-2000 or digits "9999".

15. A date of discharge can be only written using digits.

- 15.1. A date of discharge should be later than a birth date.
- 15.2. A date of discharge should be later than a date of admittance or coincide with it.
- 15.3. A date of discharge should be earlier than a date of death or coincide with it.

- 15.4. A day in a date of discharge, like in a birth date, date of admittance, date of death, date of filling out should be presented using two digits within the range foreseen by number of days for a calendar month in this date, or by digits "99".
- 15.5. A month in a date of discharge, like in a birth date, date of admittance, date of death, date of filling out should be presented using two digits within the range of 01-12, or by digits "99".
- 15.6. A year in a date of discharge should be presented using four digits within the range of 1987-2000 or digits "9999".

16. Date of death should be presented using digits.

- 16.1. A date of death should be later than a birth date.
- 16.2. A date of death should be later than a date of admittance, date of discharge or coincide with them.
- 16.3. A day in a date of death, like in a birth date, date of admittance, date of discharge, date of filling out should be presented using two digits within the range foreseen by number of the days for a calendar month in this date, or by digits "99".
- 16.4. A month in a date of death, the same as in a birth date, date of admittance, date of discharge, date of filling in should be presented using two digits within the range of 01-12 or digits "99".
- 16.5. A year in a date of death should be presented using four digits within the range of 1987-2000 or digits "9999".

17. Diagnosis can be presented using Russian, Ukrainian, Latin letters or digits.

18. Diagnosis code can be presented using one, or two, or three digits within the range of 1 – 124 or digits "999".

19. Diagnosis type should be presented using one digit within the range of 1-3.

20. Initials of an executor should be presented using three digits.

21. Date of filling in can be recorded only using digits.

- 21.1. A day in a date of filling out should be presented using two digits within the range foreseen by number of days for a calendar month in this date.
- 21.2. A month in a date of filling in should be presented using two digits within the range of 01-12.
- 21.3. A year in a date of filling in should be presented using four digits within the range of 2000-2001.