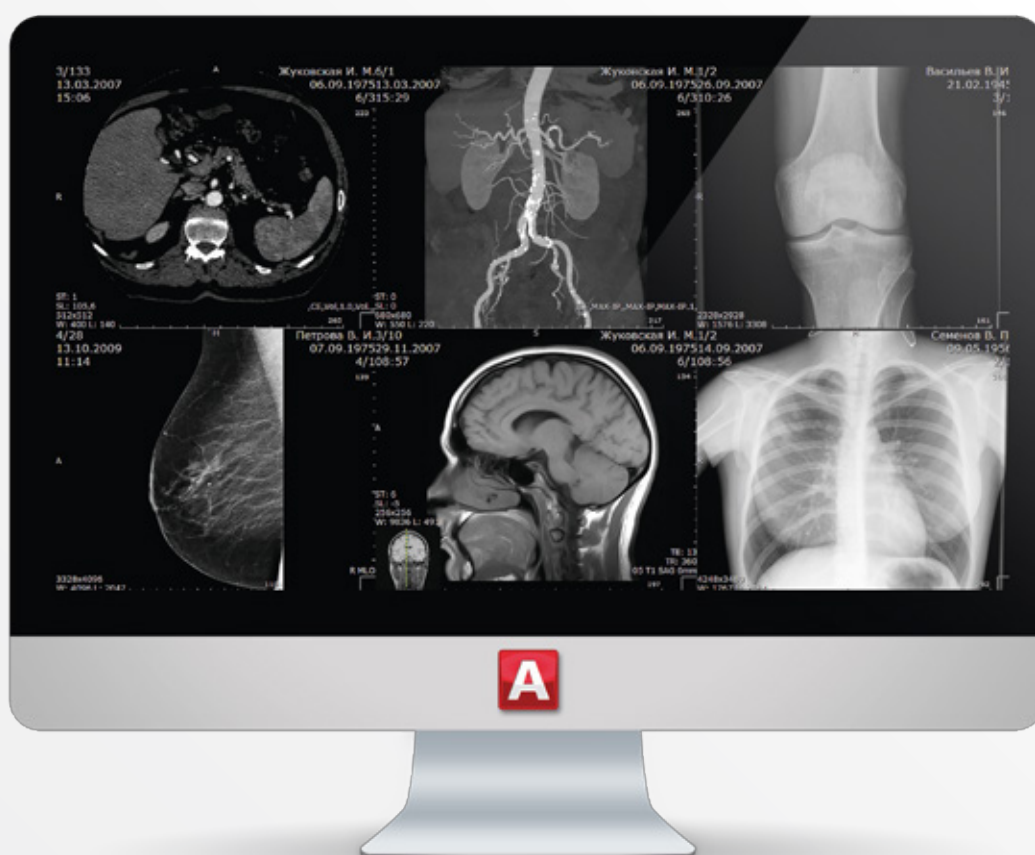




APC ARCHIMED

Radiological  
Information  
System



**MED RAY**  
software

Developing company  
[www.med-ray.ru](http://www.med-ray.ru)

About the distributor:

## ABOUT MED-RAY

Permanent member of:



Association of Development of Medical Information Technologies (ARMIT)



DiaMA Diagnostic Medical Association

Permanent participant of:

- + Nevsky Radiology Forum
- + MedSoft International Forum
- + Radiology All-Russian National Congress of Radiation Diagnostics and Therapists
- + Congress of the Russian Society of Radiology
- + Healthcare International Exhibition
- + ECR European Congress of Radiology

Cooperation in the field of personal data protection:



Infotecs is a recognized leader in the Russian information security market. For 25 years the company has solved complex tasks in the field of data protection.

The company is a leading integrator and provider of solutions from the following companies:



Intrasense - software developer for oncology, cardiology, neurosurgery, mammography, virtual colonoscopy, pulmonary and vascular examinations



HecTec - developer of best solutions for orthopedics

## OUR PROJECTS

The APC ArchiMed software has been installed in over 150 Russian cities and abroad, which is more than 600 healthcare centers of various profiles and over 2300 workstations.

The projects include:



3rd Central Military Clinical Hospital named after A.A. Vishnevsky of the Ministry of Defense of the Russian Federation



Institute of Surgery named after the outstanding Russian surgeon A. V. Vishnevsky of the Ministry of Healthcare of the Russian Federation



Saint Petersburg Mariinskaya Municipal Hospital



Saint Petersburg State University  
N.I. Pirogov Clinic of High Medical Technologies



A.N. Bakulev National Medical Research Center of Cardiovascular Surgery of the Ministry of Healthcare of Russia



Scientific Research Institute of Traumatology, Orthopedics and Neurosurgery of Saratov State Medical University named after V.I. Razumovsky of the Ministry of Healthcare of the Russian Federation



Main Military Clinical Hospital of the National Guard Troops of the Russian Federation



Saint Petersburg Children's City Hospital No. 1



State Research Center Burnasyan Federal Medical Biophysical Center of Federal Medical Biological Agency of Russia



Republic of Sakha (Yakutia) Republican Hospital No. 1 - National Centre of Medicine

## NONINCLUSIVE LIST OF CITIES:

Moscow	Izhevsk	Novosibirsk	Stavropol
Saint Petersburg	Irkutsk	Novotroitsk	Syzran
Amursk	Yoshkar-Ola	Obninsk	Syktyvkar
Arkhangelsk	Kaluga	Oktyabrsky	Tambov
Astrakhan	Kemerovo	Omsk	Tver
Adygeysk	Kirov	Orenburg	Tomsk
Balashikha	Kostroma	Perm	Tuapse
Barnaul	Krasnodar	Petropavlovsk-	Tula
Batyrevo	Kronshtadt	Kamchatsky	Tymovsk
Belgorod	Kurgan	Prokhladny	Tyumen
Blagoveshchensk	Kursk	Pskov	Udachny
Veliky Novgorod	Kyzyl	Pyt-Yakh	Ulyanovsk
Vladivostok	Leninsk-Kuznetsky	Pyatigorsk	Ufa
Vladikavkaz	Lesnoy	Rostov-on-Don	Khabarovsk
Volgograd	Lyantor	Rubtsovsk	Khanty-Mansiysk
Vologda	Megion	Rybinsk	Tskhinvali
Voronezh	Murmansk	Samara	Chaykovsky
Grozny	Nalchik	Saransk	Cheboksary
Dmitrov	Naro-Fominsk	Sarapul	Cherepovets
Elizovo	Naryan-Mar	Saratov	Cherkessk
Yekaterinburg	Nevinnomyssk	Severodvinsk	Schlusselfburg
Yessentuki	Nizhnevartovsk	Smolensk	Elista
Zheleznogorsk	Nizhny Novgorod	Snezhinsk	Yakutsk
Zvezdny	Nizhny Tagil	Solikamsk	Yaroslavl
Ivanovo	Novokuznetsk	Sochi	

## OUR CUSTOMERS

Our regular customers are official suppliers of the leading manufacturers of diagnostic equipment:

**Canon**  
CANON MEDICAL SYSTEMS

**HITACHI**  
Inspire the Next

**AGFA**   
HealthCare

GE Healthcare



**PHILIPS**

**SIEMENS**  
**Healthineers** 

**Carestream**

## NEED FOR IMPLEMENTATION OF INFORMATION TECHNOLOGIES IN MEDICINE

IT implementation ensures:

- + Storage and comprehensive analysis of the data received from multiple diagnostic devices
- + Improvement of the quality of diagnostics and increase of the reasonability of medical decisions
- + Increase of the economic feasibility and efficiency of the diagnostic and treatment process
- + Increase of labor efficiency of medical personnel by means of automation of labor intensive and routine tasks
- + Reduction of the period of patient's stay in the clinic
- + Reduction of the financial costs of purchasing new diagnostic equipment
- + Creation of a television and radio network within several municipalities or a region

## PACS\IRIS APC ARCHIMED

The radiological information system on the basis of APC ArchiMed is a key tool for solving the tasks of a radiologist. The PACS\IRIS allows to work with any diagnostic equipment, compile an archive of examinations and patient data over a number of years, and comprises various functions for viewing and processing of images.

The 20 years of APC ArchiMed development experience facilitate easy adaptation of solutions to user requests, implementation of required functionality and integration with any medical information systems.

Med-Ray is a partner of domestic and foreign manufacturers of diagnostic equipment. The multimodal workstations based on APC ArchiMed have no limitations in terms of the number of connected devices and completed examinations, and allow to significantly reduce the cost of packaged supply.

A regional radiological information system (RRIS) or central archive of medical images (CAMI) can be created on the basis of APC ArchiMed. The interaction of various medical institutions at municipal or regional level provides a number of opportunities and resolves the issue of a lack of qualified specialists. Teleradiology is a top priority healthcare system development area.

Med-Ray is the holder of Marketing Authorizations by Roszdravnadzor, Manufacturing and Maintenance Authorization for medical devices and other necessary certificates for all provided solutions. The APC ArchiMed software is included in the register of domestic software of the Ministry of Communications.

## MAIN FUNCTIONS OF APC ARCHIMED:



- + Standardized and optimized data accumulation, creation and maintenance of a unified archive of medical images, examinations protocols, patient cards, and other data
- + Storage of the required number of medical images in the database for long-term monitoring of the patient's condition
- + Various types of processing of diagnostic examinations with all required functionality, including multiplanar and volumetric reconstruction
- + Automated filling of examination protocols using firmware guides and templates
- + Spelling check during the creation of descriptions and opinions for examinations protocols
- + Issue of examinations results in the form of opinions and standardized protocols with a printing device, recording of images on disks using an integrated viewer
- + Management of statistics, which implies the capability to obtain various statistical data over a selected time period (for instance, the number of examined patients, organs, revealed pathologies, physician's workload, and other parameters)
- + Assessment of diagnostic room (department) performance in units equivalent to the labor intensity of services
- + Data access via web browsers from any computer or mobile device
- + Quick integration with any medical information system
- + Automatic generation of a list of assignments for diagnostic equipment using DICOM WorkList during the creation of an examination assignment
- + Export of images to a remote DICOM server
- + Capability to automatically retranslate (forward) images received by the DICOM server to any number of registered remote DICOM servers
- + Remote telemedicine consultation system
- + Remote consultations with selected images transferred to a consultant along with an examination protocol and automated acquisition of consultative opinions
- + A consulting physician works with several remote bases of various healthcare centers from his/her workplace
- + Unlimited number of diagnostic devices connected using the DICOM 3.0 protocol
- + Unlimited number of performed examinations

## TYPES OF LICENSES AND KEY FEATURES

Unlike the other solutions by competitors, the APC ArchiMed licensing scheme is very simple. Each type of software is provided with maximum functionality with no separation into multiple modules or terms of use. At the same time, the price remains at the lowest level in the market, with a possibility of most flexible selection of the payment schedule depending on the Customer's capabilities.

### Main types of licenses:

- APC ArchiMed Diagnostic
- APC ArchiMed Viewing
- APC ArchiMed 3D
- APC ArchiMed Web Viewer
- APC ArchiMed Unlimited

### APC ArchiMed Diagnostic

The delivery scope of any diagnostic device (CT, MRI, X-ray apparatus, mammograph, digitizer, ultrasonic radiation device, etc.) or the initial stage of an X-ray department's automation require at least one APC ArchiMed Diagnostic license, as it includes the server side which allows to accumulate an archive of images and other medical information with no restrictions in terms of the number of connected devices or completed examinations, and also view and process images, create examinations protocols, etc. The diagnostic license is installed on a server or diagnostician's workplace, which can also function as a server. It is recommended to install one license for each diagnostician.

### APC ArchiMed Viewing

A simplified version of the diagnostic license. The main differences are the absence of the server side and the capability to create and edit examinations protocols. The viewing license can be used:

- + By managers of medical institutions
- + In record departments
- + At laboratory assistant workplaces
- + In doctor's rooms
- + In meeting, conference and council halls
- + In any other places where access to radiological information system data is required

## TYPES OF LICENSES AND KEY FEATURES

### APC ArchiMed 3D

The option of 3D visualization and processing of imaging examinations expands the functionality of the Diagnostic and Viewing licenses. This option enables the use of the visualization of a selected series of images based on the volumetric rendering algorithm, select preset color palette and transparency parameters, and includes basic 3D image processing tools.

### APC ArchiMed Web Viewer

APC ArchiMed Web Viewer is a module installed on any computer which functions as a server in addition to the Diagnostic license. The software is used as a viewer for of medical images and examination protocols. No software installation is required for operation, and data can be accessed from any computer or mobile device via web browsers of the main developers. Unlimited number of simultaneous connections. All required tools are available for image processing.

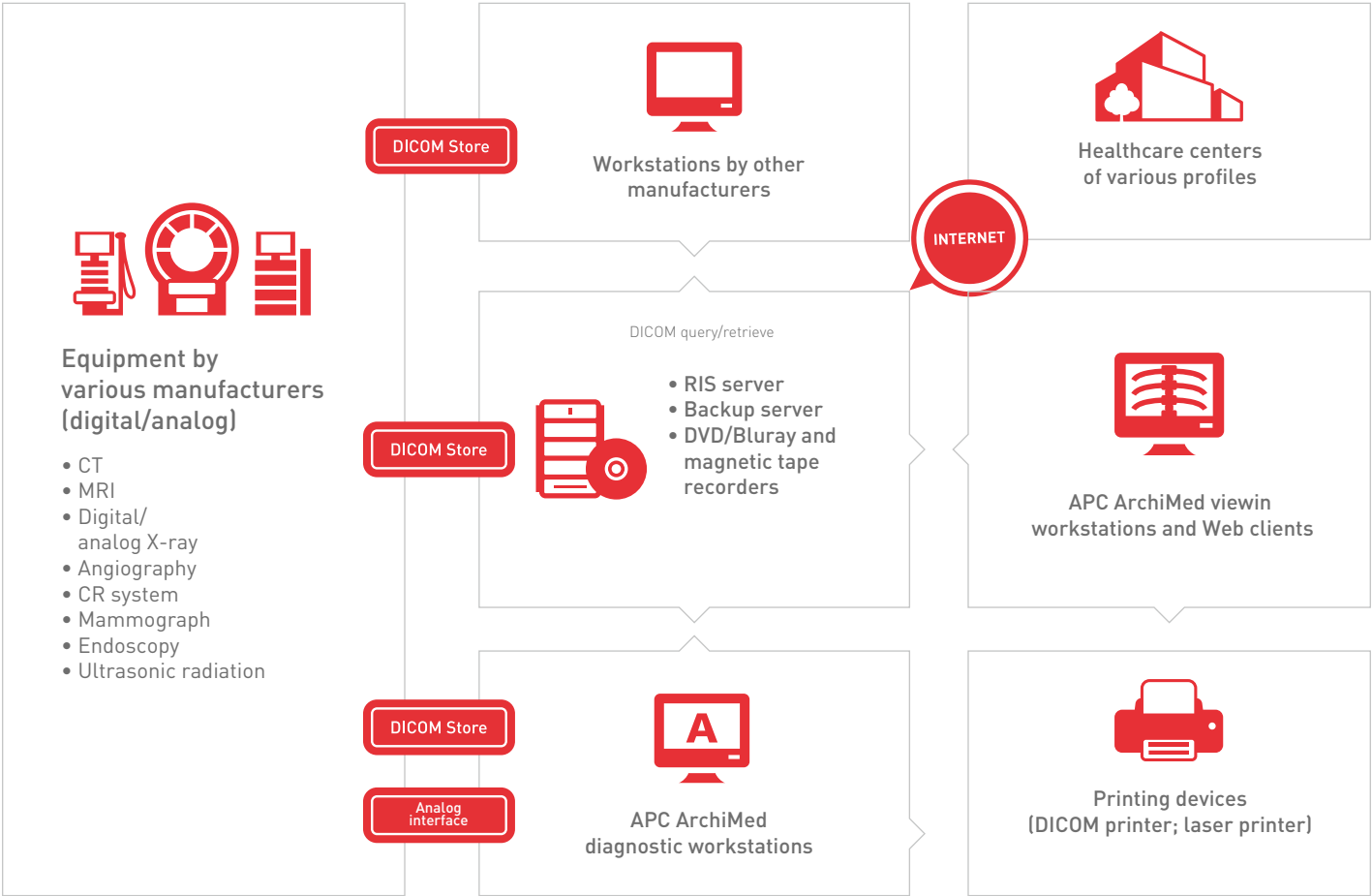
This solution may be used for quick access to the archive of examination, and as an alternative to the viewing license.

### APC ArchiMed Unlimited

The unlimited license includes all types of APC ArchiMed software licenses and allows to install an unlimited number of copies within a single medical institution. This is the most advantageous licensing scheme for major projects, which provides a significant cost reduction.



# EXAMPLE OF TYPICAL IMPLEMENTATION OF RIS APC ARCHIMED IN A HEALTHCARE CENTER



## TELEMEDICINE AND TELERADIOLOGY

Telemedicine is a top priority healthcare system development area which covers a wide range of services:

- + Postponed consultation
- + Real-time consultation, including patient-physician consultations
- + Council of physicians
- + Remote monitoring of the patient's physiological parameters
- + Remote control of medical devices which directly affect a patient's body, or those used for measuring the parameters characterizing the patient's condition
- + Other types of remote medical care for patients

Teleradiology is the most important element of telemedicine.

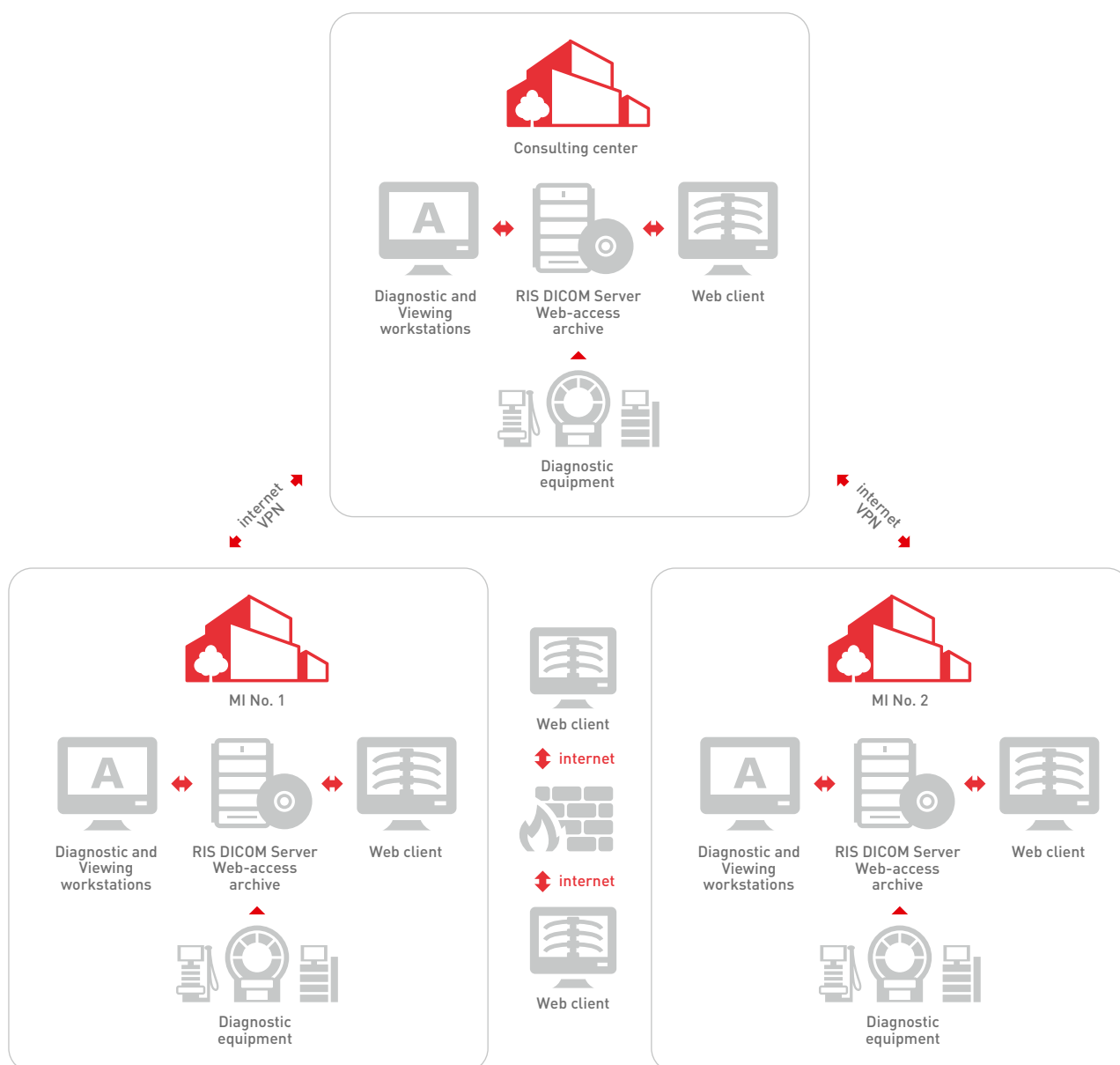
With the appearance of modern radiological equipment and software, X-ray diagnostics has taken a special place in the improvement of the efficiency and quality of public services, and the high-quality Internet connection in medical institutions has allowed to create not only teleradiological networks between several medical institutions or diagnosticians, but also regional radiological information systems (RRIS) and central archives of medical images (CAMI). In fact, the main executed tasks are almost the same as those in the framework of a single healthcare center, but on a regional level it is possible to resolve the issue of a lack of specialists, analyze larger volumes of data, manage most accurate statistics, monitor the operation of diagnostic equipment, and carry out quality control of completed examinations.

Med-Ray is one of the first companies to adopt teleradiology. In addition to major projects for state medical institutions, there are actively developing services for various commercial projects which can be implemented, in particular, on the basis of cloud technologies, and with no initial costs for the Customer. All solutions are provided with certified information protection tools by our partner Infotecs, a leading company in the field of personal data protection.

## TELERADIOLOGY SOLUTION OPTION

1. Medical institutions (MIs) of various profiles forward images and test reports to a selected Consulting Center to obtain consultations.

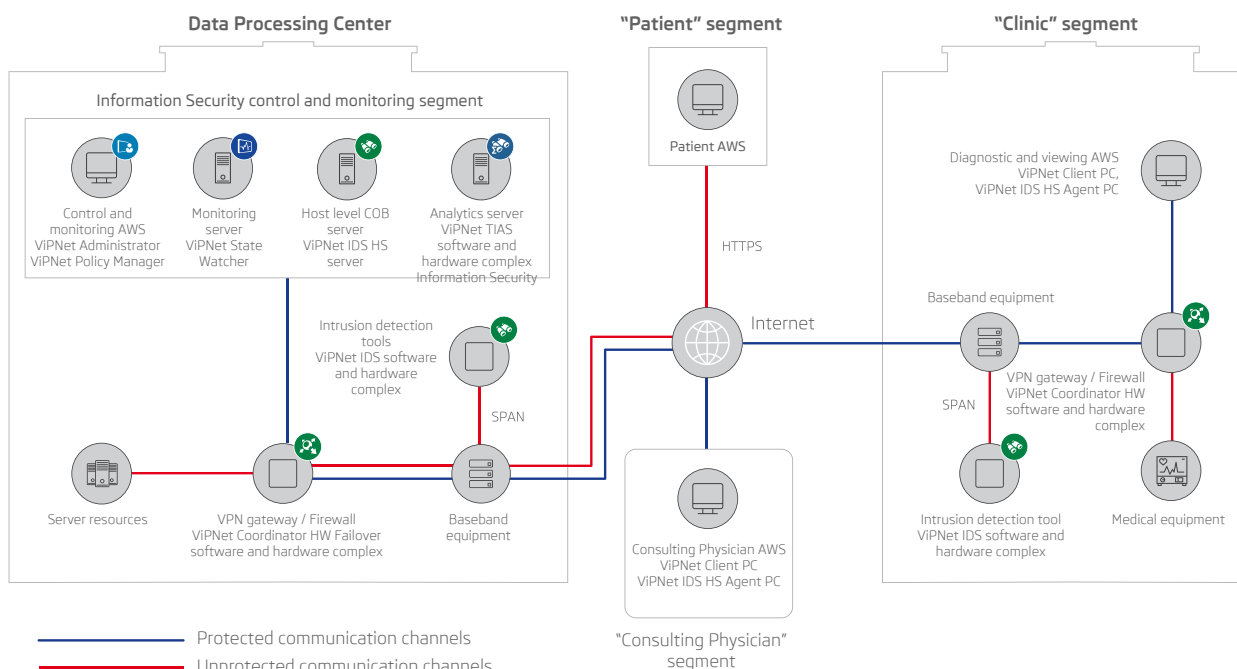
2. The Consulting Center forwards replies to received inquiries back to the medical institution



Secure information exchange is arranged using the technologies of virtual private networks (VPN), firewalling, detection of intrusions and analysis of information security incidents, which are implemented on the basis of certified ViPNet security tools developed and produced by Infotecs JSC.

This solution complies with the requirements of the legislative and regulatory framework of the Russian Federation in the field of personal data protection:

- No. 152-FZ "Concerning Personal Data";
- No. 323-FZ "On Fundamental Healthcare Principles in the Russian Federation";
- Order of the Government of the Russian Federation No. 1119 "On Approval of Requirements for Protection of Personal Data while Processing thereof in the Personal Data Information Systems";
- normative legal documents of Federal Service for Technical and Export Control and Federal Security Service of Russia in the field of personal data protection.



The solution displayed on the diagram is focused on the implementation of the following information protection measures in accordance with the provisions of Orders No. 17, 21 of the Federal Service for Technical and Export Control of Russia:

IAF.1,	UPD.6,	RSB.1,	ANZ.3,	ZIS.4,
IAF.2,	UPD.9,	RSB.2,	ANZ.5,	ZIS.10,
IAF.3,	UPD.10,	RSB.3,	OTsL.1,	ZIS.11,
IAF.4,	UPD.11,	RSB.5,	OTsL.3,	ZIS.12,
IAF.5,	UPD.13,	RSB.6,	ODT.2,	ZIS.13,
IAF.6,	UPD.14,	RSB.7,	ODT.4,	ZIS.16,
UPD.1,	UPD.15,	SOV.1,	ODT.5,	ZIS.17,
UPD.2,	UPD.16,	SOV.2,	ZIS.1,	ZIS.19,
UPD.4,	OPS.3,	ANZ.2,	ZIS.3,	ZIS.20.

(protection of Personal Data Information Systems and Geoinformation Systems)

## SPECIALIZED PROGRAMS FOR ANALYSIS AND PROCESSING OF EXAMINATIONS

Most modern diagnostic devices (CT, MRI, Ultrasonic Radiation, etc.) are supplied with workstations and a software package, whose functionality allows to carry out most complex examination processing and analysis operations. Few are aware that the cost of workstations can be equal to, and sometimes even greater than the cost of the diagnostic apparatus.

We continuously analyze the global market and have selected the best developers of specialized software for all areas which use the radiological examination methods.

As a result of our collaboration, these solutions have been integrated and adapted to the PACS\RIS APC ArchiMed system, and are more affordable as compared to similar solutions by diagnostic equipment manufacturers.



## BENEFITS

- 
- + Proprietary solution independent of foreign technologies and components
  - + Marketing Authorization by Roszdravnadzor
  - + Most advantageous solutions in the market
  - + Over 20 years of experience
  - + Continuous development of technology
  - + Broad dealer network
  - + Enhanced reliability of the system, which does not require ongoing maintenance
  - + Ease of implementation and use
  - + Flexible pricing policy
  - + Capability to adjust and adapt of the software depending on the Customer's tasks
  - + Experience of integration with MIS at any level
  - + Development of the areas of telemedicine and teleradiology
  - + Integration and supply of software for specialized post-processing of all types of examinations (oncology, orthopedics, neurosurgery, cardiology, mammography, virtual colonoscopy, lung examinations, etc.)

# SCREENSHOTS

## Main diagnostician's form

The major portion of the main form is a table with a list of examinations

Physician's automated workstation

March 26, 2015 04:23 Ultrasound exam room Developer

List of examinations

Item No.	Name	Date of exam	Type of exam	Department	Name (area)	Conclusion	Physician
1	Xxxxxxxxxx Yuri Aleksandrovich	29.11.11	CT	Outpatient	CT examination of the thoracic		I. Sidorov
2	Xxxxxxxxxx Yulia Ivanovna	15.02.12	X-ray	Outpatient			CLD
3	Xxxxxxxxxx Yulia Ivanovna	29.11.11	CT	Outpatient	CT examination of the organs		V. Semenov
4	Xxxxxxxxxx Tatiana Dmitrievna	28.11.11	CT	Outpatient	CT examination of the heart		P. Petrov
5	Xxxxxxxxxx Nina Ivanovna	26.03.15	CT	Outpatient	CT examination of the organs	Pancreatic head	O. Zakharova
6	Xxxxxxxxxx Nina Ivanovna	15.09.11	Ultrasonic exam	abdominal			N. Batkova
7	Xxxxxxxxxx Nina Ivanovna	28.11.11	CT	abdominal	CT examination of the brain		V. Semenov
8	Xxxxxxxxxx Mikhail Filippovich	26.03.15	Ultrasonic exam	Outpatient	Colour duplex ultrasonography	Examination	I. Leonis
9	Xxxxxxxxxx Mikhail Aleksandrovich	26.03.15	Endoscopy	abdominal	Esophagogastroduodenoscopy	Submucosal	I. Donarev
10	Xxxxxxxxxx Mikhail Aleksandrovich	28.11.11	CT	thoracic surgery	CT of the brachiocephalic artery, C		I. Vasiliev
11	Xxxxxxxxxx Mikhail Aleksandrovich	24.01.12	X-ray	thoracic surgery			CLD
12	Xxxxxxxxxx Larisa Sergeevna	26.03.15	MRI	abdominal	Magnetic resonance imaging	Ascites, Fluid	I. Vasiliev
13	Xxxxxxxxxx Larisa Sergeevna	26.03.15	Ultrasonic exam	abdominal	CDS of major vessels	Ultrasonic - signs of P. Petrov	
14	Xxxxxxxxxx Larisa Sergeevna	26.03.15	Ultrasonic exam	abdominal	Echocardiography	Visualization	V. Semenov
15	Xxxxxxxxxx Kristina Andronovna	28.11.11	CT	therapeutic	CT examination of the upper		I. Vasiliev
16	Xxxxxxxxxx Irina Constantinovna	27.11.11	CT	purulent surgery	CT examination of the bones		M. Sidorov
17	Xxxxxxxxxx Eugeny Mikhailovich	26.03.15	CT	vascular surgery	CT examination of the abdomen	Occlusion of the spir	V. Shirokov
18	Xxxxxxxxxx Galina Sergeevna	29.11.11	CT	Outpatient	CT examination of the organs		M. Sidorov
19	Xxxxxxxxxx Galina Vasilievna	29.11.11	CT	Outpatient	CT examination of the organs		M. Sidorov
20	Xxxxxxxxxx Gazmat Tokhtarov	29.11.11	CT	thoracic surgery	CT examination of the brain		V. Semenov
21	Xxxxxxxxxx Vyacheslav Vasilievich	26.03.15	Ultrasonic exam	abdominal	Ultrasound examination of the hep	Ultrasonic - signs of M. Petukhova	
22	Xxxxxxxxxx Vyacheslav Vasilievich	26.03.15	Endoscopy	Outpatient	Full colonoscopy	Ascending colon pol	Solodovnikov
23	Xxxxxxxxxx Vladimir Ivanovich	29.11.11	CT	abdominal	CT examination of the organs		V. Semenov
24	Xxxxxxxxxx Vera Alekseevna	26.03.15	Endoscopy	resuscitation and	Esophagogastroduodenoscopy	Focal gastritis	I. Donarev
25	Xxxxxxxxxx Vera Alekseevna	26.03.15	X-ray	purulent surgery	X-ray of organs	Fluid in the lungs	V. Orekhova
26	Xxxxxxxxxx Valentin Leonidovich	29.11.11	CT	cardiac surgery	CT examination of the heart		I. Vasiliev
27	Xxxxxxxxxx Valentin Leonidovich	16.09.11	Endoscopy	cardiac surgery			Solodovnikov

## Patient search

The window is intended for quick searches for patient cards

Patient search

Patient's Last Name, First Name and Middle Name Patient Code

xx

Patient History No. Card No. Home address

2587 Xxxxxxxxxx Aleksander Aleksan 25.12.1939

9955 Xxxxxxxxxx Aleksander Constas 11.02.1949 Vologda Oblast, Kharovsk

11562 Xxxxxxxxxx Aleksander Leonidc 05.10.1944

11505 Xxxxxxxxxx Valentin Leonidovic 09.09.1969

8836 Xxxxxxxxxx Vera Alekseevna 25.12.1939

11545 Xxxxxxxxxx Viktor Nikolaevich 23.02.1953

11364 Xxxxxxxxxx Vladimir Egorovich 02.10.1948

9951 Xxxxxxxxxx Vladimir Ivanovich 05.04.1937

10099 Xxxxxxxxxx Vyacheslav Vasiliev 16.09.1954

11558 Xxxxxxxxxx Gazmat Tokhtarov 10.02.1990

11534 Xxxxxxxxxx Galina Vasilievna 22.08.1954

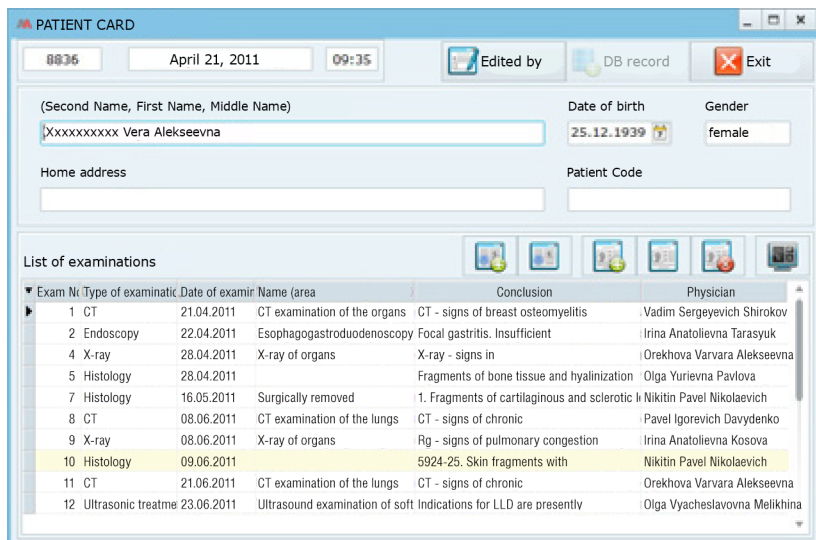
11531 Xxxxxxxxxx Galina Sergeevna 13.02.1940

6363 Xxxxxxxxxx Evgeny Mikhailovich 28.10.1938 Moscow, Zelenograd, 1559-

# SCREENSHOTS

## Patient card

The card is used for initial patient registration, editing and viewing of registration data, and displaying of a list of completed diagnostic examinations



**PATIENT CARD**

8836 April 21, 2011 09:35 Edited by DB record Exit

(Second Name, First Name, Middle Name) Date of birth Gender  
XXXXXXXX Vera Alekseevna 25.12.1939 female

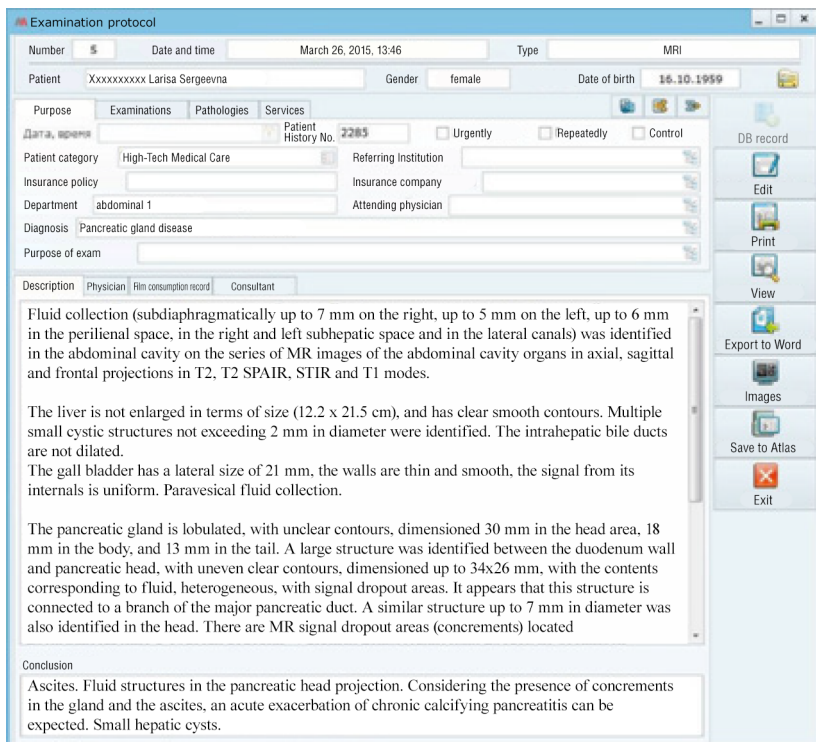
Home address Patient Code

List of examinations

Exam No	Type of examination	Date of exam	Name (area)	Conclusion	Physician
1	CT	21.04.2011	CT examination of the organs	CT - signs of breast osteomyelitis	Vadim Sergeyevich Shirokov
2	Endoscopy	22.04.2011	Esophagogastroduodenoscopy	Focal gastritis. Insufficient	Irina Anatolievna Tarasyuk
4	X-ray	28.04.2011	X-ray of organs	X-ray - signs in	Orehkova Varvara Alekseevna
5	Histology	28.04.2011		Fragments of bone tissue and hyalinization	Olga Yurievna Pavlova
7	Histology	16.05.2011	Surgically removed	1. Fragments of cartilaginous and sclerotic	Nikitin Pavel Nikolaevich
8	CT	08.06.2011	CT examination of the lungs	CT - signs of chronic	Pavel Igorevich Davydenko
9	X-ray	08.06.2011	X-ray of organs	Rg - signs of pulmonary congestion	Irina Anatolievna Kosova
10	Histology	09.06.2011		5924-25. Skin fragments with	Nikitin Pavel Nikolaevich
11	CT	21.06.2011	CT examination of the lungs	CT - signs of chronic	Orehkova Varvara Alekseevna
12	Ultrasonic treatme	23.06.2011	Ultrasound examination of soft	Indications for LLD are presently	Olga Vyacheslavovna Melikhina

## Examination protocol

The protocol is designed for recording and displaying of examination results



**Examination protocol**

Number 5 Date and time March 26, 2015, 13:46 Type MRI

Patient XXXXXXXXXX Larisa Sergeevna Gender female Date of birth 16.10.1959

Purpose Examinations Pathologies Services

Дата, время Patient History No. 2285 Urgently Repeatedly Control

Patient category High-Tech Medical Care Referring Institution

Insurance policy Insurance company

Department abdominal 1 Attending physician

Diagnosis Pancreatic gland disease

Purpose of exam

Description Physician Film consumption record Consultant

Fluid collection (subdiaphragmatically up to 7 mm on the right, up to 5 mm on the left, up to 6 mm in the peritoneal space, in the right and left subhepatic space and in the lateral canals) was identified in the abdominal cavity on the series of MR images of the abdominal cavity organs in axial, sagittal and frontal projections in T2, T2 SPAIR, STIR and T1 modes.

The liver is not enlarged in terms of size (12.2 x 21.5 cm), and has clear smooth contours. Multiple small cystic structures not exceeding 2 mm in diameter were identified. The intrahepatic bile ducts are not dilated.

The gall bladder has a lateral size of 21 mm, the walls are thin and smooth, the signal from its internals is uniform. Paravesical fluid collection.

The pancreatic gland is lobulated, with unclear contours, dimensioned 30 mm in the head area, 18 mm in the body, and 13 mm in the tail. A large structure was identified between the duodenum wall and pancreatic head, with uneven clear contours, dimensioned up to 34x26 mm, with the contents corresponding to fluid, heterogeneous, with signal dropout areas. It appears that this structure is connected to a branch of the major pancreatic duct. A similar structure up to 7 mm in diameter was also identified in the head. There are MR signal dropout areas (concrements) located

Conclusion

Ascites. Fluid structures in the pancreatic head projection. Considering the presence of concrements in the gland and the ascites, an acute exacerbation of chronic calcifying pancreatitis can be expected. Small hepatic cysts.



## SCREENSHOTS

### Printing of examination protocol

The screenshot shows a 'Preview' window of a medical examination protocol. The document header includes the logo of the A.V. Vishnevsky Institute of Surgery, Ministry of Health of the Russian Federation, and the Department of X-ray and MR examination methods. Contact information for the Head of Department is provided. Patient details include: Patient: XXXXXXXX Nina Ivanovna, Date of birth: July 22, 1951 (63 years of age), Category: payment, Code of exam: Effective Dose: 6.8 mSv, Department: Outpatient. The examination date and time are March 26, 2015, 10:10, and the Exam No. is 3732. The physician's code is also present. The main text describes a CT examination of abdominal cavity organs, noting that contrast enhancement was not applied. It details findings for the liver, gall bladder, bile ducts, portal vein, splenic vein, superior mesenteric vein, spleen, and pancreas. A conclusion is drawn regarding pancreatic head invasion, hypertension, lymphatic nodes, and adrenal gland body involvement. The document is signed by Olga Pavlovna Zakharova, Head of Department, and Professor G.G. Karmazanovsky. The page number 'Page 1 of 1' is visible at the bottom.

**A.V. Vishnevsky Institute of Surgery**  
Ministry of Health of the Russian Federation  
**Department of X-ray and MR examination methods**  
Head of Department Tel.: 237-10-48, Staff Room: 237-04-54, e-mail: karmazanovsky@ixv.comcor.ru

**Patient:** XXXXXXXX Nina Ivanovna  
**Date of birth:** July 22, 1951 (63 years of age)  
**Category:** payment  
**Code of exam:**  
**Effective Dose:** 6.8 mSv  
**Department:** Outpatient

March 26, 2015, 10:10  
**Exam No.:** 3732  
**Physician's code:**

**CT examination of abdominal cavity organs**  
**Contrast enhancement:** not applied

Liver size 22.5 x 12.4 x 17.0 cm, shape and position are unchanged. Its contours are smooth and clear, with a heterogeneous parenchyma, the density is reduced to 48 HU in native phase. In arterial, venous and delayed phases - 61, 105 and 79 HU, respectively. Focal lesions of the liver do not visualize. A drain tube (pig tail) was fitted. A limited fluid collection of up to 12 mm in length and up to 20 HU in density was identified in the liver hilum. and enlarged lymph nodes up to 11 mm.

The gall bladder does not differentiate. The intrarenal bile ducts are dilated (target ducts up to 5 mm, segmentary ducts up to 2 mm). T-shaped drain tube was fitted in the common bile duct. The portal vein is up to 20 mm (prestenotic dilation), the lumen is reduced to 3.5 mm in the confluence area by a pancreatic head formation. The splenic vein is 10 mm. The superior mesenteric vein is up to 9 mm (somewhat reduced in the confluence of the upper and middle veins, immersed in a pancreatic tumor by 2/3 of the circumference, with the length not exceeding 6 mm).

The spleen has a normal shape with smooth clear contours, the dimensions are not increased - 9.3x5.2x9.8 cm, the density is unchanged (37 HU). The parenchyma is homogeneous, with no abnormal foci.

**Conclusion:** Cr of the pancreatic head with portal vein and superior mesenteric vein invasion. Pancreatic hypertension. Enlarged regional lymphatic nodes. The involvement of the pylorus cannot be ruled out. Local thickening of the left adrenal gland body (formation?). Small fluid collection in the liver hilum.

**MIS:**  
**Head of Department:**

Olga Pavlovna Zakharova  
Professor G.G. Karmazanovsky

Page 1 of 1

### "Consultant" page of examination protocol

The page is used at a consulting physician's workplace in the telemedicine system for entering and displaying of consultative opinions concerning the examination

The screenshot shows the 'Consultant' page of a telemedicine system. It features a 'Consultation summary' section with a text area containing a detailed medical description of a right ankle joint injury. The text describes the relationship of the bones forming the right ankle joint, the talus, the articular section of the talus trochlea, the articular section of the shin bone, the distal radius, the medial malleolus, the cover plate of the shin bone, the lower third of the fibula shaft, the epiphysis, the displaced talus body, the residual body elements, the bone trabeculae, the speckled osteosclerosis fragments, the structure of the neck and head of the talus, and the joint capsule. The text also mentions a significant increase in the volume of soft tissue identified paraarticularly, of the congestive abscess type, projecting the joint cavity and extending proximally to 13 cm - above the level. The page includes a 'Date and time' field showing '27.05.2011 12:21' and a 'CONSULTANT' field showing 'Yuri Vasilievich Denisov'. On the right side, there are buttons for 'View', 'Export to Word', 'Images', 'Save to Atlas', and 'Exit'.

Description Physician Film consumption record Consultant

Consultation summary 3AM 46:15 text

The relationship of the bones forming the right ankle joint is distorted. The talus is displaced outwardly and posteriorly. The articular section of the talus trochlea is destroyed, the contours are deformed and corroded. The articular section of the shin bone features deep eroded areas along the edge with no clear contours, of melting type. The structure of the distal radius is heterogeneous: multiple destructive areas and air inclusions differentiate against the background of matte sclerosis. The medial malleolus is destroyed and represented by residual free sclerotic fragments. The cover plate of the shin bone is unevenly thickened and sclerosed, with circular periostitis of the onion type up to 7 cm in length. There is an ununited shattered fracture of the lower third of the fibula shaft with an angular displacement. The epiphysis rests on the posterior-lateral section of the displaced talus body. The structure of the residual body elements is porous with strengthened bone trabeculae and speckled osteosclerosis fragments. The structure of the neck and head of the talus is denses, dull, with multiple sections of hypertrophic osteoporosis.

The joint capsule is not identified. A significant increase in the volume of soft tissue was identified paraarticularly, of the congestive abscess type, projecting the joint cavity and extending proximally to 13 cm - above the level

Date and time 27.05.2011 12:21

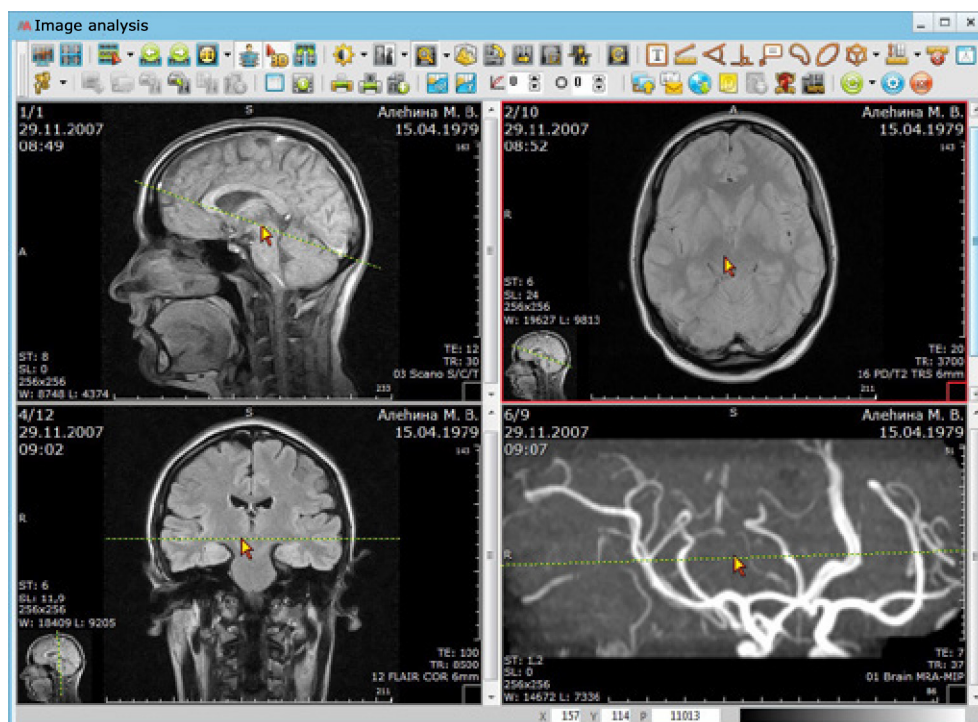
CONSULTANT Yuri Vasilievich Denisov

View  
Export to Word  
Images  
Save to Atlas  
Exit

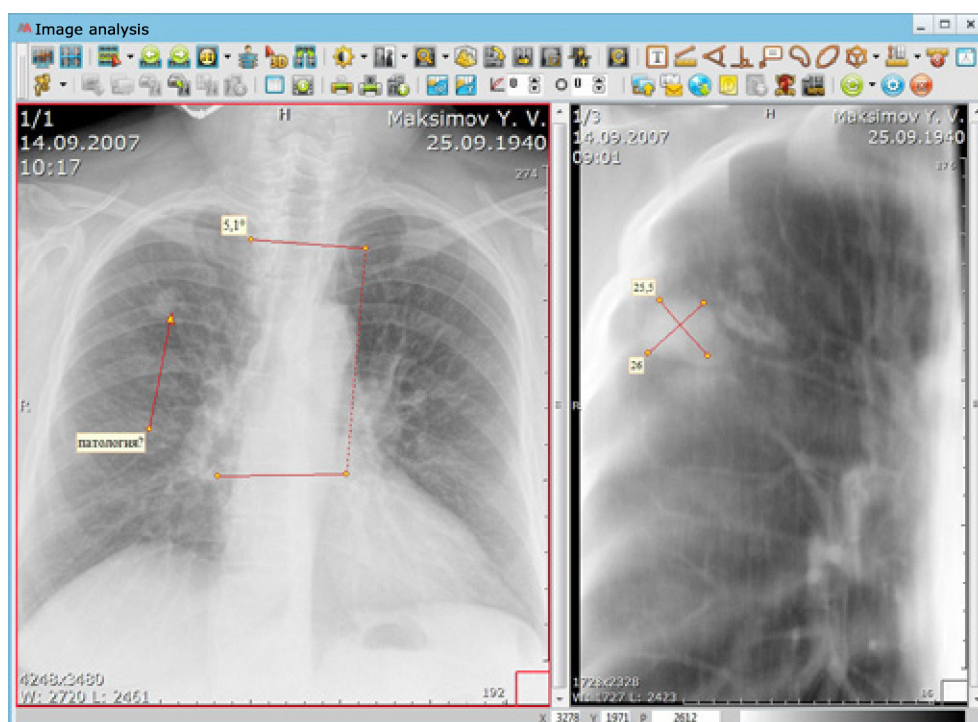
## SCREENSHOTS

### "Images analysis" window (MRI)

The window is intended for viewing, analysis and processing of images within the current examination (or several examinations at once)



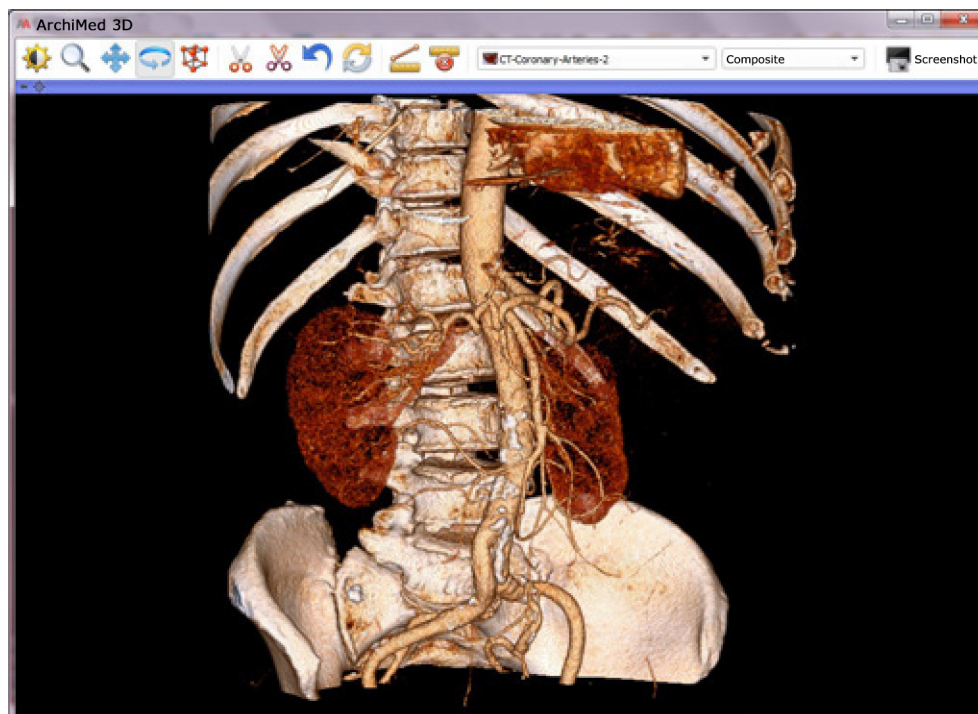
### "Image analysis" window (X-ray)



## SCREENSHOTS

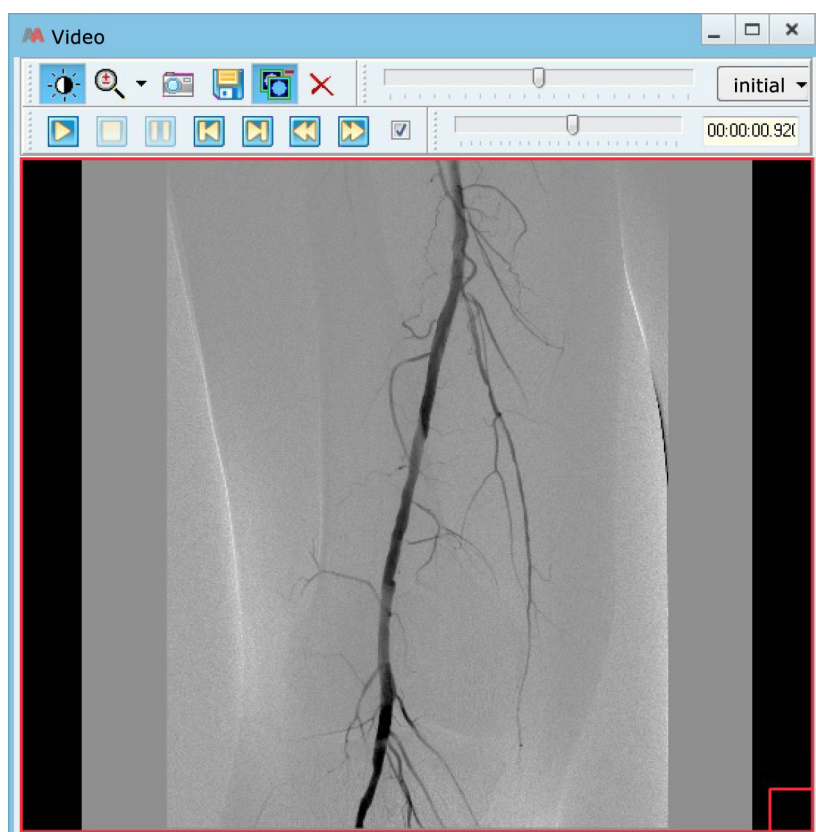
### 3D visualization module

The module is designed for creating 3D reconstructions of CT and MRI examinations



### Viewing in video mode (Angiography)

The mode allows to view any examinations received in video format

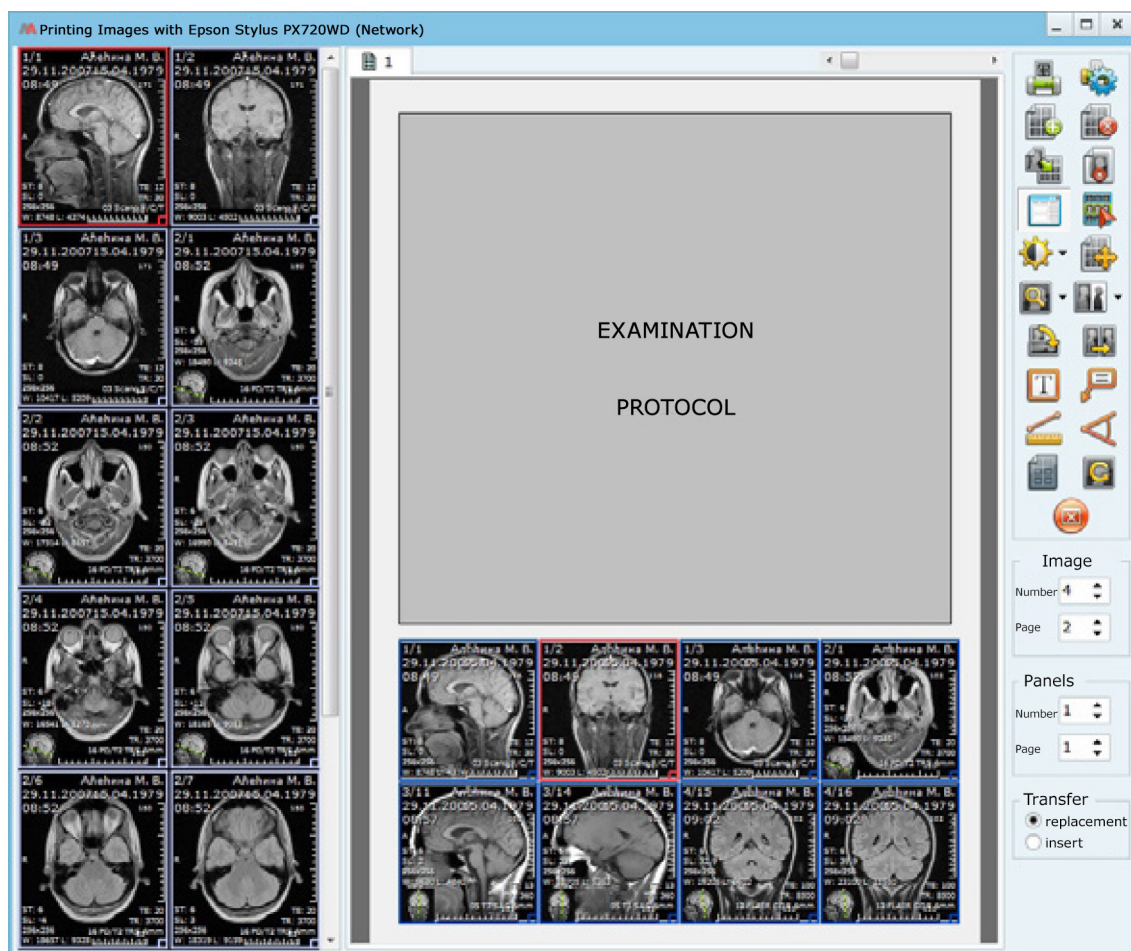




## SCREENSHOTS

### "Image printing" window (for paper media)

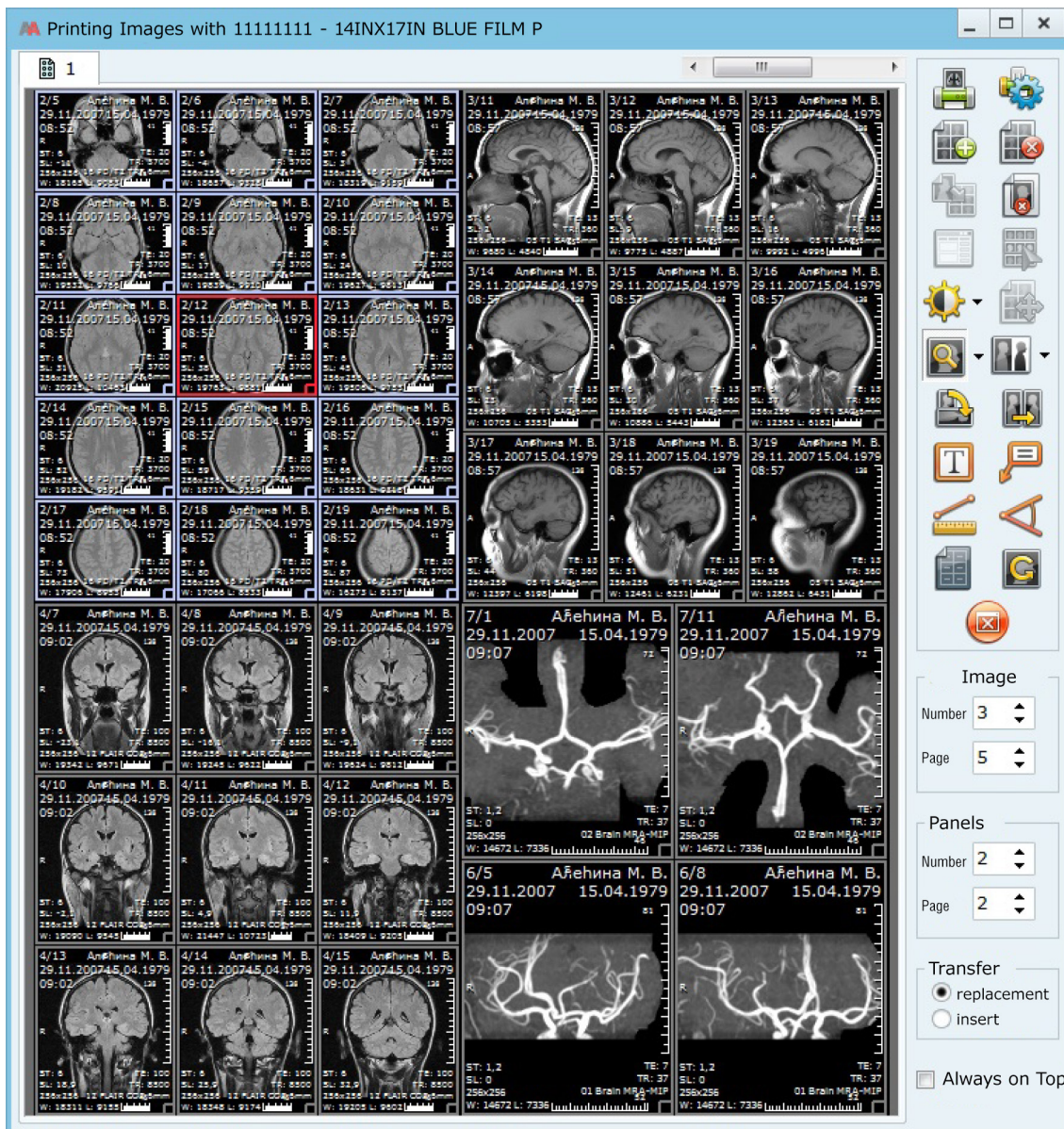
The window is intended for creating previews and printing images using standard printers with a capability to print images together with examination protocols



# SCREENSHOTS

## "Film image printing preview" window

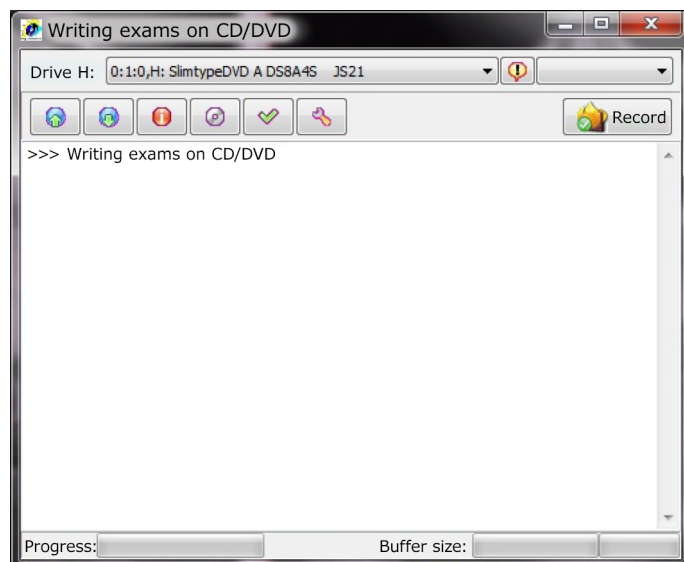
The window is designed for preparing previews and printing images using DICOM printers.



## SCREENSHOTS

### Image recording on CD/DVD

This feature allows to record images on discs using a free integrated viewer.  
The disc can be given to patients and used on any computer.



### Examinations area report

The report provides accurate information on the number of completed examinations and physician's workload

The screenshot shows a "Preview" window with a table of examination data. The table has three columns: "Name (area) of examination", "Number of exams", and "Medical workload". The data is as follows:

Name (area) of examination	Number of exams	Medical workload
Exploratory puncture of abdominal cavity organs under ultrasound control	3	13.5
Gall bladder	8	8.25
Abdominal cavity complex (liver, pancreatic gland, spleen)	1203	7276.5
Medicinal manipulations on abdominal cavity organs under ultrasound control	1	4.5
Lymphatic nodes of the abdominal cavity and retroperitoneal space	22	22
Uterus and adnexa	161	403.125
Uterus and adnexa transvaginally	187	469.375
Mammary gland	97	194
Excretory bladder	168	256.5
Excretory bladder and prostatic gland	463	929
Scrotum	30	30.75
Soft tissues	43	45
Musculoskeletal system	1	1
Abdominal cavity organs	12	55
Peripheral lymphatic nodes	38	38.25
Liver	1	1.25
Pleural cavity	108	109.75
Pancreatic gland	4	8
Kidneys	615	617.75
Kidneys, adrenal glands	744	1508
Prostatic gland transrectally	21	42.5
During pregnancy	3	9
Others	23	24.25
Puncture of the mammary gland, thyroid gland and superficial tissues under ultrasound control (1 area)	19	85.5
Spleen	1	2.5
Salivary glands	1	2
Abdominal cavity vessels	20	140
Thyroid gland	642	1603.625
<b>Total:</b>	<b>4639</b>	<b>13902.88</b>

Page 1 of 1



# SCREENSHOTS

## Organ and system report

Preview

Close

Organs - systems	Number of exams	Medical workload
1. Cardiovascular system	20	140
2. Thoracic cavity organs - total	108	109.75
respiratory organs	108	109.75
interpleural space and diaphragm	0	0
3. Abdominal cavity organs - total	49	101.5
gastrointestinal tract	12	55
parenchymatous organs	14	20
4. Kidneys, adrenal glands, urinary system	1527	2382.25
5. Reproductive system - total	962	2077.75
mammary glands	97	194
female reproductive organs transvaginally	187	469.375
female reproductive organs during pregnancy	3	9
prostatic gland - total	484	971.5
prostatic gland transrectally	21	42.5
6. Endocrine system - total	661	1691.125
thyroid gland	642	1605.625
7. Musculoskeletal system - total	1	1
skull	0	0
spine	0	0
limbs	0	0
8. Central nervous system - total	0	0
brain	0	0
spinal cord	0	0
9. ENT - organs	0	0
10. Eyes and orbits	0	0
11. Teeth, jaw and salivary glands	1	2
12. Soft tissues	43	45
13. Others	1267	7352.5
<b>Total:</b>	<b>4639</b>	<b>13902.88</b>

Compiled by:

Page 1 of 1

## Acquisition of reports from the Database

The function allows to obtain any required report with flexible adjustment capabilities

DB Report

Report Print Config Exit

Type of Report

- ☒ by name (area) of exam
- ☐ by ICD code
- ☐ by departments
- ☐ medical workload
- ☐ consultant workload
- ☐ nurse workload
- ☐ by note
- ☐ film consumption
- ☐ contrast
- ☐ examined organs/systems
- ☐ by patient categories
- ☐ by referring institution
- ☐ by attending physicians
- ☐ by services provided

Report Columns

- ☒ Number of examined patients
- ☒ Number of examinations
- ☐ Number of urgent exams
- ☐ Number of identified pathologies
- ☐ Number of examined organs
- ☐ Traditional examinations
- ☐ Complex examinations
- ☐ Treatment examinations
- ☐ X-ray contrast studies (actual)
- ☐ X-ray contrast studies (reference)
- ☐ Number of X-ray images
- ☐ Number of X-ray exams (actual)
- ☐ Number of X-ray exams (reference)
- ☐ Number of X-ray analyses
- ☐ Digital radiography
- ☐ CT scans
- ☐ Radiation exposure
- ☒ Medical workload
- ☐ Nurse workload

Compiled by

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