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## PATIENTS TREATED

# Patients treated by us in 2013 and 2014

Outpatients	181.483
Examinations	97.918
In-Patients	20.511
OperationsProced	ure based: 13.040
Ne	o. of cases: 8.983
• Patients from provinces of Turkey outside Istanbul_	2.953
International Patients	8.838

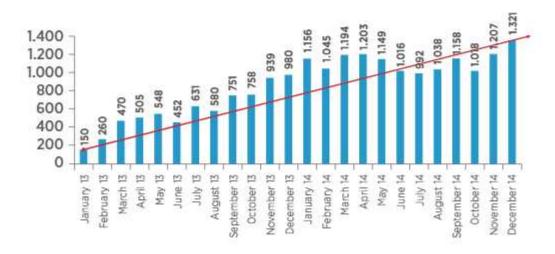
### Outpatients (2013 - December 2014)



### Number of Examinations (2013 - December 2014)

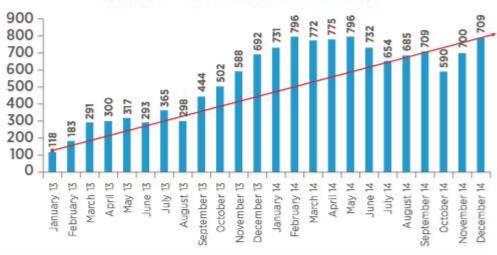


## Number of In-patients (2013 - December 2014)



## PATIENTS TREATED

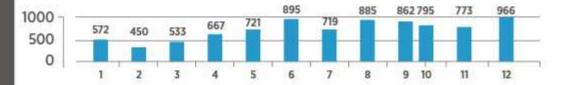
### Number of Operations (2013 – December 2014)



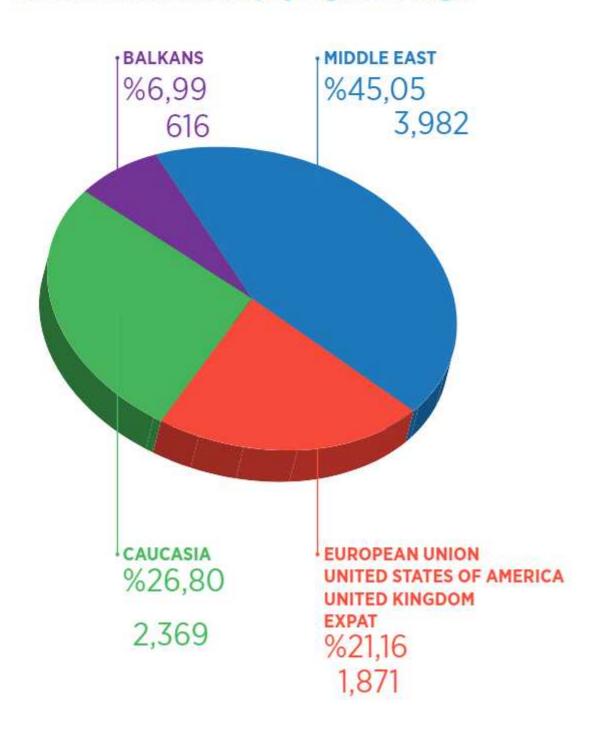
## Number of Patients from Provinces in Turkey (excluding Istanbul), January 2013 – December 2014



#### Number of International Patients - 2014



2014: Distribution of International Patients, by region of origin





MEDICAL ANNUAL REPORT 2014

02



OPERATIONS CARRIED OUT AT OUR HOSPITAL (OVERALL RATIOS)

> SPECIALIZED SURGERY

**%20** 

**MAJOR SURGERY** 

**%35** 

MEDIUM- AND SMALL SCALE SURGERY

**%45** 

## OUR CLINICAL ACTIVITIES

## **ANESTHESIOLOGY**

Distribution of procedures carried out in 2014 by our Anesthesiology Department both in our operating room and in special anesthesia cases outside the operating room;

Total anesthesia cases	5.878
Outside the operating room	_1.590
Pre-operative evaluations	_1.796
Emergency Operations	105
ICU Referrals	437
Peripheral block (axillary block, RIVA)	198
Central block (spinal, epidural, combined spino-epidural)	352
• Invasive procedures (arterial and central venous pressure catheterization) _	991
Post-operative patient-controlled analgesics	644





Invasive procedures such as central catheterization under anesthetic and certain peripheral blocks







Anesthesia support in interventional radiology outside the operating theater

#### **GENERAL SURGERY DEPARTMENT**

Special cases in which surgery has been carried out and treatment completed:

**208** cancer cases have been successfully treated with a zero mortality rate at our General Surgery Department since the opening.

STOMACH CANCER: 29

- Robotic \_\_\_\_\_6
- Laparoscopic \_\_\_\_\_10
- Open Surgery \_\_\_\_\_13

RECTAL CANCER: 61

- Robotic \_\_\_\_\_\_ **32**
- Laparoscopic \_\_\_\_\_23
- TEM Inmediately Remark Memory 6

COLON	CANCER:	61
Street or other Designation of the last of		200

• Laparoscopic \_\_\_\_\_61





# GENERAL SURGERY DEPARTMENT Reccurent Rectal Cancer

Concer Center

(Pelvic exenteration + Composite Bone Resection + IORT):\_

13









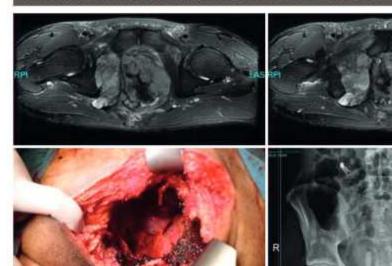




Intra Operative Radiotherapy (IORT)

More successful outcomes are achieved using single-dose radiotherapy during the course of surgery.

#### Peritoneal Carcinomatosis (Cytoreductive surgery + HIPEC):





PANCREATIC CANCER:	19
Whipple operation	17
Robotic Whipple	1
Robotic distal pancreatectomy + splenectomy	
	521.5
METASTASECTOMY / SEGMENTECTOMY	10

METASTASECTOMY / SEGMENTECTOMY:	10
Synchronous laparoscopie resection	3
Synchronous resection in open surgery	3
Metachronous Resection	4

#### **GENERAL SURGERY DEPARTMENT**



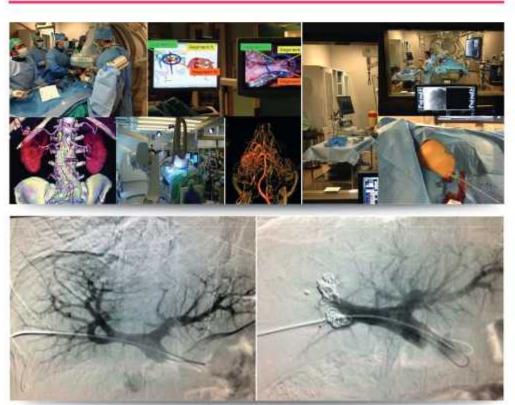
I segmentectomy and II metastasectomy procedures were carried out on a patient whose lesions had been rendered resectable after undergoing chemotherapy for a sigmoid colon tumor and dual-lobe liver metastasis. 9 deep-seated lesions were identified using intraoperative ultrasonography; these were cauterized using radiofrequency ablation. 2 weeks later the patient's primary sigmoid colon tumor was laparoscopically resected.





A morbidly obese (BMI: 42)

Sigmoid colon cancer patient with 3 difficult surgical access liver metastases, underwent laparoscopic sigmoid colon resection and 3 liver metastasectomy procedures simultaneously.



With a multidisciplinary teamwork of our liver surgeon, medical oncologist, interventional radiologist, vascular surgeon and colorectal surgeon, first endovascular arterial aneurism reparation, and then right portal vein embolization achieved, on a patient with a rectal tumor and liver metastasis. Extended right hepatectomy was carried out following the finding of left lobe hypertrophy; robotic rectal surgery was performed 2 weeks later.



#### **GENERAL SURGERY DEPARTMENT**



A vena cava filter procedure to prevent lung embolisms is needed before surgery can be carried out on patients with deep vein thrombosis who require emergency surgical treatment. The pictures above show details of the procedure, performed under local anesthetia.

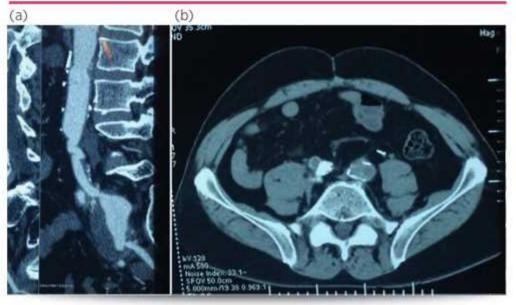
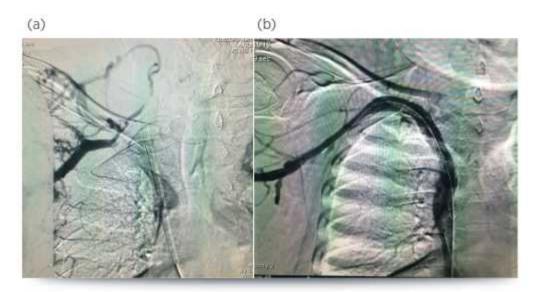
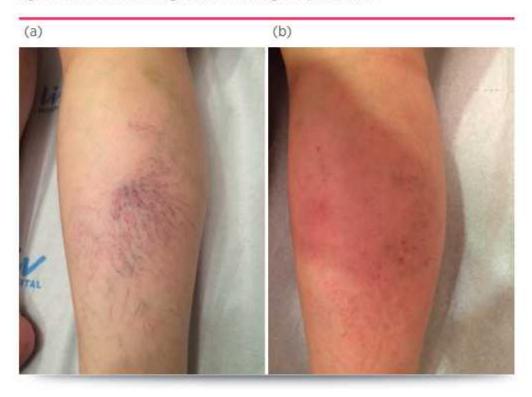


Image (a) shows a preoperative view of a patient suffering from an internal iliac artery aneurism. The tomography image (b), taken one year later, shows that the internal iliac artery aneurism has become entirely regressive. The selected bright images are of the coils.



Right sub-clavian vein obstruction was identified in a patient admitted with an opened right ante brachial arteriovenous fistula and swelling of the right arm (a); a stent was inserted in the patient's right sub-clavian vein. Fistulography screening showed that clearance had been achieved (b). Of the swelling on the right arm there was a regession following the procedure.



Foam sclerotherapy is an effective treatment for varicose veins, especially in terms of cosmetic recovery. Image (a) shows the patient before the procedure; image (b) ten days after the procedure. Full results are obtained within 3 to 6 months.



EXCESS WEIGHT LOSS RATES:

#### GENERAL SURGERY DEPARTMENT

The **Obesity and Metabolic Surgery Clinic** performed surgical procedures on a total of 221 patients. There were no cases of morbidity in any of these issue-specific procedures.

PROCEDURE	NUMBER	PERCENTAGE (%)
Laparoscopic sleeve gastrectomy	210	95
Robotic sleeve gastrectomy	1	0,5
Laparoscopic gastric by-pass	1	0,5
Robotic gastric by-pass	4	1,8
Revision	5	2,2
TOTAL	221	100
COMPLICATIONS	NUMBER	PERCENTAGE (%)
Intra-abdominal bleeding	2	0,9
Gastroenteritis	1	0,4
TOTAL	3	1,4
READMISSIONS	NUMBER	PERCENTAGE (%)
Dehydration	3	1,4
Fever	1	0,5
TOTAL	4	1,9



#### Thyroid and Endocrine Surgery;

60 endocrine cases were surgically treated in 2014 (2013 - 42).

Laparoscopic adrenalectomy	11
Adenoma excision for parathyroid adenoma	9
Thyroidectomy for thyroid pathology	82

Intraoperative rapid parathormone measurements taken 15 minutes after surgical adenoma removal (parathyroidectomy) showed that parathormone levels had decreased to a normal range in every patient; there was a successful treatment rate of 100%.

Intraoperative nerve monitorization was used during 82 thyroidectomy cases; no cases of recurring nerve paralysis and associated hoarseness were recorded.

50 year old M patient, right retroperitoneal mass (pheochromocytoma?, paraganglioma?)

#### Image:

Abdominal MR and CT, PET/CT: Suspected malignant lesion extending beneath the level of the right surrenal gland and the adjacent renal artery



A laparoscopic right adrenalectomy was performed on the patient.





#### MEDICAL ANNUAL REPORT 2014

### UROLOGY DEPARTMENT

In addition to minimally invasive approach our **Urology Department** uses robotic surgery extensively.

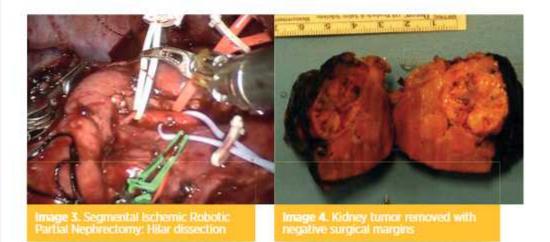
A tumor was successfully removed using the 'Segmental Ischemic Robotic Partial Nephrectomy' technique.



mage 1. Overall view of the intra-renal ight kidney tumor



Image 2, Robot positioning for Right Robotic Partial Nephrectomy

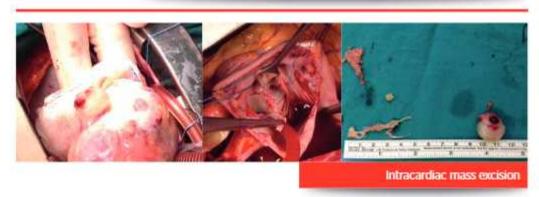


# DEPARTMENT OF CARDIOVASCULAR SURGERY

Distribution of surgical interventions carried out at the Department of Cardiovascular Surgery in 2014

Coronary By-pass Surgery	% 57,8
Valve Replacement (AVR, MVR, TVR)	% 16,8
Ascendant Aort Replacement	% 6,6
Congenital Heart Surgery	% 4,2
Mitral Valve Replacement	% 3
Carotid Artery Surgery	% 3
Robotic Heart Surgery	% 2,4





05



**EUROSCORE** 

PREDICTED MORTALITY RISK RATE

**%**9

ACTUAL MORTALITY

**%6** 

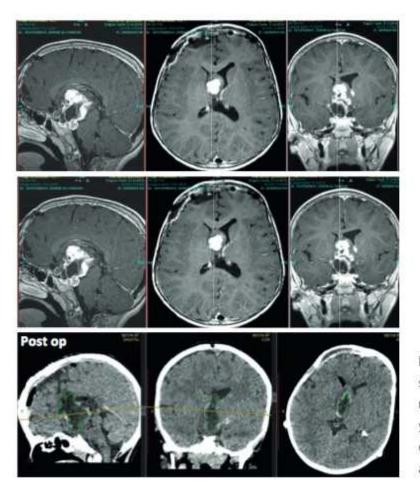


#### **BRAIN AND NEURO SURGERY DEPARTMENT**

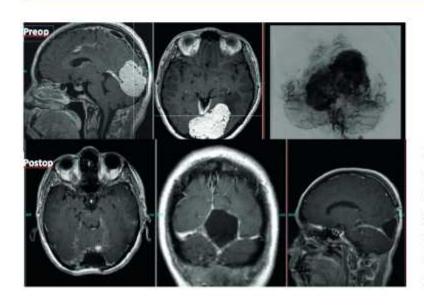
The **Brain and Neuro Surgery Clinic** saw a total of **1,162** polyclinic patients and performed 158 operations in 2014. 87 of these **158** surgical cases (55%) involved specialized surgery requiring complex surgical equipment and high degrees of experience.

There was a zero mortality rate in 2014, with 2 morbidity cases [Surgical bleeding 1 (0.6%), superficial wound infection 1 (0.6%)].

DIAGNOSIS	2013	2014	2013-2014 TOTAL
Glial tumor	8	18	26
		(of which 6 were hypothalamic gliomas)	
Menengloma	2	8	10
Metastasis	5	7	12
Hypophase and parasellar tumor	9	6	15
Vascular Malformation	1	5	6
Aneurism	1	1	2
Intraventricular mass	1	3	4
Posterior fossa / PCA mass surgery	3	8	11
Deep brain stimulation	5	2	7
Spinal tumor	5	2	7
Other complex neurosurgical Interventions	17	27	44
Total Complex Cranial and Spinal Surgical Interventions	57	87	144
General Neurosurgery (Spinal surgery, Shunt etc.)	38	71	109
TOTAL	95	158	397



Pre-op (upper level) and early stage post-op (lower level) radiologic examinations of a 7 year old female patient operated on for hypothalamic gliomas; almost total tumor resection

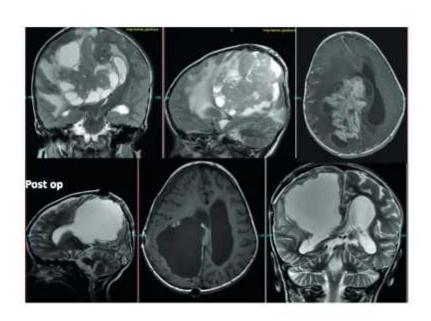


Pre-op (upper level) and post-op (lower level) MR images of a 34 year old female patient operated on for advanced vascular extra-axial mass (hemangiopericytoma); gross total tumor resection

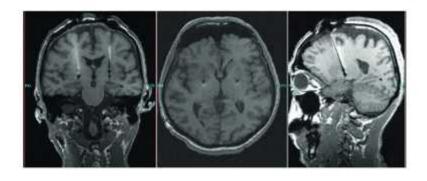


## **BRAIN AND NEURO SURGERY DEPARTMENT**

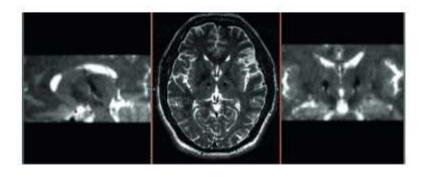
Pre-op (upper level) and post-op (lower level) MR images of a 4 year old male patient who had undergone surgery at an external center but whose mass could not be treated; gross total tumor resection



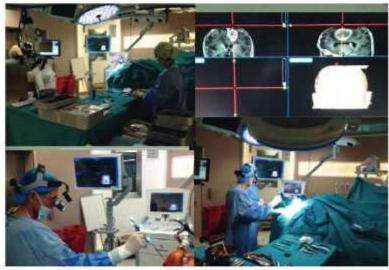
Radiologic examination of a patient with dystonia who had received a bilateral GPi DBS implant



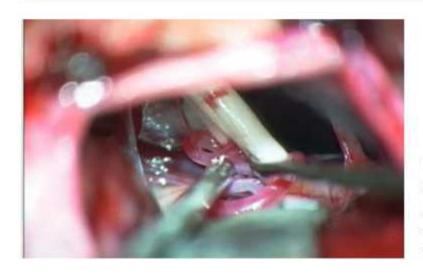
Radiologic examination of a Parkinson's patient who had received a bilateral STN DBS implant







Pre-op (upper level) and post-op (lower level) MR images of a patient diagnosed with left frontal glial mass; navigation-guided gross total tumor resection



Microvascular decompression (MVD) being used to treat left side hemifacial spasm; pons, left facial, acoustic nerve and anterior inferior cerebellar artery complex

#### CHEST SURGERY DEPARTMENT

Our **Chest Surgery Department** specializes in surgery for lung cancer and lung metastases, supported by the latest technology. Examples include robotic surgery, video thoracoscopic interventions, and Intra Operative Radiotherapy. In addition, surgery is conducted for mediastinum and chest wall tumors, chest wall deformities (shoemaker chest and pigeon chest deformities), and diaphragmatic diseases, as well as invasive diagnostic methods, endobronchial treatment, and excessive hand sweating (ETS) surgery.

#### A case of Malign Pleural Mesothelioma:

Treatment with a Left Extrapleural Pneumonectomy

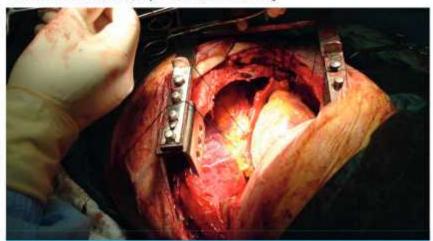


Image I: the left lung has been removed (left pneumonectormy), the pericardia (heart membrane) and left hemidiaphragm resection has been completed; the left pleural cavity, heart, the diaphragm remaining in the base of the heart, the spleen and abdominal organs are visible.



Image 2: After reconstruction of the pericardia with prolene mesh and the diaphragm with Gore-tex.

A case of diagnosed recurrent malignant fibrous histiocytoma (the patient had previously undergone surgery three times at two other centers)



Image 1: Widespread recurrent mass over an area extending over the chest wall, ribs, muscle and subcutaneous tissue to the skin itself.



Image 2: A wide chest wall resection was performed.



Image 3: The diaphragm, and the right upper and lower lobes of the lung, are visible after rib resection.



Image 4: After chest wall reconstruction using a Gore-tex patch, our plastic surgeon performed a repair using muscle-skin flap and partial thickness skin graft.



#### PEDIATRIC SURGERY DEPARTMENT

The Pediatric Surgery Department has surgically treated a total of 338 patients since our opening.

As Major Tumor Surgical Interventions, our clinic has performed surgery after Tumor Council evaluation in cases of mediastinal ganglioneuroblastoma, retroperitoneal teratoma recurrence, recurrent Wilms' Tumor – para aortic lymph node dissection and recurrence excision, malignant Type 3 sacrococcygeal teratoma, and Stage 4 Neuroblastoma, with problem-free monitorization. With a zero mortality rate, there has been no morbidity at our clinic beyond one case of resistive urinary tract infection.



With respect to Genito-urinary and Reconstructive Surgery, 2 cases of Vaginal Atresia (one stricture, the other primary), Persistent Cloaca - laparoscopically-assisted anorectal uretero vaginoplasty, 3 cases of Ureteropelvic Stenosis (one Laparoscopic) – are reported as following a normal infection-free course following annual check-up examinations. In addition, a case of epispadias repairation – repair of the neck of the bladder and the epispadias – was performed, resulting in a continent, cosmetically and functionally healthy penis.



With the Video endoscopic procedures, Laparoscopic Appendectomy (3 cases), Laparoscopic Pyloromyotomy, Laparoscopic Pyeloplasty, Laparoscopic Pyeloplasty, Laparoscopic Heller Myotomy and Nissen fundoplication, Laparoscopically- assisted Persistent Cloacal Dissection and Colon Pull-Through procedures have been performed successfully; patients have been kept under close monitorization, reporting problem-free recoveries.









#### IN 2014 OUR ENT CLINIC

PATIENTS SURGICALLY TREATED

348

OUTPATIENTS Examined

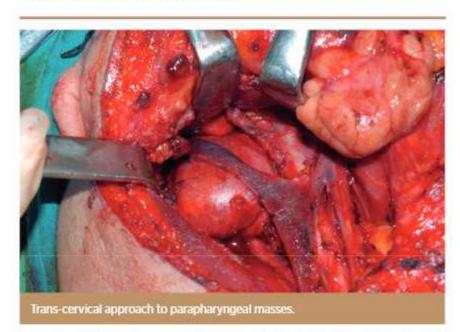
4.152

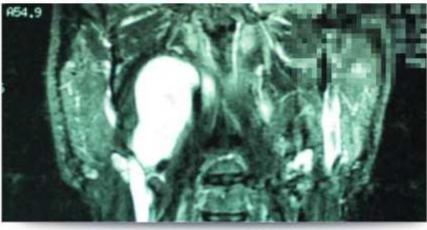
### EAR, NOSE AND THROAT (ENT) CLINIC

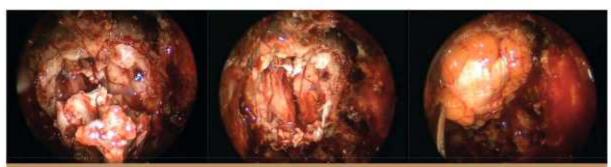
As well as carrying out basic surgical interventions to treat diseases and conditions of the ear, nose and throat, our ENT Clinic also offers specialized treatments only available at a few health institutions on the world.

Specialized operations such as navigation-guided endoscopic anterior skull base surgery, major head and neck cancer surgery and microvascular anastomosed free flap reconstructions, are carried out at the Clinic.

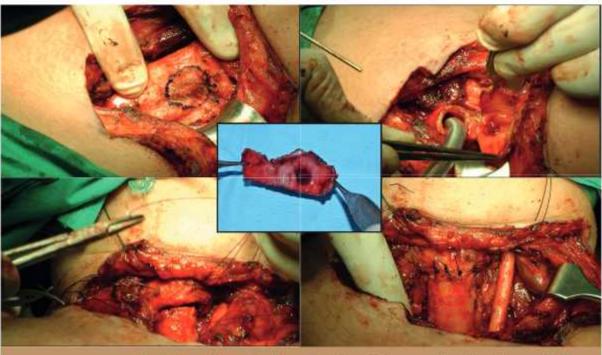
In addition, partial laryngectomy techniques and organ protection protocols implemented in cooperation with our radiation oncology clinic enable us to treat throat cancer cases without having to remove the entire larynx.







Endoscopic anterior skull base + dura resection and primary repair in a case of invasive paranasal sinus cancer to the anterior skull base.



Tracheal resection and end to end anastomosis in a case of parathyroid cancer that has infiltrated the trachea and recurred after 3 previous surgical interventions

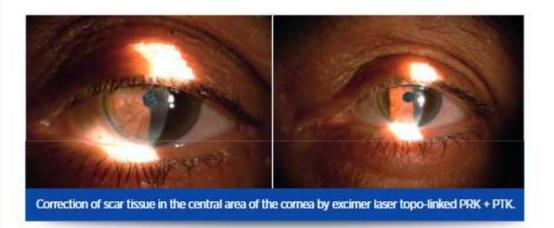


#### **OPHTALMOLOGY**

EXAMINATIONS PERFORMED
4.540

operations performed 895

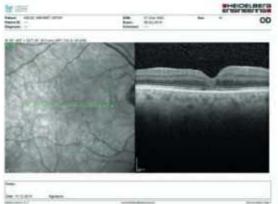






The Refractive Unit used to treat the case described above





Macula hole; closed after completion of 23 gauge pars plana vitrectomy surgery.



Vitreomacular traction in a case of high severe degree myopia, before and after 23 gauge pars plana vitrectomy surgery.

#### **ORTHOPEDY CLINIC**

IN 2014 11.035 IN 2013 5.800

> PATIENTS Examined

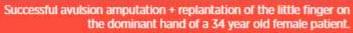
IN 2014
2.152
IN 2013
600
SURGICAL
INTERVENTIONS













A patient with Sacrum Recurrent Giant Cell Tumor was treated with hemi sacrectomy tumor resection and ilio-sacral fixation.



A patient with 105 degree angle neuromuscular scoliosis (Charcot-Marie-Tooth Disease) was treated with Posterior Instrumentation and Fusion.

### **ORTHOPEDY CLINIC**



A case of Giant Cell Tumor that had been treated; only with implementation of the new Denosumab treatment method could the tumor boundaries be calcified and the size of the tumor reduced.



Resection + prosthesis procedure

#### OBSTETRICS AND GYNECOLOGY

Major oncologic surgical interventions are carried out laparoscopically and robotically at our **Obstetrics and gynecology**.

#### Non-surgical clinical activities

#### Total number of examinations:

#### In Vitro Fertilisation Clinic Data:





#### **OBSTETRICS AND GYNECOLOGY**

After taking the cosmetic implications into account, a single-port myomectomy was carried out on a young patient with a 7 cm subserous myoma; Dr. Advincula's was used EXCITE technique to remove the myoma from the abdomen within an endobag without using a morcellator to avoid the possibility of the myoma spreading to the patient's stomach during the removal procedure (Images 11-12).





#### **BIOCHEMISTRY DEPARTMENT**

#### **Clinical Procedures**

259,818 tests were carried out at our Biochemical Department in 2014, an increase of 84.5% over 2013.

	2013 (%)	2014 (%)	IMPROVEMENT (%)
Erroneous Reporting	0	0	
Delay Rate in Normal Testing	1.01	0.06	94.0
In Emergency Testing	2.79	1.51	45.9
Pre-analytic Delay / Error Rate	1.49	1,42	4.7
Analytic Error Rate	0.08	0	100.0
Post-analytic Error Rate	0	0	5

# ENDOCRINOLOGY AND METABOLIC DISEASE CLINIC

The Endocrinology and Metabolic Disease Clinic

conducted 1,140 medical examinations and 181 consultations between January and December 2014, a total of 1,321. The figure for 2013 was 947.

14



#### **PAIN CLINIC**

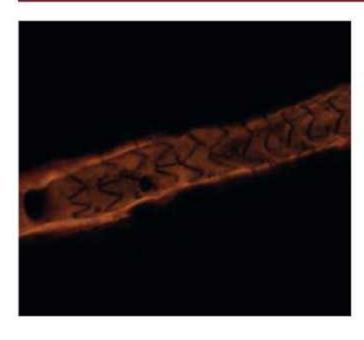
Specialized invasive procedures carried out at the Pain Clinic





### CARDIOLOGY DEPARTMENT

For the first time in Turkey, hemodynamically suspect lesions can be evaluated during angiography at our Cardiac Catheterization laboratory using integrated wireless FFR (St. Jude Medical). Advanced intra coronary imaging 3D OCT (optical coherence tomography) is employed in complex coronary interventions.



3D OCT achieves detailed intra coronary imaging and detailing of the stenting procedure.

P2Y12
inhibitors and thrombus aspiration in acute coronary syndrome



The most advanced guidance systems are used in the treatment of patients with acute coronary syndrome. The P2Y12 inhibitor entered our hospital protocols at the same time as Europe and the United States. The success of the procedure is increased with manual thrombus aspiration.

**PROCEDURES** 

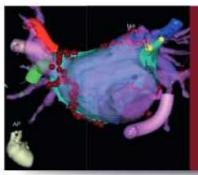
A RISE OF %100 OVER 2013

#### CARDIOLOGY DEPARTMENT

There are additional procedural and treatment advantages in deciding to employ integrated 3D optical coherence tomography and fractional flow reserve measurements in coronary angiography. These technological facilities are in 24-hour use at our Department.

- Other procedures

(intracoronary imaging, permanent pacing, electrophysiological studies - ablation, complex mapping, ICD implantation, renal denervation, peripheral interventions and percutaneous ASD closure)



Also at our cardiology laboratory,

- Pacemaker monitoring and check-ups for 200 pacemaker patients
- 44 electrophysiological studies and catheter ablations
- 48 permanent pacemaker implantations





### ECHO at the TAVI center

Detailed real-time 4D echocardiographic heart valve evaluation enables the operator to see detailed images during the course of surgical procedures or TAVI (Transcatheter Aortic Valve Implantation). Arrhythmia treatment success rates are increased by the ability of complex mapping methods to provide fine detail during electrophysiology and ablation procedures.

### 'Advanced Electrocardiography Applications' such as

Applications' such as
4-dimensional echocardiography,
subclinical cardiac dysfunction
analysis (Speckle tracking),
subclinical atherosclerosis imaging
(carotid intima-media thickness
measurement), stress
echocardiography, carotid Doppler
ultrasound, cardiac
resynchronization therapy (CRT)
for systolic dyssynchrony
assessment and CRT optimization
applications are employed.



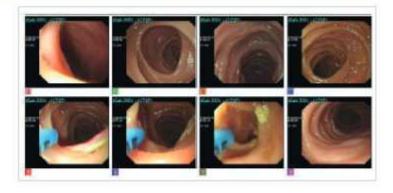
Transthoracic echocardiography applications:	%92.8
2D and 4D echocardiography	%35
2D echocardiography	%50
2D and 4D Speckle Tracking applications	%10
CRT optimization	%4
Stress echocardiography	_%1
Transesophageal echocardiography (TEE) interventions	_%2.4
2D and 4D echocardiography	%85
Contrast echocardiography	_%15
Carotid and Vertebral Artery Doppler USI	%4.8

## GASTROENTEROHEPATOLOGY DEPARTMENT

The Gastroenterohepatology Department employs Upper Gastrointestinal Endoscopy, Lower Gastrointestinal Endoscopy, Endoscopic Retrograde Cholangiopancreatography (ERCP), Endoscopic UltraSonography (EUS), Video Capsule Endoscopic Examinations and Radiofrequency Ablation, Yttrium 99 Microsphere Treatment and / or Transcatheter Arterial Chemoembolization (TACE) and Transjugular Intrahepatic Portosystemic Shunts (TIPS).



Video Capsule Endoscopy examples (ulcers, polyps and tumoral lesions in the small intestine)



Double Balloon Enteroscopy

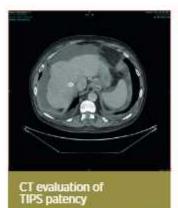
Stomach antrum tumor-related outlet obstruction (passage formed by placing an endoscopic stent)

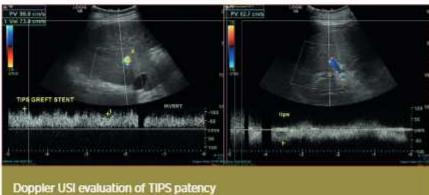






TIPS (Transjugular Intrahepatic Portosystemic Shunt) and concurrent coronary vein embolization being carried out in multidisciplinary cooperation between the gastroenterologist (hepatologist), interventional radiologist and liver surgeon, on a patient with cirrhosis of the liver with varicose bleeding that could not be brought under control using endoscopic and medical therapy.





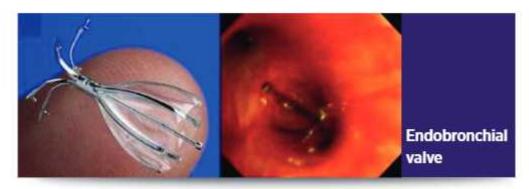




Grade 2-3 varicose esophageal bleeding viewed prior to TIPS (left); the post-TIPS image (right) shows the bleeding has been staunched.



#### CHEST DISEASE CLINIC



1.233
EXAMINATIONS
CARRIED OUT
AT OUR
CHEST CLINIC;

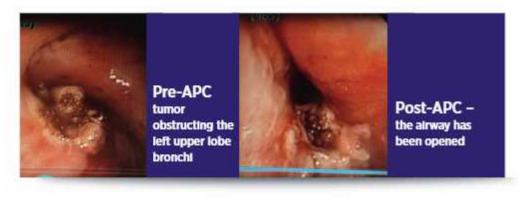
### PROCEDURES CONDUCTED

SFT: 1.280
AT: 127
BRONCHOSCOPY: 51
((10 interventional bronchoscopies - EBUS, stenting, APC, endobronchial valve))





Argo plasma coagulation applied to Tumor blocking left upper bronchus



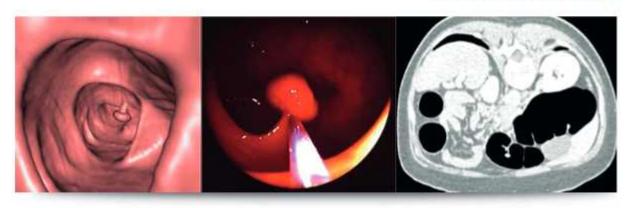
### RADIOLOGY CLINIC

## Examinations carried out at the Radiology Clinic in 2014, by examination type:

EXAMINATION TYPE	Total
Magnetic Resonance (MRI)	5.497
Computed Tomography (CT)	3,690
X-ray	13.495
Mammography	1359
USI- Color Doppler	6502
Bone Densitometry	234
Fluoroscopy	66
Interventional procedures	182
Biopsies	134
Total	34.292



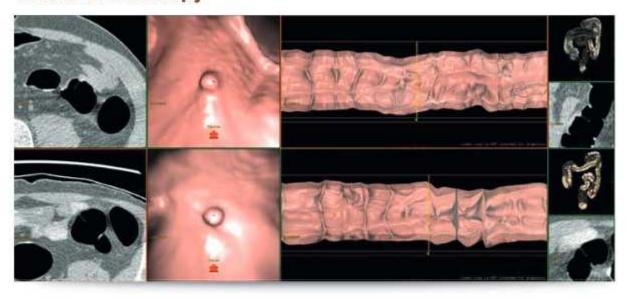
#### Virtual Colonoscopy



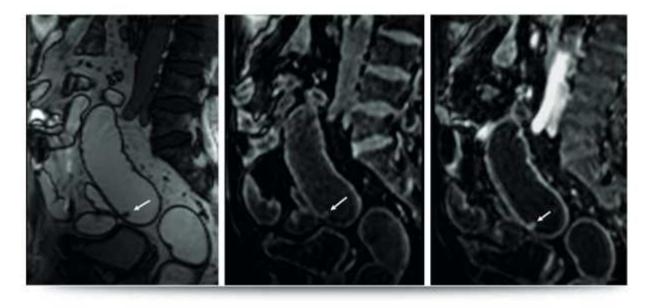


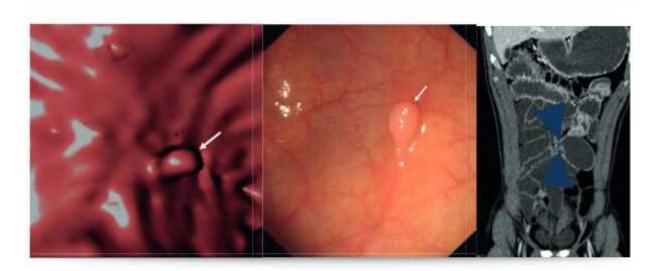
### RADIOLOGY CLINIC

#### **Virtual Colonoscopy**

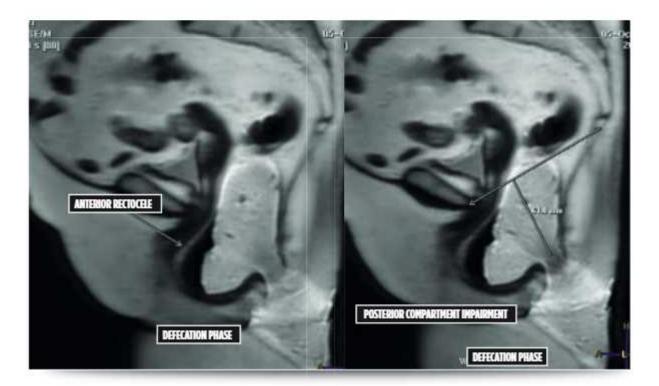


MR Colonography: the MR equipment is able to perform the same functions as CT virtual colonoscopy, without radiation.



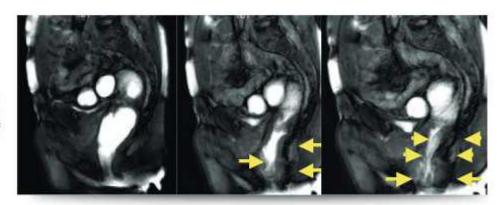


Images of polyps shown to be non-invasive by MR Colonography

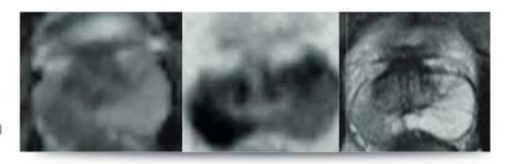


#### RADIOLOGY CLINIC

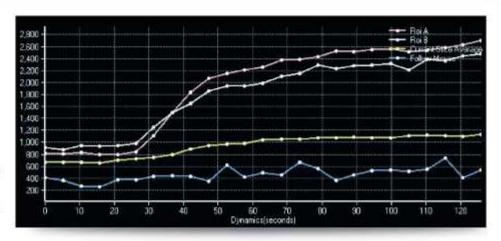
MR Defecography; achieves functional imaging in cases of anorectal disease.



MR Defecography cine-imaging of a prolapse in a rectal prolapse case.

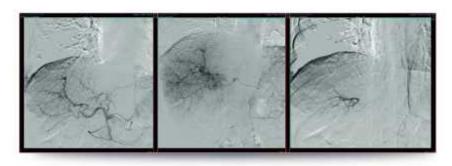


#### Multiparametric Prostate MR; a new imaging technique that incorporates diffusion, perfusion and dynamic analysis in prostate cancer cases.

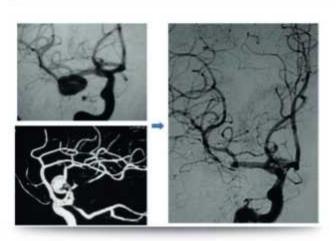




Hepatocellular Carcinoma Transarterial Chemoembolization (TACE) with embolization and local chemotherapy with a chemotherapeutic-containing particle, in a patient with Hepatitis C and alcohol-related cirrhosis of the liver



TACE - Angiography Images



Angiography images taken before (left) and after (right) placing of clips, in a case of right MCA Aneurism.

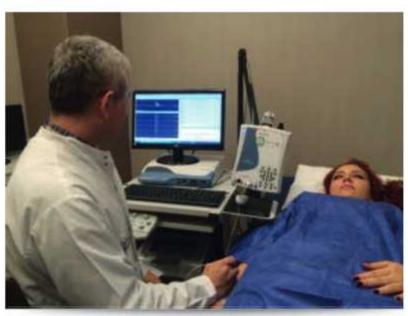


#### **NEUROLOGY CLINIC**

The **Neurology Clinic** focuses on headaches, Migraine Botox applications, peripheral nerve and muscle disorders, Botox applications in movement disorders, sleep disorders, electromyography, electroencephalography (EEG) and Video Monitoring EEG.

#### **Intraoperative Neural Monitoring**





#### PSYCHO-ONCOLOGY

All diagnosed kanser cancer (?????????) patients and those undergoing treatment are given individual therapy and group therapy support within the framework of our multidisciplinary therapy approach.

The 'Cancer Journey Support Program' was inaugurated in March 2014 and a website was created (http://www.kanserleyolculuk.com/). Both survivors, and patients still undergoing treatment, participate in this support group. Patients have the opportunity to express and talk about emotional aspects, gaining ideas and support. In addition a handbook entitles 'My Health Guide' was published, aiming to brief patients on what to expect during their treatment and the therapy services available to them; this briefing is also shared with patients during one-on-one meetings.

#### PSYCHOLOGICAL SUPPORT IN BARIATRIC SURGERY

All gastric sleeve and by-pass patients undergo lifestyle changes in which they receive pre-op and post-op awareness raising support and briefings. Weekly 'Nutrition Psychology Support Groups' were held from January to April 2014 with a view to increase the effectiveness of the surgery and support patients in maintaining new long-term nutritional habits.







### REGENERATIVE MEDICINE STEM CELL RESEARCH AND PRODUCTION CENTER

Liv MedCell consists of two separate laboratories; our Good Manufacturing Practice (GMP) lab, and our R&D lab.

Our GMP laboratory is composed of a patient assessment and regenerative medicine clinic, sterile rooms, quality control lab, a biopsy room, a minor surgical procedure room, recovery room, admissions office, and controlled access areas.

The R&D laboratory comprises molecular biology, cell culture, flow-cytometry, and immunohistochemistry laboratory units.

Fibroblasts, chondrocytes, umbilical cord mesenchymal stem cells, synovium-derived mesenchymal stem cells, and adipose tissue derived mesenchymal stem cells are produced.

Fibroblasts are employed in the treatment of chronic wounds, facial wrinkles, skin cracks, acne and burn treatments.

Chondrocytes are used in treating cartilage injuries, tendon injuries and tendonitis / tendinosis problems, joint degeneration, and sports injuries.

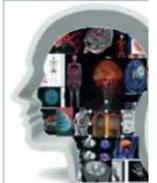
Due to the strong immune suppressive effects, Mesenchymal stem cells are utilized in the prophylaxis and treatment of acute post-allogeneic stem cell transplantation GVHD.

Cytori and stromal vascular fraction fat grafts are enriched with adipose derived stem and regenerative cells for implantation into the required part of the body.













# NUCLEAR MEDICINE AND RADIONUCLIDE THERAPY

The **Nuclear Medicine and Molecular Imaging Department** is fully equipped to carry out the most advanced diagnostic and treatment applications including 3D anatomic and functional positive emission tomography (PET/CT) evaluations; the department also has the technology and equipment to conduct state-of-the-art positive emission mammography (PEM) that obtains specific positron images and is only available in a few centers in the world. This is in addition to routine gamma imaging using gamma cameras.

Radioactive iodine therapy, **yttrium-90** microsphere therapy and samarium **153** therapy are also administered in appropriate cases.

Two specially equipped treatment rooms are available for radionuclide therapy applications; the number of patients treated in 2014 was 1,061.

#### RADIOACTIVE IODINE TREATMENT

At our hospital, Radioactive lodine (I-131) therapy is administered to remove remaining thyroid tissue after surgery for thyroid cancer, a type of cancer that develops in the cells of the thyroid gland.

#### YTTRIUM-90 MICROSPHERE THERAPY

Liver cancer patients who can't betreated surgically undergo chemotherapy and radiotherapy. In cases that do not respond to these forms of therapy, the Radioactive Microsphere method, in which radioactive material is selectively placed in the liver tumor by means of angiography. The microspheres are signposted with radioactive material known as Y-90. Healthy tissue is thus not adversely affected by radiation.

#### SAMARIUM 153 THERAPY

Samarium-153 palliative systemic therapy is used to prevent or reduce pain in patients with widespread bone metastasis. Sm-153 therapy achieves pain control in cases of analgesic and morphine-resistive pain, mostly bone metastasis cases.





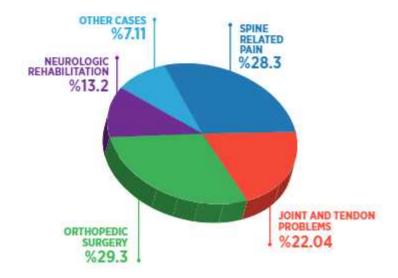




# PHYSICAL TREATMENT AND REHABILITATION CLINIC

Our **Physical Treatment and Rehabilitation Clinic** represents a branch of medicine that deals with conditions such as joint, muscle and tendon disorders, spinal problems, neurological disorders, fractures, and osteoporosis. The main objectives in physiotherapy and rehabilitation are pain relief, regaining function, and increasing the patient's capacity and skills in his or her daily activities.





# DEPARTMENT OF PEDIATRIC HEALTH AND DISEASES

Our Department examined 10.768 patients in 2014.

- · Pediatric Health and Diseases
- · Pediatric Allergies and Chest Diseases
- Pediatric Cardiology
- Pediatric Gastroenterology
- · Pediatric Endocrinology
- · Pediatric Hemato-Oncology
- Pediatric Neurology
- Child Development



Nutrition was restored by means of ultrasound accompanies attachment of a "pigtail" drain in the stomach of a premature baby boy with a trachea esophageal fistula. The boy, in the 29th week of gestation, underwent a percutaneous jejunostomy opening.



A newborn baby underwent surgery by our Cardiovascular. Surgery team after being diagnosed immediately with aortic coarctation; the baby staged a full recovery. 25

**%50** 

OF OUR NEONATAL INTENSIVE CARE UNIT CASES ARE

Treating and monitoring PREMATURE BIRTHS

under 30 week

**%10** 

**%50** 

more than 37 weeks

**%40** 

Mortality Rate:

%4

Infection Rate

**%0.5** 



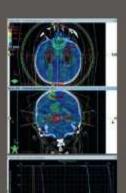
### **ONCOLOGY**





Tumor Councils 89 (for 570 patients) (Since the opening of the hospital) Colorectal Cancer \_\_\_\_\_\_\_ %27 Brain Tumors % 18 Gynecologic Cancers \_\_\_\_\_\_\_ % 10 Urologic Cancers \_\_\_\_\_\_\_ % 9 Esophagus + Stomach Cancers \_\_\_\_\_\_ % 9 Liver Cancers \_\_\_\_\_\_ % 6 GIST+Intraabdominal mass+neuroendocrine+endocrine % 5 Lung Cancers - Mediastinal Cancers \_\_\_\_\_\_ % 5 Breast Cancers \_\_\_\_\_\_ % 4 Pancreatic Cancers \_\_\_\_\_\_ % 4 Head and Neck Tumors \_\_\_\_\_\_ % 1 Bone Tumors \_\_\_ \_ % 1 Pediatric Tumors \_\_\_\_\_\_ % 1







#### RADIATION ONCOLOGY

Number of Radiotherapy Sessions	10.028
Number of Radiotherapy Patients	451
Distribution of Therapy	
- Conformal	15
- IMRT/VMAT	398
- Stereotactic	



#### INTENSIVE CARE UNIT

Our hospital provides intensive postoperative monitoring and treatment support, especially for patients who have undergone major oncological surgery (such as cytoreductive, HIPEC, IORT etc.).

51% of our patients in 2014 were admitted following elective major surgery.

Pediatric patients who are admitted after major oncological surgery are given intensive care, monitoring and treatment; all were discharged in a recovered state.



Our patients are mobilized as soon as feasible in order to prevent complications associated with long periods of being bedridden.

28







#### INTENSIVE CARE UNIT



Patient-specific councils are set up to improve the clinical outcomes of General ICU cases. Decisions reached at these Councils are discussed with the patient's family and loved ones.



The patient's loved ones are allowed to be with them as much as possible in order to give them support, even in cases of invasive mechanical ventilation and cardiovascular support (eg. Intra Aortic Balloon).



Veno-venous ECMO (extracorporeal membrane oxygenization) is administered in acute respiratory failure cases at our ICU.

### Check-Up

Total Check-Ups 3.542





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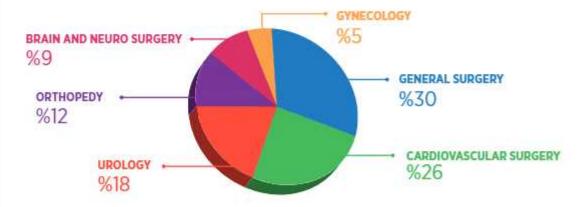


# MORTALITY AND MORBIDITY

#### I.Mortality in Geriatric Patients Undergoing Major Surgery:

Total number of patients:	252
Average age group:	71 (65-102)
General Mortality:	% 1,58
30-day Mortality:	%0,8

#### Percentage of Geriatric patients undergoing surgery distributed by departments:



#### General Intensive Care Mortality:

While the predicted mortality rate in 46 cases requiring post-op ICU care was 15.2%, the actual rate was 0%.

## II. General Mortality using APACHE II scoring:

- . While the predicted mortality risk was 18%,
- . The actual rate was 6%.

#### **Geriatric Patient Mortality**

Over the age of 65 (24%)

- . While the predicted mortality risk was 30%,
- The actual rate was 11%

Over the age of 85 (17%)

- While the predicted mortality risk was 30%,
- The actual rate was 3%

#### III. General infection rate of the patient

The basic infection rate and surgical field rate in our hospital in 2014 was below 1%. Infection rates at our hospital, in which major surgical interventions are performed, remained below international standards and target values.

# QUALITY MANAGEMENT STANDARDS: 2014 DATA

	TARGET	2014
Cerrahi Işlemler / Surgical Procedures		
Cerrahi Alan Enfeksiyon Hızı Surgical Site Infection Rate"	2.0%	0.5%
Antiblyotik ve Diğer İlaçların Kullanımı / Antiblotic and Other Hedication Use		
Cerrahi İnsizyondan Önce 1 Saat İçinde Profilaktik Antibiyotik Verilme Oranı Rate of Prophylactic Antibiotic Starting within 1 Hour Before Surgical Incision	90%	100.09
Cerrahi Profilaksi için Uygun Antibiyotik Başlanma Oranı Rate of Using Appropriate Antibiotic for Surgical Prophylaxy"	90%	99.709
Cerrahi Sonrası Belirlenen Sürede Profilaktik Antibiyotik Kesilme Oranı Rate of Stopping Prophylactic Antibiotic After Surgery in The Defined Timeframe	90%	96.2%
Risk Yönetimi / Risk Management		
Bası Yarası Gelişen Hasta Oranı Rate of Pressure Ülcer Growing Inpatients	0.0%	0.02%
Kaynak Yönetimi / Utilization Management		
Ortalama Yatış Süresi Average Lenght of Stay	2	2.1
lastaların, Allelerin ve Çalışanların Güvenliğini tehlikeye Atan Olayların Önlenmesi v Preventlon and Control of Events that Jeopardize The Safety of Patients, Familles ar		
Ameliyathanede Elektrikli Cihaz Yanığı Gelişme Oranı Rate of Electrical Device Burns in the OR	0%	0.0%
Gazlı Bez/Alet/Batın Kompres Sayım Eksiği Görülen Ameliyat Oranı Rate of Operations with Missing Gauze/Surgical Tools/Compresses	0.20%	0.0%
IV Kanūlasyon Sonrasında Tromboflebit Gelişme Oranı Rate of Thrombophylebitis Prevelance Related to IV Cannulation	0.005	0.0
Uluslararası Hasta Güvenliği Hedelleri / The International Patient Safety Goals		
Ameliyata Yanlış İndirilen Hasta Oranı	0%	0.0%



# OUR SCIENTIFIC ACTIVITIES

#### 1. Scientific and Medical Council Meetings

Regular scheduled weekly meetings are held in our hospital.

Difficult cases	42
Morbidity / mortality meetings	13
Doctors' conferences	39
Cardiology Councils	47



A Pediatric Oncology Group was set up gathering together specialists from the branches of Pediatric Surgery, Pediatric Oncology, Radiation Oncology, Nuclear Medicine, Interventional Radiology, and Pediatric Healthcare.

#### **Fellowship Programs**

10 doctors, 27 nurses and 4 technicians from 21 countries have completed Fellowship Programs.

#### Liv Hospital's Publications and University Comparisons

A number of bodies conduct world university rankings. Yet most of them share the same basic criteria in their ranking systems. These include the proportion of graduates / faculty members with Nobel or Fields Medal prizes, members in the most referenced rankings in the world, articles published in Nature and Science journals, the number of articles published in SCI and SCI-expanded journals, computed as a per-faculty member points system.

10 Turkish universities are listed in at least one of the rankings produced by a total of 8 bodies\*. The per-faculty member number of articles published by these universities ranges from 0.53 – 1.15. Liv Hospital has a total of 61 faculty members – 35 professors, 22 associate professors and 4 assistant professors, whose total number of original articles, book chapters, case papers and other publications reached 72\*\*. Representing a per faculty member rating of 1.18, Liv Hospital compares favorably with our very top ranking universities in terms of world rankings.

#### Sources

- URAP (University Ranking by Academic Performance). World rankings of 155 Turkish universities in 2014.
   www.urapcenter.org 23 December 2014.
- \*\* URAP (University Ranking by Academic Performance). Universities' total number of published pieces (SCI, SSCI, AHCI) + Number of Publications per Faculty Member (SCI, SSCI, AHCI). www.urapcenter.org/2010/2010\_10\_dtl.php

#### 1. Domestic and International Papers and Verbal Presentations, Conferences ad Panel Discussions with Liv Participation

Liv doctors participated as guest speakers or trainers and presented papers at a total of 192 domestic and international congresses, symposia and courses.

#### 2. Scientific Research and Articles with Liv Participation

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## Foreign Language and Turkish Book Editorships, Book Chapter Authorships, Book Chapter Translations

- "The History of Male-Female Sexuality and Fertility in Turkey (2nd Press)", Editors: Kendirci M., A. Kadıoğlu, E.C. Şerefoğlu, S. Çayan, International Publication of the Turkish Society of Andrology, Nobel Tip Kitabevi, ISBN: 978-975-92138-3-1, Istanbul (2014).
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- Kendirci M. and B. Altay. "The Secrets of Human Sexuality in Marifetname", in The History of Male - Female Sexuality and Fertility in Turkey (2nd Press), Nobel Medical Publications, pp245-250 (2014).
- Kadıhasanoğlu, M. and M Kendirci, "Peyronie Disease", Translator Editors: M.K. Anafarta ve M.Ö. Yaman, in "Campbell Uroloji", Güneş Publishers, Ankara, 2014.
- Zehra Çağla Karakoç, Tekin Akpolat. Infectious Diseases and Immunology –
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### LIV SYMPOSIA

## 31st January 2014

Personalized Approaches to Colorectal Cancer Cases

Number of Participants: 400

Place: Istanbul Technical University Süleyman Demirel Cultural Center



## LIV SYMPOSIA

#### Personalized Approaches to Colorectal Cancer Cases





### LIV SYMPOSIA

## 12th September 2014

#### Personalized Treatment in Breast Cancer

(In partnership with the Memorial Sloan Kettering Cancer Center)

#### **Current Surgical Approaches to Thyrold Cancer**

(In partnership with the Memorial Sloan Kettering Cancer Center)

Number of Participants: 264

Place: Liv Hospital Conference Hall



#### Personalized Treatment in Breast Cancer

(In partnership with the Memorial Sloan Kettering Cancer Center)

#### Current Surgical Approaches to Thyroid Cancer (In partnership with the Memorial Sloan Kettering Cancer Center)











#### LIV SYMPOSIA

#### 31st May 2014

Current Approaches in Vitro-retinal and Refractive Surgery

Number of Participants: 43



Current Approaches In Vitro-retinal and Refractive Surgery





#### LIV SYMPOSIA

#### 4th-6th June 2014

Middle East Cardiovascular Congress

Number of Participants: 85



### LIV SYMPOSIA

#### Middle East Cardiovascular Congress





#### 15th November 2014

Molecular Oncology In Personalized Medicine

Number of Participants: 45



#### Molecular Oncology in Personalized Medicine







#### LIV SYMPOSIA

#### 13th December 2014

ACS '14 Advanced Cardiovascular Solutions

Number of Participants: 250

Place: Bilgi University, Santral Istanbul



#### ACS '14 Advanced Cardiovascular Solutions Symposium







#### 20th December 2014

The Laboratory In Endocrinology Symposium

Number of Participants: 72



## 33

#### The Laboratory in Endocrinology Symposium











MEDICAL ANNUAL REPORT 2014

## 34

### WORKSHOPS AND OTHER MEETINGS



#### 4th January 2014

Bronchial Thermoplasty Workshop



#### 28th March 2014

Assisted Reproductive Techniques, Nursing Course



#### 21st May 2014

Marmara Spine Group Meeting



#### 27th May 2014

Personalized Approaches in Prostate and Kidney Treatment



#### 31st May 2014

Current Approaches in Vitroretinal and Refractive Surgery



#### 4th-6th June 2014

Middle East Cardiovascular Congress

#### 21st June 2014

Innovations in Orthopedics

#### 4th July 2014

Fetal Interventions and In Utero Stem Cell Transplantation and Applications Symposium

#### 16th July 2014

Perinatal Viral Infections: HSV and CMV

#### 15th November 2014

Molecular Oncology

#### 15th November 2014

T<sup>st</sup> Cancer Robotic Surgery Association of Turkey (TKRCD) Course in Robotic Surgery











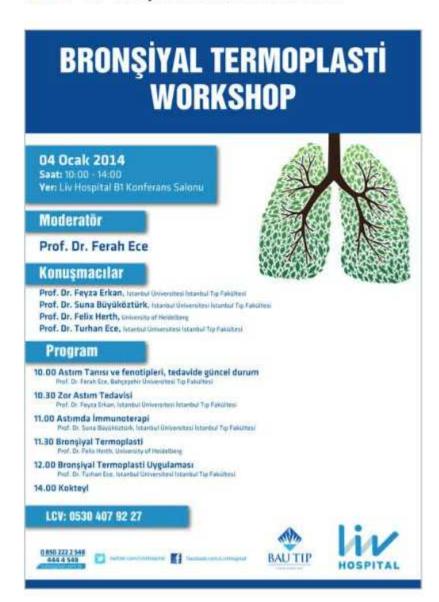


### WORKSHOPS AND OTHER MEETINGS

#### 04th January 2014

**Bronchial Thermoplasty Workshop** 

Number of Participants: 28



#### **Bronchial Thermoplasty Workshop**





### WORKSHOPS AND OTHER MEETINGS

#### 28th March 2014

Assisted Reproductive Techniques Nursing Course

Number of Participants: 89



## 34

#### **Assisted Reproductive Techniques Nursing Course**









#### 21st May 2014

Marmara Spine Group Meetings

Number of Participants: 40



## 34

#### Marmara Spine Group Meetings





#### 27th May 2014

Personalized Approaches in Prostate and Kidney Treatment

Number of Participants: 35



## 34

### Personalized Approaches in Prostate and Kidney Treatment





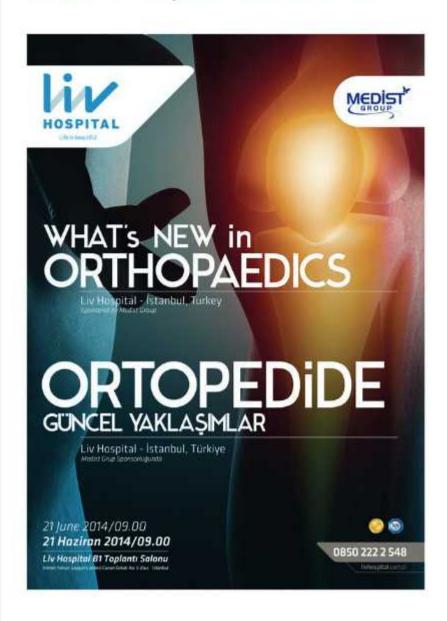


### WORKSHOPS AND OTHER MEETINGS

#### 21st June 2014

Innovations in Orthopedics

**Number of Participants: 37** 



#### **Innovations in Orthopedics**





## WORKSHOPS AND OTHER MEETINGS

#### 4th July 2014

Fetal Interventions and In Utero
Stem Cell Transplantation and Applications

Number of Participants: 20



Fetal Interventions and In Utero Stem Cell Transplantation and Applications Symposium





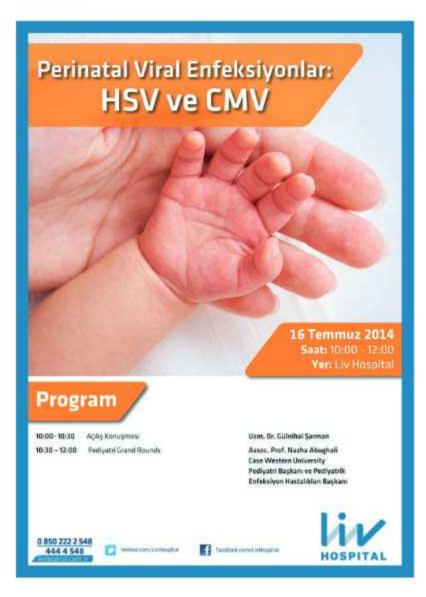


### WORKSHOPS AND OTHER MEETINGS

#### 16th July 2014

Perinatal Viral Infections: HSV and CMV

Number of Participants: 15



#### Perinatal Viral Infections: HSV and CMV





## WORKSHOPS AND OTHER MEETINGS

#### 15th December 2014

**TKRCD Robotic Surgery Course** 

Number of Participants: 50



## 34

#### **TKRCD Robotic Surgery Course**







#### MEDICAL MEETINGS ABROAD

#### 30th October - 18th November 2014

#### Mobile Clinic Field Project

7 doctors 18 provinces in 18 days 4.800 visitors 1.000 medical examinations





## 35

#### Mobile Clinic Field Project











ABROAD

35

### MEDICAL MEETINGS

#### 18th November 2014

Seminar for Colorectal Cancer and Liver Metastasis: The Multidisciplinary Approach of Liv Hospital Cancer Center

Number of Participants: 50 Place: Medi Club Hospital



GEORGIA

Seminar for Colorectal Cancer and Liver Metastasis
The Multidisiplinary Approach of Liv Hospital Cancer Center







#### 18th December 2014

Seminar for Colorectal Cancer and Liver Metastasis The Multidisiplinary Approach of Liv Hospital Cancer Center

Number of Participants: 60

Place: Capital Plaza Hotel Bucharest



ROMANIA

Seminar for Colorectal Cancer and Liver Metastasis: The Multidisciplinary Approach of Liv Hospital Cancer Center









#### 26th December 2014

Seminar for Colorectal Cancer and Liver Metastasis: The Multidisciplinary Approach of Liv Hospital Cancer Center

Number of Participants: 40

Place: State University Hospital Kosovo



KOSOVO

Seminar for Colorectal Cancer and Liver Metastasis: The Multidisciplinary Approach of Liv Hospital Cancer Center







#### 24th May 2014

Liv Hospital Conference

Robotic Era In Uro – Oncology And Contempory Approches In Neurosurgery

Number of Participants: 45

Place: Tbilisi Marriot Hotel



Liv Hospital Conference Robotic Era In Uro – Oncology And Contempory Approches In Neurosurgery









#### 30th September 2014

**Brain and Neuro Surgery Workshop** 

Number of Participants: 50 Place: Baku Marriott Hotel

