



UNIVERSITÀ  
DEGLI STUDI  
DI MILANO

**HUMANITAS**  
RESEARCH HOSPITAL

ACADEMIC YEAR 2013/2014

# INTERNATIONAL MEDICAL SCHOOL

**STUDENT GUIDE**

4<sup>TH</sup> YEAR - 1<sup>ST</sup> SEMESTER



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## 1. SYSTEM DISEASE 3

### SYSTEM DISEASE 3

#### Faculty

Malesci, Salvioli, Repici, Fumagalli, Danese, Preatoni, Carrara, Spinelli, Torzilli, Ceriani, Selmi, Invernizzi, Laghi, Omodei.

#### Tutors

Badalamenti, Brunetta, Colombo, Cucchiari, Donadon, Grassi, Lleo, Mirani, Muselli, Omodei, Vinciguerra, Zucali.

#### Credits 19

**Teaching methods:** Lectures, interdisciplinary seminar, Case Study, PBL

#### Overview of the block

This block takes the students into the study of Gastroenterology and Endocrinology. Such studies will be dealt with on a comprehensive basis, i.e. including pathology, pharmacology and imaging in relation to the diseases of the organ.

During the semester students should also attend the clinical departments in order to proceed in their clinical practice on the medical interviewing skills and the physical examination on real patients, medical record reporting supervised by clinical tutors.

#### IMPORTANTE NOTICE

**Attendance to all training labs and clinical clerkship is mandatory and shall be registered.**

#### Textbooks

- Harrison's Principles of Internal Medicine, 18<sup>th</sup> Edition, McGraw Hill, 2011
- Goldman's Cecil Medicine L. Goldman, A. I. Schafer, 24<sup>th</sup> ed., Elsevier, c2012
- Yamada, Textbook of Gastroenterology vol 2

## Exams

The exam consists in 2 parts: a practical exam OSCE (part 1) and the exam related to the block of System Disease 3.

OSCE includes a series of different "stations", each designed to test a specific clinical skill (i.e. chest auscultation, history taking, testing blood pressure etc.) Students are required to pass through each station and perform the required clinical skills. An examiner will check the student's performance.

Passing the OSCE is a prerequisite for admission to the System Disease 3 exam.

At the end of the semester ( see the date scheduled on the planning) the student have to present his/her portfolio, that will be evaluated by by the Commission for the Development of Professional Competencies.

The Portfolio must include the following materials:

- opinion expressed by the tutor responsible for the student
- presence in the department at least 75% attendance (in days)
- 3 complete medical records (each of them including history taking organized by problems, physical examination, patient care plan, treatment diary and discharge report) 1 in English

## MODULE GASTROENTEROLOGY

Coordinator Prof. Malesci

### Overview

The block addresses disorders and diseases of the gastrointestinal tract, including the liver and pancreas. The learning sessions are focused on main topics selected to cover system alterations, relevant disease profile, as well as symptom-oriented approaches to the diagnosis. By using these methodologies, the course is intended to integrate in a clinically oriented approach the functional bases of diseases, their features, and main clinical presentations. Accordingly, lectures are paralleled by PBLs, case studies, and interdisciplinary seminars, to guide the students through the cardinal symptoms and differential diagnosis of GI diseases. The learning sessions are hosted by academic or non-academic staff members with specific knowledge/expertise on the topic/field.

### GENERAL LEARNING GOALS

- Understand the anatomical and molecular bases of acid-related disorders, their natural history, presentation, diagnostic approach and rationale for their treatments.

- Define functional GI disorders, their symptoms, differential diagnosis and clinical management.
- Define liver cirrhosis, understanding how different etiologies lead to the activation of physio-pathological mechanisms. Describe the natural history, evolution and complications.
- Define and differentiate Inflammatory bowel diseases (IBD), describe their individual pathological and clinical features, together with their early and late complications. Understand how the activation of inflammatory pathways flare IBDs, and how drugs may halt disease progression.
- Define autoimmune liver diseases, understand their molecular bases, and manage differential diagnosis.
- Define acute and chronic inflammatory pancreatic diseases, understand their pathological and molecular bases, and the rationale for clinical differentiation and management. Describe early and late complications and evolution.
- Define colorectal cancer along its progression, moving from the anatomical and molecular bases of the progression of neoplastic lesions to cancer. Understand colorectal cancer as a multifactor disease, including genetics predispositions, and the rationale for screening, early diagnosis, and to clinical management
- Define pancreatic cancer as a challenging disease. Understand what is known about this disease, and how this is clinically unsatisfactory, describing the current limitations of early detections, surgical and medical management.
- Define and describe the different etiological agents of viral hepatitis, the diagnostic tests along the natural history of acute and chronic phase. Understand epidemiology, prevention, and management of viral hepatitis, and the molecular basis for their medical treatment.
- Illustrate and discuss a symptom-based approach to the diagnosis of GI diseases, moving from the followings: dysphagia, bloating, diarrhea, jaundice, gastrointestinal bleeding.

## Lecture 1. Acid related disorders

### Learning goals.

- **Peptic ulcer disease**
  - Epidemiological relevance
  - Etiology and pathogenesis with respect to physiology of acid secretion
  - Main symptoms at presentation
  - Natural history
  - Diagnostic algorithm
  - Critically illustrate the indications for H. pilory eradication
  - Describe the aims of medical treatment and most common type of drugs
- **Gastroesophageal reflux disease (GERD)**
  - Definition

- Describe hiatal hernia and its clinical relevance
  - Illustrate the epidemiological relevance.
  - Describe pathophysiological of GERD and hiatal hernia
  - Natural history
  - Diagnostic approach, with respect to the
  - endoscopy, esophageal pH-monitoring and manometry
  - Barrett esophagus, clinical relevance
  - GERD patient behavior modification
  - Main medications for GERD
- **Chest pain**
- Exploit medical history and abnormalities at physical examination/diagnostic tests to generate diagnostic hypotheses
  - To test diagnostic hypotheses, put forward questions concerning medical history, point to possible alterations at physical examination, propose and discuss algorithms of diagnostic tests
  - Diseases to take into account: GERD, esophageal cancer, chest wall pain, coronary artery disease (ischemic heart disease), aortic dissection, pericarditis, pleuritis, pneumothorax, lung cancer

## Lecture 2. Functional gastrointestinal disorders

### Learning goals

- **Dyspepsia**
- Define functional dyspepsia.
  - Illustrate the epidemiological relevance and patho-physiological hypotheses, moving from physiology of gastric emptying
  - Diagnostic approach
  - Enumerate medications, depending upon mechanism
- **Irritable bowel syndrome**
- Definition
  - Discuss the main patho-physiological hypotheses
  - Describe and be able to recognize the clinical picture
  - Discuss the main approaches to diagnosis and treatment

## Interdisciplinary seminar 1. Approach to the patient with dysphagia

### Learning goals

- **Dysphagia**
- Define and describe dysphagia, being able to discriminate functional from organic forms and underlying causes
  - Differentiate dysphagia from odynophagia

## Lecture 3. Approach to the patient with bloating

- **Constipation.**
- Describe constipation pathophysiological bases.
  - Enumerate the most frequent causes of secondary constipation and describe the features of functional constipation.

- Describe the approach and rationale for the treatment (with and without medications) of constipation.

#### Lecture 4. Inflammatory Bowel Diseases (IBDs)

##### Learning goals

- **Crohn's disease and Ulcerative Colitis**
  - Definitions
  - Epidemiology
  - Main hypotheses on pathogenesis
  - Clinical presentation: main features
  - Describe the morphological and endoscopic features discriminating between Crohn's disease and Ulcerative Colitis.
  - Discuss natural history and complications with emphasis on the features driving differential diagnosis.
  - Diagnostic algorithm
  - Enumerate the factors to assess disease severity
  - Delineate the main treatment strategies

#### Lecture 5. Inflammatory pancreatic disorders

##### Learning goals.

- Discuss the interpretation of amylases and lipases in patients with pancreatic diseases
- **Acute pancreatitis**
  - Risk factors and high-risk subjects
  - Etiology and pathogenesis
  - Describe the clinical picture
  - Local and systemic complications
  - Diagnostic algorithm and assessment of severity
  - Describe basics for treatment and employed drugs
- **Chronic pancreatitis**
  - High-risk subjects
  - Etiology and pathogenesis
  - Local and systemic complications
  - Diagnostic algorithm
  - Describe basics for treatment and employed drugs

#### Interdisciplinary seminar 2. Approach to the patient with abdominal pain.

##### Learning goals.

- **The abdominal pain**
  - Describe the patho-physiological bases of abdominal pain, its features, and differentiate somatic from visceral pain
  - Exploit medical history and abnormalities at physical examination/diagnostic tests to generate diagnostic hypotheses
  - To test diagnostic hypotheses, put forward questions concerning medical history, point to possible alterations at physical examination, propose and discuss algorithms of diagnostic tests

- Diseases to take into account: peptic ulcer disease, gastric cancer, dyspepsia, acute and chronic pancreatitis, inflammatory bowel diseases, irritable bowel disease, biliary and renal colic

## Lecture 6. Cirrhosis and its complications

### Learning goals.

- **Liver cirrhosis**
  - Enumerate the most frequent etiologies
  - Discuss the patho-physiological bases, with emphasis on portal hypertension
  - Describe the clinical, laboratory, and ultra-sound hallmarks
  - Diagnostic algorithm and severity score (Child-Pugh)
  - Diagnostic bases of the recognition of the most frequent causes
- **Ascites**
  - Definition and most frequent causes
  - Discuss patho-physiology
  - Findings at physical examination and role of exploratory paracentesis
  - Enumerate main therapeutic approaches
  - Define spontaneous bacterial peritonitis and refractory ascites
  - Define the hepato-renal syndrome, its patho-physiological bases and how it takes place
- **Hepatocellular carcinoma**
  - Describe high-risk subjects, clinical picture, approaches for early diagnosis
  - Describe treatment options
- **Liver failure and hepatic encephalopathy**
  - Describe the laboratory features of liver failure
  - Patho-physiological bases of hepatic encephalopathy
  - Delineate the mechanisms leading to hepatic encephalopathy

## Lecture 6. Alcoholic liver disease and non-alcoholic liver disease

### Learning goals.

- **Alcoholic liver disease**
  - Assess alcohol intake and its clinical implications
  - History and relevance of alcohol intake on the liver
- **Liver steatosis**
  - Enumerate the main causes of liver steatosis, and their clinical relevance
- Understand the alterations of blood tests in patients with liver diseases (blood cell count, AST/ALT, gGT, ALP, albumin, cholinesterase, bilirubin, PT, cholesterol)

## Interdisciplinary seminar 3. Approach to the patient with jaundice.

### Learning goals.

- **Juandice and cholestasis**



- Definition
- Recognize the clinical and laboratory features of cholestasis
- Classify jaundice considering the alterations of bilirubin metabolism the different pathological mechanisms of cholestasis
- Rise diagnostic hypotheses exploiting history and manifestations
- Diagnostic algorithms
- Take into account: Gilbert syndrome, drugs, increased bilirubin production, neonatal icterus, hepatocellular, pre- and post-hepatic

#### Lecture 7. Autoimmune liver disease.

##### Learning goals.

- **Primary biliary cirrhosis, primary sclerosing colangitis, and auto-immune hepatitis (CBP,CSP, and AHI)**
  - Definitions
  - Clinical and laboratory features
  - Diagnostic algorithm

#### Lecture 8. Approach to the patient with incidental abnormalities in liver chemistries

##### Learning goals.

- **Liver function test abnormalities**
  - Enumerate causes, discuss prevalence and severity, describe diagnostic algorithms to establish the etiology of the most frequent causes

#### Lecture 9. Colorectal cancer (CRC)

##### Learning goals.

- Epidemiology of CRC, inherited, familial, and sporadic
- Discuss the molecular phenotypes of gastrointestinal cancers with and without microsatellite-instability
- Polyp-cancer sequence
- Risk factor and high-risk subjects
- Discuss the strategies for secondary prevention in the general population and in patients with a personal history of colorectal adenoma
- Describe the clinical presentation, according to tumor site
- Enumerate complications and metastatic sites
- Outline the available treatment options

#### Lecture 10. Pancreatic cancer

##### Learning goals

- Risk factors and high-risk subjects
- Clinical picture
- Diagnostic algorithm and clinical staging
- Natural history of cancer of the pancreas and of the biliary tree

## Lecture 11. Acute and chronic viral hepatitis.

### Learning goals.

- Classification, epidemiology, and transmission route of the hepatitis viruses A, B, C, D, E
- Hepatitis natural history (A, B, C, D, E)
- Interpretation of the serological profile for
  - acute and healed hepatitis A
  - acute, chronic, and healed hepatitis B, and its vaccination
  - acute and healed hepatitis C
- Discuss the clinical and laboratory picture of acute, chronic and fulminant hepatitis
- Describe the pathogenesis of liver damage and the mechanisms of healing or chronic hepatitis B
- Follow-up of patients with chronic hepatitis B, C, and D, and criteria for the assessment of liver damage (biopsy)
- Illustrate the immune-prophylaxis for hepatitis A and B (before and after exposure)
- Enumerate the approaches for the treatment of chronic hepatitis B and C

### Interdisciplinary seminar 4. Approach to the patient with gastrointestinal bleeding.

- Epidemiological relevance
- Clinical presentations and assessment of severity
- Diagnostic algorithms, with emphasis on endoscopic procedures and their timing
- Describe the scintigraphy for gastrointestinal hemorrhage and its sensitivity for determining the site of bleeding

### Topics to be covered by individual study plan

#### ➤ Diarrhea

- Describe the pathophysiological bases of diarrhea
- Properly address acute and chronic diarrhea
- Properly define dysentery, intoxication, toxinfection, and infection, being able to identify the underlying etiologic agents and mechanisms
- Generate diagnostic hypotheses, based upon clinical history and alteration at objective examinations.
- To test diagnostic hypotheses, put forward questions concerning medical history, point to possible alterations at physical examination, propose and discuss algorithms of diagnostic tests
- Diseases to take into account

#### Acute diarrhea

- IBD flare-up, food intoxications, viruses, entero-toxic and -invasive bacteria, toxinfections (specifically address staphylococcal toxinfection, cholera, E. coli enteritis, salmonellosis, shigellosis, pseudomembranous colitis, giardiasis, amebiasis)

#### Chronic diarrhea

- IBDs, celiac disease, irritable bowel syndrome, chronic pancreatitis
  - Depict the main endocrine causes of diarrhea.
  - Describe the main diagnostic tests to confirm or exclude the above mentioned conditions according to the clinical picture, complications, and therapy.
- **Acute abdomen and intestinal occlusion**
- Define and recognize acute abdomen presentation, describing the most frequent causes
  - peritonitis, ileum (mechanic and non). Discuss the relationship between acute abdomen, peritonitis and ileum.
- **Achalasia**
- Diagnosis in relation to epidemiology, presentation, clinical picture and complications.
  - Pathophysiological bases.
  - Algorithm of diagnostic tests
- **Esophageal cancer**
- Risk factors
  - Clinical features
  - Natural history
  - Diagnostic algorithm
- **Gastritis**
- Histo pathology
  - Describe etiology, pathogenesis, clinical picture and outcome.
  - Diagnostic tests
- **Gastric cancer**
- Enumerate risk factors and high-risk subjects (with emphasis on HP and atrophic gastritis)
  - Clinical features, presentation and natural history
  - Diagnostic algorithm
  - Relevance of early diagnosis
  - Main prognostic factors
- **Malnutrition and malabsorption**
- Enumerate the clinical parameters to assess the nutritional status.
  - Understand the relevance of maintaining optimal nutritional status in the patient with GI diseases.
  - Enumerate the main mechanisms underlying malnutrition.
  - Define malabsorption, malabsorptive syndrome, and enteropathy.
  - Enumerate the main mechanisms underlying malabsorption.
  - Describe and be able to recognize the clinical picture of malabsorptive syndrome.
  - Classify the tests for intestinal malabsorption.

- **Celiac disease**
  - Epidemiological relevance
  - Main pathogenetic hypotheses
  - Main gastrointestinal and extra-gastrointestinal manifestations and their complications
  - Diagnostic algorithm and follow-up
  - Discuss gluten-free diet
  
- **Diverticular disease**
  - Epidemiological relevance
  - Etiology and pathogenesis
  - Clinical presentation and complications
  - Diagnostic algorithm
  - Appropriate diet for diverticulosis
  
- **Emorroids, rhagades, abscesses**
  - Define and describe etiology, pathogenesis, and clinical manifestations
  
- **Gallstones**
  - Epidemiological relevance, etiology, pathogenesis, clinical presentation and complications
  - Natural history
  - Diagnostic algorithm
  - Treatment algorithm
  
- **Carcinogenesis of the gastrointestinal tract**
  - Discuss the basics of the carcinogenesis mechanisms shared by gastrointestinal cancers
  - Risk factors for gastrointestinal cancers
  
- **Diagnostic test**
  - Explain patients the meaning and possible complications of
    - abdomen ultra-sound
    - endoscopy (gastroscopy and colonoscopy)
    - liver biopsy
  - Describe tests for the study of esophageal transit and gastric emptying
  - Indications to pursue the search for ectopic gastric mucosa
  - Interpretation of abdominal ultra-sound in patients with liver diseases

## **DIAGNOSTIC IMAGING AND NUCLEAR MEDICINE**

(modules integrated to gastroenterology) Dr. Brambilla, Dr. Poretti, Dr. Chiti

### **Learning goals:**

- Illustrate the main indications, methods of performance and contraindications of the main methods of radiological examination of the digestive system (X-ray of

the digestive system, double-contrast barium enema, enteroclysis, CT and MRI).

- Recognise the normal image of the digestive tract and the main radiographic images of the diseases of the upper digestive tract, small intestine, colon and rectum using radiological semeiotics (*consider*: neoplasms of the oesophagus, stomach and colon, ulcers, polyps, Crohn's disease, megacolon, intestinal occlusion and intestinal perforation).
- Indicate the main diagnostic questions supporting the request for a direct examination of the abdomen, an ultra sound and emergency CT.
- Systematically analyse a CT of the abdomen and recognise the main anatomic structures.
- Indicate the techniques for diagnosing occult gastrointestinal bleeding and know the indications of the relative methods of interventional radiology.
- Illustrate the main indications, methods of performance, contraindications and any adverse effects of the main diagnostic imaging methods of the liver, biliary tract and pancreas (ultra sound, CT, MRI, ERCP and EUS).
- Indicate what the most frequently found focal liver lesions are and know the broad outline of their imaging features (describe the typical behaviour of a hepatic haemangioma and an HCC on the CT).
- Interpret the result of an abdominal ultra sound for the purposes of diagnostic classification of a patient with liver disease.
- Illustrate the study methods and radiological alterations of cirrhosis and portal hypertension.
- Know the diagnostic algorithm of obstructive icterus and the procedures related to it.
- Indicate the main techniques of hepatobiliary and pancreatic interventional radiology (ERCP, PTC/PTBD, TACE, thermo-ablation, PEI and TIPS).

**PATHOLOGY (modules integrated to Gastroenterology)** Prof. Roncalli, Dr. Di Tommaso

### Learning goals

- Describe the following aspects of Esophagitis: classification, pathogenesis, clinical features, pathology (gross and microscopic features), complications
- Barrett esophagus - Describe the main cause, clinical features, pathology (gross and microscopic features), complications (dysplasia and adenocarcinoma)
- Compare and contrast squamous cell carcinoma and adenocarcinoma of the esophagus with respect to: predisposing factors, clinical features, location, pathology, prognosis
- Describe the following aspects of acute and chronic gastric: ulcers, pathogenesis, clinical features, pathology complication
- Describe the following aspects of chronic gastritis: pathogenesis (especially infectious and autoimmune), clinical features pathology (gross and microscopic features), complications (peptic ulcers, carcinoma, lymphoma-MALToma)
- Understand that neoplasms of the stomach may be benign (polyps) or malignant (carcinoma or lymphoma).
- Describe the classification of carcinoma of the stomach based on: depth of invasion (most important), early gastric carcinoma, advanced gastric carcinoma, macroscopic growth pattern histologic subtype

- Describe the following aspects of carcinoma of the stomach: epidemiology, especially areas of high and low prevalence; pathogenesis, particularly the role of chronic gastritis and *Helicobacter pylori* infection; clinical features; pathology metastases; prognosis - five-year survival rate of early gastric cancer ; five-year survival rate of advanced gastric cancer
- Discuss the following aspects of lymphoma of the stomach: the term MALToma; proposed role of *H pylori*; genetic abnormalities, especially t(11;18) and trisomy 3
- Describe the main features of neuroendocrine tumors and Gastro-Intestinal Stromal Tumor (GIST)
- Illustrate the two forms of idiopathic inflammatory bowel disease (IBD).
- Compare and contrast Crohn disease and ulcerative colitis with respect to: clinical features and extra-intestinal manifestations; pathogenesis; pathology (gross and microscopic features); complications (especially adenocarcinoma preceded by dysplasia)
- Illustrate the aspects of ischemic bowel disease
- Adenomatous polyps of the colon: Definition and classification of intestinal tumors (small intestine and colon)
- Compare adenomatous polyps and hyperplastic polyps with respect to pathology Describe the adenomatous polyp-cancer sequence and the features associated with risk of malignancy, eg, polyp size, histologic architecture and severity of epithelial dysplasia.
- Illustrate the main molecular alterations of colorectal carcinogenesis.
- Describe the classification of the hereditary syndromes involving the GI tract and the syndromes associated with an increased risk of cancer (Peutz-Jeghers syndrome, familial adenomatous polyposis, and hereditary non-polyposis colorectal carcinoma)
- Describe the epidemiology of colon cancer.
- Compare the pathology (gross and microscopic features) and clinical features of right-sided colonic adenocarcinoma and left-sided colorectal adenocarcinoma.
- Describe the relationship between prognosis and the various stages of cancer of the colon and rectum
- Describe the relative frequency, epidemiology and tendency to form a carrier/chronic state of infection with: Hepatitis A virus (HAV) ; Hepatitis B virus (HBV); Hepatitis C virus (HCV); Delta virus (HDV)
- Discuss the role of the immune response in causing acute liver damage in viral hepatitis.
- Describe the pathology of chronic hepatitis and its evolution to cirrhosis.
- List and discuss multiple causes, other than viral infections, of chronic hepatitis, including biliary forms.
- Indicate and discuss the liver biopsy in chronic liver disease, including biliary forms.
- Discuss the significance of grading, staging and of the related scoring systems in chronic liver diseases
- Compare and contrast the clinical-pathological features of non-alcoholic fatty liver (NAFL) and non-alcoholic steatohepatitis (NASH) with alcoholic liver disease and hepatitis C infection.
- Illustrate the epidemiology, pathogenesis, pathology and clinical consequences of the most common liver tumors: benign (cavernous hemangioma, focal

nodular hyperplasia and adenoma) and malignant (hepatocellular carcinoma and cholangiocarcinoma).

- Indicate the liver biopsy in focal liver lesion
- Illustrate the cirrhosis-dysplasia-HCC sequence
- List the causes and clinical consequences of chronic pancreatitis
- Explain how the development of chronic pancreatitis is related to multiple bouts of acute pancreatitis.
- Describe the pathology, clinical features and complications of chronic pancreatitis, including pseudocyst
- Describe the pathology, pathogenesis, and clinical consequences of pancreatic adenocarcinoma formation.

### **Pharmacology (integrated to Gastroenterology)**

#### **Learning goals**

- Describe neurohormonal control of gastric acid secretion and the gastric mucosa protective factors
- Outline the pathophysiology of peptic ulcer disease
- Describe the neurohormonal control of GI motility
- Illustrate the drugs used in the therapy of peptic ulcer disease and GERD
- Outline prokinetic agents, drugs for constipation, anti-diarrheal and anti-emetic drugs

## **MODULE ENDOCRINOLOGY**

**Coordinator Prof. Lania**

### **Guest Lecturers**

Prof. Paolo Beck Peccoz (Universita' di Milano)

Dr. Vincenzo Rochira (Università di Modena)

### **Overview**

The endocrinology course is designed to allow the students to develop the skills needed to diagnose patients with various endocrine problems. The students will also learn to identify the typical and atypical features of endocrine disorders, their presentation, clinical course and expected outcome. The students will also improve their ability to interpret endocrine tests.

Students' evaluation will be assessed through one multiple choice examination and a final oral examination. Only students who pass the written exam are eligible for the oral session. The final score will be assigned on the basis of the final oral examination only. The threshold score of each of these multiple choice tests is 75% or better. Students will take both the oral and written exam in a single session. During the oral exam, the students will be challenged to apply the concepts acquired during the course on physiological or clinical problems.

### **Topics**

**Hypothalamus & Pituitary Gland: hypothalamus and pituitary axes; hypopituitarism**

### **Learning goals**

- Describe anterior pituitary hormones action and regulation
- Describe the conditions of hypopituitarism: aetiology, clinical features and diagnostic testing

### **Pituitary gland: pituitary adenomas, Diabetes Insipidus, SIADH**

#### **Learning goals**

- Describe the diseases affecting the posterior pituitary (Diabetes insipidus and SIADH) :clinical features, aetiology and diagnostic testing
- Knowledge of epidemiology of pituitary adenoma
- Describe the clinical features common to pituitary adenomas
- Identify the major clinical manifestations and diagnostic testing related to acromegaly, nonfunctioning pituitary adenomas, prolactin-secreting adenomas, Cushing disease

### **The Thyroid Gland: Diagnostic Evaluation of Patients with Thyroid Disorders, hypo-hyperthyroidism**

#### **Learning goals**

- Describe thyroid hormones action and regulation
- Describe the conditions of hypo and hyperthyroidism: aetiology, clinical features and diagnostic testing

### **The Thyroid Gland: goiter, nodules and thyroid cancer**

#### **Learning goals**

- Describe the conditions of goiter: aetiology, clinical features and diagnostic testing
- Describe the conditions of thyroid nodules and thyroid cancer: aetiology, clinical features, diagnostic testing and follow up

### **Glucocorticoids & Adrenal Androgens**

#### **Learning goals**

- Describe adrenal hormones action and regulation
- Describe the conditions of hypercortisolism: aetiology, clinical features and diagnostic testing
- Describe the conditions of hypoadrenalism: aetiology, clinical features and diagnostic testing

### **Endocrine Hypertension**

#### **Learning goals**

- Identify the main causes of endocrine hypertension: pheochromocytoma, hyperaldosteronism

### **Female Reproductive Endocrinology & Infertility**

#### **Learning goals**

- Describe ovarian hormones action and regulation
- Describe the conditions of hypogonadism: aetiology, clinical features and diagnostic testing



- Describe the conditions of hirsutism: definition, aetiology, clinical testing and

### **Male Reproductive Endocrinology**

#### **Learning goals**

- Describe testicular hormones action and regulation
- Describe the conditions of hypogonadism: aetiology, clinical features, diagnostic testing and follow up
- Describe the condition of gynecomastia: aetiology and diagnostic testing

### **Hormones and Disorders of Mineral Metabolism**

#### **Learning goals**

- Describe PTH and vitamin D action and regulation
- Describe the conditions of hyperparathyroidism: aetiology, clinical features, diagnostic testing and follow up
- Describe the condition of hypoparathyroidism: aetiology and diagnostic testing
- Describe the conditions of secondary osteoporosis

### **Multiple Endocrine Neoplasia**

#### **Learning goals**

- Describe the conditions MEN1: genetics, clinical features, diagnostic testing and follow up
- Describe the conditions MEN2: genetics, clinical features, diagnostic testing and follow up
- Recall of other MEN: Carney complex, McCune-Albright Syndrome

### **Diabetes**

#### **Learning goals**

- Recall of glucose homeostasis regulation
- Describe the conditions of diabetes mellitus: genetics, clinical features, diagnostic testing, complications and follow up

### **DIAGNOSTIC IMAGING AND NUCLEAR MEDICINE**

(modules integrated to endocrinology) Dr. Brambilla, Dr. Poretti, Prof., Del Sole

#### **Learning goals**

- Discuss the applications of CT and MRI in the study of diseases of the adrenal glands.

### **PHARMACOLOGY (modules integrated to Endocrinology)**

#### **Pharmacology of Diabetes**

#### **Learning goals**

- Outline the major features of insulin secretion, metabolism, mechanism of action and physiological effects
- Briefly define diabetes
- Illustrate the goals of the pharmacological treatment of diabetes
- Describe the different insulin preparations used in the treatment of diabetes
- Describe the mechanisms of action, pharmacological effects, pharmacokinetics and adverse effects of the various groups of hypoglycemic drugs
- Explore new pharmacological approaches to the treatment of diabetes

### **Glucocorticoids**

#### **Learning goals**

- Outline the major features of glucocorticoid synthesis, mechanism of action and physiological effects
- Describe the mechanisms of action involved in the anti-inflammatory and immunosuppressive effects of glucocorticoid drugs
- Describe the pharmacokinetics of glucocorticoids drugs
- Define the therapeutical indications of glucocorticoids
- Discuss the adverse effects associated with the clinical use of glucocorticoids

### **Estrogens, Progestins and treatments for Thyroid Diseases**

#### **Learning goals**

- Describe the mechanism of action and the physiological and pharmacological effects of estrogens and progestins
- Describe the adverse effects and contraindications of estrogens and progestins
- Illustrate the current strategies for the use of estrogens and progestins in oral contraceptives and in hormone replacement therapy in menopause
- Describe the pharmacology and clinical use of selective estrogen receptor modulators (SERMs)
- Describe the pharmacological treatments for thyroid diseases

## 2. DERMATOLOGY

### DERMATOLOGY

#### Faculty

Monti, Motta

#### Credits 3

Teaching methods: Lectures

#### Overview

The Dermatology course will introduce students to dermatology and patients with skin disease. It will enable students to diagnose common skin conditions and understand the principles of management of these patients. The course will cover the pathogenesis of the main skin conditions and the main therapies to use including topical preparations, systemic drugs, photodynamic therapy and surgical options.

The course will provide a practical section in the out-patient setting including dermatological surgical and diagnostic instrumental training ( dermatoscopy and video-dermoscopy) and a e-book containing the full content of the lessons.

#### General Learning Outcomes

- To acquire an understanding of the scientific basis of dermatology.
- To relate knowledge of skin structure to the physical signs of skin disease.
- To take a coherent dermatological history and be able to describe cutaneous physical signs using
- appropriate terminology.
- To recognise common skin diseases
- To recognise important cutaneous signs of systemic disease or adverse reactions to drugs.
- To understand the principles of dermatological treatment.

The course is designed in 3 blocks. The first block will focus on the physiology, biology, biochemistry, functions of the skin and mechanisms that trigger skin pathologies. The second block will address the most common dermatological pathologies that a physician will face in his practice. The third block will skill students on the clinics by visiting ambulatories where patient problems are focused.

#### EXAM

Students' evaluation will be assessed through an oral session in which the students will be challenged to apply the concepts acquired during the course on physiological or clinical problems.

**Lecture n1- Introduction to Dermatology: anatomy and functional areas**

**Learning goals:**

- Recall the general concept of skin anatomy, functional areas.
- Describe anatomic organization of horny layer.
- Define the concept of skin immunology.

**Lecture n2- Skin Biochemistry**

**Learning goals:**

- Explain the desquamation process and differentiation of keratinocytes.
- Describe the lipid formation process.
- Define the concept of barrier function.
- Describe the pigmentation process and cells involved

**Lecture n3- Physiology of the skin**

**Learning goals:**

- Describe the main functions of the skin.
- Explain barrier function
- Explain termoregulation process
- Describe immunesurveillance system
- Define the concept of photo dermatology
- Describe how to dress a chronic wound
- Explain the principles of wound healing

**Lecture n4- Regenerative Wound Healing**

**Learning goals:**

- Describe how to dress a chronic wound
- Explain the principles of wound healing
- Define the concept of photo dermatology
- Apply photo dermatology knowledge to wound healing

**Lecture n5- Skin care**

**Learning goals:**

- Describe how to maintain the skin healthy
- Define preventive measures not to develop skin problems
- Explain complementary suggestions to get the most out of a therapy

**Lecture n6- Topical Therapy Principles**

**Learning goals:**

- Define the vehicles of topical preparations
- Describe functional properties of the most common active principles.
- Associate the right vehicle to each cutaneous pathology.
- Define positive and interactions between drugs and skin

**Lecture n7- Skin Infectious Diseases – parasitic and mycotic**

**Learning goals:**

- Describe parasitic and mycotic skin diseases
- Recognize and describe lesions from clinical cases

- Understand the principles of systemic and topical therapy

### **Lecture n8- Skin Infectious Diseases – bacterial and viral**

#### **Learning goals:**

- Describe bacterial and viral diseases
- Recognize and describe lesions from clinical cases
- Understand the principles of systemic and topical therapy

### **Lecture n9 – Skin Allergic Diseases**

#### **Learning goals:**

- Describe skin allergic diseases
- Define the differential diagnostic criteria
- Recognize and describe lesions from clinical cases
- Understand the principles of systemic and topical therapy

### **Lecture n10– Skin Inflammatory Diseases**

#### **Learning goals:**

- Describe skin inflammatory diseases
- Define the differential diagnostic criteria
- Recognize and describe lesions from clinical cases
- Understand the principles of systemic and topical therapy

### **Lecture n11 – Skin Reactive Diseases**

#### **Learning goals:**

- Describe skin reactive diseases
- Define the differential diagnostic criteria
- Recognize and describe lesions from clinical cases
- Understand the principles of systemic and topical therapy

### **Lecture n12 - OncoDermatology**

#### **Learning goals:**

- Recall the mains from oncological diseases affecting the skin
- Describe skin tumor prevention
- Recognize and describe lesions from clinical cases
- Explain the main treatment therapies

### 3. HEAD& NECK

#### HEAD& NECK

##### Faculty

Carassi, Cerri, Dellavia, Felisati, Lodi, Rossetti, Sardella, Pipolo

##### Year / Semester

4<sup>th</sup> Year/1<sup>st</sup> Semester

Credits:8

##### Overview

This course will provide the students with the main information regarding the diseases and the disorders that the physician should know in a district so important such as head and neck. In order to accomplish this goal the course integrates different disciplines including basic disciplines, i.e. Anatomy and Physiology and the main clinical disciplines relative to this complex area, i.e. Dentistry, Ear-Nose and Throat (ENT) and Ophthalmology. Of course this area is so large that can't be treated extensively. Two main criteria were adopted in the selection of the topic covered: the *prevalence* of the condition, and the *severity* of the condition, in other words what a physician can't ignore. The course focuses on the basic and clinical aspects of the Head and Neck and on a number clinical sessions.

The course is designed in 8 blocks each one presenting a main topic, i.e. a symptom related to H&N district. Taking the symptom as starting point, groups of lectures will be devoted to disclose the possible mechanisms originating the symptom driving the student in the differential diagnosis through a multidisciplinary integrated analysis of the different organs and systems of head and neck. In this light, basic sciences will provide fundamentals to understand functions and pathologies of the H&N district. Anatomy will address the regional organization and the description of deep spaces of the human head and neck, by approaching the anatomical structures starting from a clinical problem. The systematic study of the skull from previous anatomy course will be integrated with a topographic approach in relation to clinical practice. Physiology will address the sensory innervation of the oral-facial region and the principal oral somatic motor functions, including neural control of mimic muscles, mastication, the speech-articulatory process and the neurophysiological basis of ocular movements. Basic science lectures will be preparatory, in each block, to the clinical science lectures. In particular Dentistry lectures aims to provide students with a comprehensive understanding of the common oral diseases, with attention towards their prevention and treatment. Furthermore, attention will also be paid towards patients requiring interdisciplinary therapy in order to teach how physicians effectively interface with other specialties and disciplines in the care of patients. Students will attend practical/clinical

sessions at the Dental Clinic, having the chance to visit patients requiring urgent dental treatments and patients referred to the oral medicine service. ENT lectures will focus on the different disorders in the ENT districts. Special attention will be given to the clinical presentation and consequences of non-treatment and diagnostic means will be thoroughly discussed. The main aim will be to provide the students with the tools to conduct basic anamnesis (implementing this with a simulated patient) and ENT physical examination to succeed in differential diagnosis. Formal lectures, focusing on a disorder, will be integrated with practical demonstrations of examination techniques and “hands on” for the students. Furthermore the lectures will highlight those diseases that overlap with the neighbouring disciplines (e.g. odontogenic sinusitis) and discuss shared therapeutic options. Lectures of Ophthalmology will provide a good background of knowledge about eye and vision related disorders. More weight will be given to epidemiologically relevant diseases across different age groups. A part focused on acute vision disorders and emergency will complete the course.

Overall, the course will encourage a multidisciplinary approach and try to integrate, whenever possible, all the features shared by the different specialties.

Suggested readings and other educational material will be provided by the teaching staff.

Teachers are willing to meet students (please, contact them by e-mail).

### **Textbook**

Kanski Clinical Ophthalmology (Elsevier)

Probst, Grevers, Iro. Basic Otorhinolaryngology: a Step by Step Learning Guide (Thieme 2006)

Peter Lockart Oral Medicine and Medically Complex Patients Wiley and Blackwell, 2013

### **Exams**

The final assessment -an oral examination done by each teacher - is scheduled at the end of the course. Final mark will be the mean among the five modules.

## **INTRODUCTION TO THE COURSE**

### **Lecture 0: (all teachers) *Problems and symptoms in the Head and Neck patient***

**(2h)**The first lecture will cover an introductory session about the “head and neck” topic: it will be shared by the different specialists and will introduce the common aspects of the four areas.

What do you ask the patient with:

- Pain in the head and neck area,
- Nasal obstruction, epistaxis
- Otorrhea, deafness, auricular fullness
- Neck and facial masses
- Movement Disorders: Facial Palsy, Dysphonia, Dysphagia, Dyspnea, Ocular motion disorders
- Vertigo
- Gingival bleeding

Two cases with questions answered by a simulated patient

## TOPIC I. Pain in the head and neck area

### Lecture 1A: *Headache related to disorders of the masticatory apparatus*

#### - **Anamnesis and diagnostic process of headache**

Learning goals Clinical features: to recognize different types of secondary headache and to localize the correlated pain in the facial framework.

Anatomical features: to describe the boundaries of the temporal, nose, lips, chin and cheek regions.

#### - **Overlapping of symptoms between acoustic and masticatory apparatus**

Learning goals Clinical features: To identify acoustic symptoms associated with articular and muscular temporomandibular disorders and to differentiate them from manifestations of otitis media.

Anatomical features: To describe the masticatory muscles, the temporomandibular joint and the tympanic cavity.

#### - **Trigeminal neuralgia**

Learning goals Clinical features: to recognize the idiopathic form of trigeminal neuralgia and to differentiate it from those forms caused by disorders within the territories innervated by trigeminal nerve.

Anatomical features: to describe course and function of the trigeminal nerve fibers.

#### - **Occlusal-related pain**

Learning goals Clinical features: to identify the most frequent pathologies of dental and periodontal tissues having a pain irradiation in the temporal and pre-auricular areas and to understand the principles of dental occlusion.

Anatomical features: To describe alveolar processes, teeth and dental occlusion.

### Lecture 2Ph: *Neural substrates of the oro-facial pain*

#### - **Oro-facial sensory innervations: sensory perception in mouth**

Learning goals To describe the receptive fields, the functional and adaptation properties of mechano-thermal receptors in the oro-facial region, and the proprioceptive innervation of the oro-facial district; to describe the integrative system underlying taste and texture perception;

#### - **Oro-facial sensory innervations: pain perception in mouth**

Learning goals To describe the neural substrates of the oro-facial pain; central pathways of the trigeminal system: from touch to pain perception; to define the psycho-physical laws of sensory perception in oro-facial region.

#### - **Oro-facial sensory innervations: Teeth innervation**

Learning goals To describe the functional and adaptation properties of the dentinal, pulpal and periodontal receptors.

#### - **Oro-facial sensory innervations: autonomic sensory innervation of mouth**

Learning goals To describe the vegetative afferents from oro-facial region.

#### - **Oral-facial pain.**

Learning goals To describe chronic oral pain not related to tooth and gum diseases (i.e, persistent idiopathic facial pain, burning mouth syndrome, oral cancer related pain).



**Lecture 3D:** *The patient with headache – its relations with oral disease*

**Learning goals:** to define distribution in the population, risk factors and clinical presentations of the most common oral conditions (caries, periodontal diseases and their complications).

**Practical session**

**Lecture 4Oph:** *The red eye*

**Prerequisites:** Anatomy of the anterior segment of the eye. Anatomy of trigeminal innervation (face and eye). Physiology of aqueous humor dynamics. Differential diagnosis with structures causing pain in the periorbital region.

**Learning goals:** to learn the different inflammatory conditions of the eye, their differential diagnosis, management and treatment will be the aim of this lecture. Particular weight is given to differentiate the conditions that require emergency and prompt management from those that may need delayed examination by a specialist.

Clinical cases of anterior uveitis, keratitis, conjunctivitis and acute attack of glaucoma will be shown and discussed.

**TOPIC II: Nasal obstruction, epistaxis**

**Lecture 5A,Ph:** *Nose and paranasal sinuses*

**Learning goals:** to observe and recognize the position and main anatomical characteristics of the paranasal air sinuses and their spatial relationships with the nasal cavity, the orbit and the oral cavity including the alveolar processes; to describe the physiological and the clinical access to the maxillary sinus; to depict the main features of the nasal and paranasal mucosa with the correspondent vascular and nervous supply.

**Learning goals:** to understand the physiological processes occurring in the nasal cavity: the role of the nasal mucosa, of the blood vessels and of the paranasal sinuses in respiratory, immune, sensory and phonatory functions

**Lecture 6ENT:** *The patient with nasal obstruction and/or nasal discharge*

**Learning goals:** To recognize the different features and symptoms related to nasal obstruction and discharge and to differentiate benign from malignant disease. To get an overview of therapeutic options and to appreciate the diagnostic tools for evaluation.

**The patient with headache – its relations with nasal disease**

**Learning goals:** To recognize the different features and symptoms related to headache and to be able to ask the right questions for a preliminary differentiation between sino-nasal headache and other causes.

**Practical session\***

- Examination of the nose
- Fiberoptic examination of the rhinopharynx and of the adenoids

**Lecture n7ENT, Oph, D : *Complications of oro-sinusal disease. What do we share with the ophthalmologist and dentist?***

**Learning goals:** Being able to identify the features of complications of sino-nasal disease that overlap with the neighbouring structures and to recognize the primary source of the disorders. To identify the gravity of each shared complication and detect those cases that need immediate interdisciplinary attention.

**TOPIC III: Movement Disorders: Facial Palsy, Dysphonia, Dysphagia, Dyspnea, Ocular motion disorders**

**Lecture 8A: *Peripheral Facial Palsy***

**- Anamnesis and diagnostic process of facial palsy**

**Learning goals** Clinical features: to describe the most frequent signs and symptoms of peripheral facial palsy.

Anatomical features: to describe the territories supplied by facial nerve (lacrimar apparatus, tongue, mimic muscles and platysma, salivatory glands).

**- Etiology of facial palsy**

**Learning goals** Clinical features: identify different types of peripheral facial palsy (Bell's palsy, neoplastic infective and vascular forms) and to explain how to orient the diagnosis using instrumental evaluations.

Anatomical features: To describe the intracranial course of the facial nerve (facial canal) and the course of all nerve branches. To depict limits and content the pterygopalatine and the infratemporal fossae and of the submandibular space.

**- Altered salivation and facial expressions**

**Learning goals** Clinical features: to learn the link between xerostomia and changes in the mimicry.

Anatomical features: To describe the extracranial course of the facial nerve and its anastomosis with other cranial nerves (trigeminal and glossopharyngeal). To depict limits and content of the parotid space, and to learn the organization of para- and retropharyngeal spaces.

**Lecture 9A *Oro-pharyngeal Dysphagia***

**- Anamnesis and diagnostic process of Oro-pharyngeal Dysphagia**

**Learning goals** Clinical features: to describe the most important clinical and etiological features of this condition and to differentiate it from esophageal dysphagia.

Anatomical features: to describe the phases of swallowing.

**- Oral phase of swallowing**

**Learning goals:** Clinical features: to understand the normal mechanism of bolus formation, lip closure and tongue position in the adult swallowing and to identify atypical deglutition.

Anatomical features: to describe all muscular, nervous and visceral structures involved in the oral phase of swallowing including the tongue and the soft palate.

**- Pharyngeal phase of swallowing**

**Learning goals:** Clinical features: to understand the subdivision between air and bolus compartments in the pharynx.

Anatomical features: to describe the structure and architecture of the pharynx with nerves and vessels supply. To identify the Eustachian tube and to understand its role during swallowing. To learn the location and clinical significance of Waldeyer's lymphatic ring.

**Lecture 10Ph:     *Neural control of Face expression, Masticatory function and Swallowing***

- **Neural control of facial expressions.**

Learning goals: to describe motor control of mimic muscles

- **Neural control of mastication.**

Learning goals: to describe the main reflexes acting on temporo mandibular joint fed by mechanoreceptors, nociceptors and proprioceptors; to define the resting posture of the jaw; to describe the phases of mastication and their pattern of muscular activation; to describe the neural control of mastication: integration by brain stem cranial nerve nuclei of reflex inputs and commands from other central nervous system nuclei; to define the different mechanisms controlling the voluntary bite vs chewing;

- **Neural control of swallowing.**

Learning goals: to describe the neural control of swallowing. Describe the mechanisms of salivary production and its autonomic control.

**Lecture 11A:     *Voice disorders***

- **Production of the voice**

Learning goals Clinical features: to describe the different steps of phono-articulatory process and the clinical consequences of each step disturbance.

Anatomical features: To describe the structure and architecture of the larynx.

- **Voice reduction correlated with laryngeal muscles disturbance**

Learning goals: Clinical features: to understand possible causes altering the vibration of vocal cords.

Anatomical features: To define the laryngeal vessels and nerves supply. To learn the course of vagus nerve in the neck fascial compartments, and to explain its functional importance. To depict the position of the trachea, thyroid cartilage, larynx, thyroid and parathyroid glands in relation to the supra-hyoid and infra-hyoid muscles. To describe the carotid arteries system, the internal jugular vein, the functions of the deep and superficial cervical veins within the anterior triangle of the neck.

**Lecture 12Ph:     *Neural control of laryngeal functions***

- **The phono-articulatory process**

Learning goals: to describe neuromuscular control of voice/sounds emission: whispering, speaking, singing; to describe the control exerted by the acoustic inputs on the laryngeal function; to describe the control exerted by the somatosensory inputs on the laryngeal function; to describe the control exerted by the acoustic inputs on speech articulation;

- **Neural control of laryngeal functions**

Learning goals: to overview of the different laryngeal functions.

**Lecture 13ENT:     *The adult patient with dysphonia, dysphagia and/or dyspnea***

Learning goals: to recognize the different ENT-diseases related to dysphonia, dysphagia and/or dyspnoea. To get to know the diagnostic tools for evaluation and

basic therapeutic options. To differentiate between acute and life-endangering and more benign courses.

**Practical session \***

- Examination of the mouth and oropharynx
- Fiberoptic examination of the pharynx
- Examination of the larynx with indirect laryngoscopy
- Fiberoptic examination of the larynx

**Lecture 14ENT:    *The adult patient with dysphonia, dysphagia and/or dyspnea***

**Learning goals:** to recognize the different ENT-diseases related to dysphonia, dysphagia and/or dyspnoea. To get to know the diagnostic tools for evaluation and basic therapeutic options. To differentiate between acute and life-endangering and more benign courses.

**Lecture 15Ph:    *The neurophysiological basis of gaze control.***

**Learning goals:** to describe the extra-ocular muscles and their innervation and to learn the morphofunctional bases of the eye movement; to define the two main mechanisms of gaze control: the mechanisms for gaze stabilization and the mechanisms for gaze shifting; to describe the gaze stabilization mechanisms: the vestibulo-ocular system and the optokinetic system; to describe the gaze shifting mechanisms: the saccadic system and the smooth pursuit system; to describe the Vergence movements and the Hering's law of equal innervations.

**Lecture 16Oph:    *Abnormal eye movements.***

- ***More common causes of diplopia: eye, visual system and neurologic disorders.***

**Learning goals:** to understand the different mechanisms leading to disorders of the eye movements and diplopia. Differential diagnosis criteria and examples of clinical cases will be explained.

**TOPIC IV: FROM IMPAIRED FUNCTION TO LOSS OF FUNCTION: deafness, BLINDNESS**

**Lecture 17Oph:    *The correct process of vision***

**Prerequisites:** Anatomy of the eye. Physiology of the mechanism of vision. The lens and the mechanism of accommodation and convergence.

- ***The role of ocular media and their physiopathology.***

**Learning goals:** this lecture focuses on how the process of vision is carried out and what is needed in order to correctly visualize the images. Refraction, cornea disorders and cataracts and how they can affect the correct process of vision will be described providing theoretical and practical explanations with clinical cases.

***Practical session (1 hour):***

- assessment of visual acuity
- slit lamp examination

**Lecture 18Oph: *The blind eye.***

- the more common conditions leading to complete blindness

**Learning goals:** Vascular disorders, e.g. retinal arterial and vein occlusions, diabetic retinopathy, ischemic optic neuropathy, cerebral ischemia involving the visual pathways and neuritis and tumors will be described. Criteria for differential diagnosis will be discussed together with clinical examples. In particular the growing importance of the imaging of the eye and specifically of the retina and the optic nerve head will be shown and explained. These will be compared with the "traditional" examination of eye fundus.

***Practical session:***

- o Examination of the fundus oculi

**Lecture 19ENT: *The patient that does not hear***

**Learning goals:** To understand the acute and chronic causes for hearing deficits and being able to detect causes that need immediate diagnostic and therapeutic attention

***Practical session \****

- o Examination of the ear (otoscopy)
- o Audiometry and impedenzometry

**TOPIC V: Neck and facial masses****Lecture 20ENT: *The patient with facial-/ cervical masses***

**Learning goals:** To identify the most common causes for swelling/masses in the region. To recognize the signs for suspicion of malignant disease. To get an overview of therapeutic options and to appreciate the diagnostic tools for evaluation.

***Practical session \****

- o Examination of the neck

**Lecture 21D: *The strange case of miss Milesi***

**Learning goals:** to define risk factors, clinical presentations, diagnostic path and treatment of mouth cancer and potentially malignant oral mucosal disorders.

***Practical session (2h)\*\******Lecture 22Oph: *Orbital pathology: a multidisciplinary approach***

**Learning goals:** this lecture focuses on more common orbital pathologies that can affect the eye and visual system. Grave's disease, optic nerve tumors, pseudotumor, and orbital cellulitis will be the main topics. A multidisciplinary approach involving other specialists of the orbit (otorhinolaryngologist, maxillofacial surgeon, endocrinologist) is considered for both diagnostic and medical/surgical management.

## TOPIC VI. Vertigo

**Lecture 23Ph:** *The neurophysiological basis of postural control.*

Learning goals: to recall the mechanism controlling posture.

**Lecture 24ENT:** *The patient with instability/ vertigo*

Learning goals: To be able to ask the right questions for a preliminary differentiation between peripheral vertigo, instability of the elderly and central vertigo

**Practical session \***

- o Bed side examination of vestibular function

## TOPIC VII. AGE LONG: PREGNANCY, GROWING AND AGEING

**Lecture 25ENT:** *To recognize the difference in handling a pediatric patient: The child*

Learning goals: To appreciate the most common causes for pediatric ENT consultations and get an overview of therapeutic options.

Open questions

**Lecture 26Oph:** *The visual system in the child*

Learning goals: this lecture focuses on the main steps of the development of the visual system from the eye to the brain. Particular weight will be given to amblyopia, strabismus and to what a pediatrician needs to know about correct development of "the good sight". Differential criteria of leucocoria and tumors of the eye and affecting vision will be also covered.

**Lecture 27Oph:** *The aging eye*

Learning goals: this lecture focuses on the chronic disorders of the aging eye. Epidemiologically relevant conditions like glaucoma and macular degeneration are the most important potential causes of blindness in the developed countries. New treatment paradigms are proposed, yet their increasing costs are challenging our Health Care Systems: what the doctors need to know to improve a rationale management.

**Lecture 28D:** *Oral health issues of interest for the physician*

Learning goals: to present the most common mouth-related problems that a physician have to face: they include prevention for the pregnant woman, the newborn and the child; oral side effects of drugs; periodontology and general health; oral infections, abscess and their progression.

**Practical session**

## TOPIC VIII. distrectual expressions of systemic diseases and emergency

**Lecture 29Oph:** *What is a real emergency*

Learning goals: the most common reasons of eye and vision conditions leading to emergency care will be discussed. Particular weight will be given to what the general practitioner must know and can do and when a specialist is required. Practical examples of the “real life” emergency room activities dealing with eye and vision disorders will be provided, and algorithms of correct management discussed.

**Lecture 30D:**      *Clinical cases discussion: oral manifestation of systemic diseases*

Learning goals: to describe how the mouth can be part of the general assessment of patients affected by conditions of different nature, including malignancies, infections, autoimmune diseases, hematological disorders.

## 4. FACULTY

**ANTONIO CARRASSI** ([antonio.carrassi@unimi.it](mailto:antonio.carrassi@unimi.it)) is graduated in Medicine and Dentistry and specialized in “Dentistry and Stomatology” and in “Surgical Pathology and Lab. Techniques”. He completed his post-doctoral education at the University College of London –Dept. of Anatomy-Laboratories of electron microscopy. Consultant in Oral Surgery and Stomatology at the S. Paolo Hospital in Milan he was appointed Professor and Chair of “Dentistry” at the Faculty of Medicine and Surgery-University of Bologna. Finally, he moved at the University of Milan-Faculty of Medicine and Surgery in the position of Full Professor of Oral Diseases and Chief of the Unit of Odontostomatology II Hsp: S. Paolo-Milan. Antonio Carrassi published more than 200 papers in the international literature and lectured on invitation in Europe, Arabia, Canada, USA Russia. Antonio Carrassi is past president of the following International Societies: European Association for Dental Education, Italian Society of Periodontology, European Academy of Oral Medicine. He served as President of the Dental School of the University of Milan and is actually the President pro-tempore of the Directive Committee of the Medical Faculty at the same University.

**GIORGIO BRAMBILLA** MD, Head, Radiology and Diagnostic Imaging Department, Istituto Clinico Humanitas

**GABRIELLA CERRI**, ([gabriella.cerri@unimi.it](mailto:gabriella.cerri@unimi.it)) MD, PhD. Assistant Professor of Human Physiology. Ten-year experience teaching in medical school both to medical students and interns. Dr Cerri’s main research interest is the cortical control of hand movements in humans. The experience matured in the Department of Human Physiology of UniMi on human motor control and in the Institute of Neurology, UCL London, on non-human primates (the best animal model for the human sensori-motor system controlling the hand) resulted in dr Cerri’s present research effort, aimed at understanding the crucial role exerted by the corticospinal tract in controlling skilled hand movements. The main present activity in her laboratory, which includes different experimental approaches such as recordings of spinal reflexes, Transcranial Magnetic Stimulation, neuroimaging, high resolution recording systems in pre-surgical and intra-operative monitoring during neurosurgery, is devoted to describing the functional properties of the neural circuits linking the different cortical areas involved in human motor control and to improve the knowledge of the cortical control exerted by the corticospinal tract on the spinal machinery necessary to perform highly skilled movements.

**GIANPAOLO CORNALBA** ([gianpaolo.cornalba@unimi.it](mailto:gianpaolo.cornalba@unimi.it)) MD PhD, Full Professor of Radiology, University of Milan

**CLAUDIA DELLAVIA** ([claudia.dellavia@unimi.it](mailto:claudia.dellavia@unimi.it)) born in 1975 (DDS, University of Milan, Italy, 1999; PhD in Morphologic Sciences, University of Milan, 2003) is Assistant professor of Human Anatomy at the Medical, Dental and Obstetrics School of Milan University. Research activity at the Dept of Biomedical, Dental and Surgical Sciences: 1) gross and functional anatomy of the stomatognathic apparatus (analysis of mandibular and neck muscles; 3D reconstructions of jaw



movements; craniofacial morphology), 2) microscopy of dental and periodontal tissues, 3) epidemiologic evaluation of oral diseases. She authored over 70 international publications and she has scientific collaborations with the International University of Catalogna (Barcelona, Spain), the University of Witwatersrand (Johannesburg, South Africa), the Laboratory of Imaging and Microscopy (Horgen, Switzerland), the Khartoum University (Sudan) and the Michigan University (Ann Arbor, US).

**LUCA DI TOMMASO** ([luca.di\\_tommaso@humanitas.it](mailto:luca.di_tommaso@humanitas.it)) MD. Adjunct Professor of Pathology, University of Milan, in charge of cytology and breast, thyroid and thymic pathology at the Istituto Clinico Humanitas since 2003. His main field of interest is liver pathology with emphasis on the detection of early cancerous conditions using tissue biomarkers. He collaborates with several international peer-review journals. He is author of 51 original articles in national and international journals indexed in PubMed with an h-index of 11 (ISI Web of Science Thomson Reuters).

**DIEGO FORNASARI** ([diego.fornasari@unimi.it](mailto:diego.fornasari@unimi.it)) MD, PhD in Pharmacology & Toxicology; Post-doctoral fellow at Yale University, New Haven CT, Department of Internal Medicine (1990-1992); Researcher at the National Research Council (CNR), Centre of Molecular and Cellular Pharmacology (1993-1999); Assistant Professor of Pharmacology at University of Milan (1999-2005). Associate Professor of Pharmacology at University of Milan and associate member of the Institute of Neuroscience, CNR. Main scientific interests: I) Pharmacology and neurobiology of the Autonomic Nervous System with emphasis on the transcription factors that control its development and regulate the expression of receptors, ion channels and transporters. II) Pharmacological approaches to genetic diseases of the autonomic nervous system due to mutations of transcription factors (CCHS Congenital Central Hypoventilation Syndrome, Hirshsprung disease, neuroblastoma) III) Pharmacogenetics applied to cancer, Parkinson's disease and pain therapies IV) Pharmacology and pharmacogenetics of CYP450 with emphasis on CYP2D6.

**GIOVANNI FELISATI** ([giovanni.felisati@unimi.it](mailto:giovanni.felisati@unimi.it)) born in 1956 (MD, University of Milan, Italy, 1981; speciality in Otorhinolaryngology, University of Milan, 1984; speciality in Audiology, University of Milan, 1987) is Associate Professor of Otorhinolaryngology at the Medical and Dental School of Milan University. Chairman of Head and Neck Department San Paolo Hospital of Milan, vice-Head of the Department of Health Sciences University of Milan. Principal research topics: microsurgical anatomy of the temporal bone, of the ethmoid and of the skull base, physiology and pathophysiology of hearing function, physiology and pathophysiology of balance, cervical pathology, Oncologic and reconstructive surgery, endoscopic sinus surgery and its extension to the skull base, craniofacial pain, multidisciplinary treatment of oral surgery complications, paediatric otorhinolaryngology. He authored over 250 scientific publications.

**ANDREA LANIA** ([andrea.lania@unimi.it](mailto:andrea.lania@unimi.it)) MD, PhD in Endocrinology. Assistant Professor of Endocrinology since 2005. He teaches medical students and postgraduate medical students. The research activity of Dr. Lania is mainly focused on the pathogenesis of endocrine tumors (mainly pituitary and neuroendocrine tumors) and the mechanisms involved in determining the sensitivity of these tumors to medical treatment. He is author of more than 100 papers (h-

index 24 ISI Web of Science Thomson Reuters; mean IF 4.02) and he is member of the Editorial Board of The Journal of Clinical Endocrinology and Metabolism and the Journal of Endocrinological Investigation

**LUIGI LAGHI** ([luigi.laghi@humanitas.it](mailto:luigi.laghi@humanitas.it)) MD, PhD; Specialties, Internal Medicine, Gastroenterology and Digestive Endoscopy. Post-doctoral fellow, UM and UCSD, 1994-1997; Clinician-scientist, Dept of Gastroenterology, ICH, 1998-present. Tutorship and mentorship of students of the separate track at ICH, 2005-present. Main field of interest: 1. molecular pathogenesis of inherited and sporadic colorectal cancers; 2. molecular genetic of pancreatic cancer; 3. prognostic and predictive factors in colorectal cancer; 4. immune reaction to colorectal cancer; 5. epithelial to mesenchymal transition and metastasis in colorectal and pancreatic cancer.

**GIOVANNI LODI** ([giovanni.lodi@unimi.it](mailto:giovanni.lodi@unimi.it)) qualified in Dentistry at the Università degli Studi di Milano in 1991. From 1991 to 1994 he attended the oral medicine clinic of the dental school of the same university. In 1994 he started a post-graduate course at the Department of Oral Medicine of the Eastman Dental Institute-UCL. His Doctor of Philosophy (PhD), was awarded in 1998, discussing a thesis on "Oral and dental aspects of hepatitis C virus infection". Since 1998 Giovanni Lodi works for the oral medicine and pathology of the AO San Paolo (Milan), Università degli Studi di Milano and in 2002 he was appointed "ricercatore" of the Faculty of Medicine and Dentistry of the same university. He was Secretary of the European Association of Oral Medicine between 2002 and 2006, visiting professor at the Dental School of the Universidade de São Paulo – Brazil (2007). In 2012 he was awarded, first in Italy, of the Diploma of Oral Medicine della European Association of Oral Medicine. He has published more than 100 scholarly works in the field of oral medicine, evidence based dentistry and special needs. He is currently researcher at the Università degli Studi di Milano (2001-); honorary lecturer of the Department of Oral Medicine - Eastman Dental Institute-UCL London (2000-); member of the Steering Committee of the World Workshop on Oral Medicine; editor in chief of Dental Cadmos, the most widely read Italian dental journal.

**ALBERTO MALESCI** ([alberto.malesci@unimi.it](mailto:alberto.malesci@unimi.it)) obtained his Medical Degree at the University of Milan in 1975, and qualified for the Board in Gastroenterology (1979) and in Internal Medicine (1986). He has been a teacher at the University of Milan since 1980 as an Assistant Professor of Internal Medicine (up to 2001), Associate Professor of Internal Medicine (2002-2005), Associate Professor of Gastroenterology (2006-2011), and Full Professor of Gastroenterology (2012-present). Since 1996, Professor Malesci has been affiliated to the Humanitas Research Hospital, where he currently holds the position of Head of the Department of Gastroenterology. Current fields of interest of Professor Malesci's research activity include molecular genetics in colorectal and pancreatic cancer, pathophysiology of inflammatory bowel disease, and therapeutic endoscopy. Prof. Malesci is the author of 162 papers indexed in PubMed with a h-index of 36.

**MICHELA MATTEOLI** ([michela.matteoli@unimi.it](mailto:michela.matteoli@unimi.it)) Full Professor in Pharmacology, University of Milano; degree in Biological Sciences and PhD in Neuroscience, University of Pisa; EMBO postdoctoral fellow, Yale School of Medicine; Visiting Scientist, University of Virginia School of Medicine, Department of Neuroscience; Head of Pharmacology and Brain Pathology *Lab* at the Humanitas Clinical and

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