





# **Zagazig Faculty of Medicine Research Plan (2019-2021)**



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## Introduction

Egypt is currently facing highly dynamic economic, social and political changes that need to be met by the Egyptian universities. This necessitates the faculties to prepare a research plan that complies with these changes. This directs Zagazig Faculty of Medicine to formulate a research plan that supports and invests in scientific research to aid in the development of the national economy.

Zagazig University is one of the largest Universities in Egypt. It has been established in 1974. Faculty of Medicine, Zagazig University (FMZU) provides mainly El Sharkia population with health care and health care providers. FMZU health care extends also, to the surrounding Governorates, the Arabian Gulf Area and other countries (Africa-Malaysia-Syria).

Faculty of Medicine, Zagazig University owns 9 hospitals that contain 2174 beds. The faculty contains 35 departments; 27 Clinical with 8 Academic departments. The faculty awards 81 Postgraduate programs. There are 43 Master degree Programs degrees and 38 Doctorate degrees program. There were 2712 Master degrees and 617 Doctorate degrees awarded from 2014/2015 till 2018/2019. Scientific research is an integral part of the mission of the Faculty of Medicine

When developing the research plan for the Faculty of Medicine, Zagazig University, it took into consideration that it conforms to the available challenges and opportunities in a way that supports researchers and research programs. Zagazig Faculty of Medicine research plan for years 2019-2021 comes in line with the Egyptian scientific Research vision 2020/2030 and the university directions towards scientific research for the years 2019/2024.



## Methodology

**1-** This plan is the product of the effort of the Quality assurance unit in collaboration with Postgraduate Studies and Research section during 2018/2019 academic year.

**2- A team has been formed to prepare a draft of the faculty scientific research plan over the next three years as follows:**

Prof. Dr. Khaled Biomy- Vice Dean for Scientific Research and postgraduate studies

Prof. Dr. Marwa Abass- Quality Assurance Unit Manager

Prof. Dr. Madiha Wasef- Director of the University Strategic Planning unit

Dr. Eman Asker- QA Scientific Research Coordinator

Dr. Dalia Madkour- QA Scientific Research Coordinator

Scientific Departments Heads and Postgraduate Studies Committee members, by positions

**3- Study of the Egyptian Vision for scientific research 2020/2030 and the university scientific research directions 2019/2024.** Studying the university's scientific research plan to ensure compatibility between the university's research plan and the faculty. As well as the development paths proposed by the Ministry of Higher Education.

**4- Collection and discussion of the department research proposals**

From April till September 2018 several meetings were conducted to prepare the departments research proposals. The first meeting was held between the Vice Dean for Scientific Research and postgraduate studies



and quality coordinators from all departments during which scientific research criterion was explained and how to prepare a plan. Several meetings were held between the departments' heads and the Vice Dean for Scientific Research and postgraduate studies, QA manager and Director of the University Strategic Planning unit and QA scientific research coordinators to revise the proposals and formulate major research points of the faculty.

- 5- Preparation of the first draft of the research plan. Formulating a preliminary proposal for the research based on the department proposals  
The plan was approved by the postgraduate studies committee on March 2019
- 6- Studying the preliminary draft according the university's research plan and the development paths proposed by the Ministry of Higher Education.
- 7- Final approval of the final version of the plan after confirming matching between the research plan and the university plan by the department council no. (553) on 18/5/2019



# Zagazig Faculty of Medicine Research Plan For years 2019 - 2021

## Part I

### Vision and Targets of the Research Plan

#### PHASES OF THE PLAN

- ✚ **PHASE ONE: 2019-2020 [INITIATION]**
- ✚ **PHASE TWO: 2020-2021[SUSTAINABILITY]**
- ✚ **PHASE THREE: 2021-2022 [CONSOLIDATION]**
- ✚ **PHASE FOUR: 2022[EVALUATION-NEXT DECADE PLAN]**

#### TARGETS

1- Disease mapping of Sharkia Governorate. This target aims to conduct Epidemiologic research studies about the topmost important health problems in sharkia Governorate according to the following percentage of distribution:

Phase one 50% of research plan,

Phase two 30% of research plan,

Phase three 20% of research plan.

2- Applied research for current health problems with topmost priority. This target aims to conduct research studies about risk factors, etiopathogenesis, and



diagnostic and treatment modalities according to the following percentage of distribution:

Phase one 30% of research plan,

Phase two 50% of research plan,

Phase three 60% of research plan

3- Recognizing & moving into new research areas & technologies (20% of research plan in the 3 phases). This target adds flexibility to the research plan and keeps us on the track for recent advances in medical research (molecular biology-related research as an example)

### **Major research points:**

- 1- Stem cell, Molecular biology and their applications.
- 2- Nanoparticles and its applications
- 3- Common health problems
- 4- Tumors
- 5- Allergic and immunological disorders
- 6- Chemicals and drugs
- 7- Pollution
- 8- Genetic and developmental disorders
- 9- Reproductive and pregnancy related disorders
- 10- Imaging and interventional techniques in diagnosis and treatment
- 11- Nutritional disorders and obesity
- 12- New era and advanced techniques in medicine



## Part II

### Zagazig Faculty of Medicine Departments Research Plans For years 2019 – 2021

#### First: Internal Medicine Department

##### **(1) Hematology Unit:**

- 1- Anemias and bone marrow failure syndromes
- 2- Bleeding tendencies and hypercoagulable state
- 3- Hematology malignancy  
(epidemiology, pathogenesis, prognostic factors and risk stratifications, management survival and long term morbidities)

##### **(2) Endocrinology Unit :**

- 1- Thyroid Disorders: (goiter, thyroiditis and thyroid in pregnancy) Pathogenesis and risk factors and Genetic studies.
- 2- Diabetes Mellitus(pre diabetes and diabetic complications)
- 3- Obesity & related morbidities  
(epidemiology, screening and early prediction, novel markers and future management)

##### **(3) Nephrology Unit:**

1. Acute renal injuries
2. Chronic kidney disease
3. Renal replacement therapy (conservative, dialysis and transplantation)
4. Renal affection in other diseases (hypertension,T2DM and SLE)  
(epidemiology, screening and early prediction, pathogenesis,novel markers and future management)

##### **(4) GIT unit :**

###### ❖ **Gastrointestinal sector**

1. Colorectal cancer
2. Gastric cancer



3. Pancreatic cancer
4. Gut Microbiota in health and disease.

❖ **Hepatology sector**

1. NAFLD
2. HCC
3. Liver fibrosis

(screening for early detection and preventive strategies, novel markers and future therapies)

**(5) ICU unit :**

1. Gastroenterology & Hepatology emergency
2. Endocrinal emergency
3. Renal emergency
4. Respiratory emergency  
(pathogenesis, screening , novel markers and management)

**(6) Immunology unit :**

1. Vasculitis
2. Connective tissue diseases
3. Transplantation
4. Plasma exchange pheresis
5. Autoimmune disorders
6. Immunodeficiency diseases  
(Risk factors, prevalence, markers, mono& polyclonal antibodies, pathogenesis and management)

**(7) Geriatric unit :**

1. Parameters of geriatrics & gerontology
2. Successful aging
3. Outcome of the aging process  
(Risk factors, prevalence, pathogenesis and management)

**(8) Infectious diseases unit:**

1. Infectious diseases affecting gastrointestinal tract, liver, renal system and reticuloendothelial system.
2. Common infections in DM  
(Risk factors, prevalence, pathogenesis and management)



## **Second: Chest department**

1. Chest ICU
2. Interventional
3. Sleep
4. Infection
5. Allergy
6. Renal diseases related to pulmonary diseases
7. Viral hepatitis and chest diseases
8. Obesity and maturation
9. pollution
10. Stem cell

## **Third : Pediatric Department**

- |                              |                            |
|------------------------------|----------------------------|
| 1. Obesity                   | 2. Aneamia                 |
| 3. Cancer                    | 4. Hcv                     |
| 5. Hcv                       | 6. Addiction               |
| 7. Addiction                 | 8. Genetics                |
| 9. Genetics                  | 10.Stem cell               |
| 11.Stem cell                 | 12.Nanotechnology          |
| 13.Nanotechnology            | 14.Renal disease           |
| 15.Renal disease             | 16.Diabetes mellitus       |
| 17.Chest infection           | 18.Neonatal jaundice       |
| 19.Psychiatric disorder      | 20.Neonatal screening test |
| 21.N.sepsis                  | 22.N.respiratory distress  |
| 23.N.asphyxia                | 24.Thalassemia             |
| 25. Immunity disorder        | 26. Diabetes insibidus     |
| 27. Bronchial ashma          | 28. Heart faliture         |
| 29. CNS infection            | 30.Nutrition disorder      |
| 31. Intestinal infection     | 32. convulsion             |
| 33. Rheumatic disorder       | 34.Sepsis                  |
| 35. Congenital heart disease | 36.G.I.T.disorder          |
| 37.Pul. HPN                  | 38.Brain death             |



### **Fourth: Tropical Medicine Department**

1. Viral hepatitis (HBV & HCV) and its complications:  
Liver cirrhosis.  
Liver failure.  
Esophageal varices.  
Liver cancer.
2. Common infectious and parasitic diseases like new types of flu.
3. Shistosomiasis and complications.
4. Filariasis and complications.
5. Biliary and pancreatic diseases.
6. GIT motility disorders.
  - a) Prevalence and incidence.
  - b) Etiopathogenesis, diagnostic and treatment modalities.
  - c) Molecular biology studies and genetic based disease studies.
  - d) Recent development in the field of gastrointestinal motility disorders.
  - e) Recent development in the field of abdominal examination by ultrasonography and assessment of non-surgical interventions in diagnosis and treatment of GIT diseases.

### **Fifth: clinical pathology department**

- 1- **Autoimmunity:** genetic basis, cytological and chemical changes and its role in diagnosis, prognosis and treatment monitoring.
- 2- **Allergy:** genetic basis, cytological and chemical changes and its role in diagnosis, prognosis and treatment monitoring.
- 3- **Solid organs and stem cell transplantation:**
  - Pre and post-operative laboratory investigations and methods used to avoid graft rejection.
  - Hematopoietic stem cell transplantation.
- 4- **Advanced techniques (gene sequencing, stem cells and multiplex bead based assay):**
  - Efficacy and accuracy of techniques and comparison with traditional techniques indifferent diseases.



- Comparison and evaluation of advanced techniques including genomics and molecular methods in clinical microbiology.
- Stem cell biology, cell therapy and their application in diagnosis and treatment of different hematological diseases.
- Application of new era and advanced techniques in diagnosis of different hematological disorders.
- Application of gene targeting in hematological malignancies.

#### **5- Haemopoiesis:**

- Molecular basis, diagnosis and prognostic factors affecting anemia and different inherited and acquired disorders of hematopoiesis.

#### **6- Leukemias and lymphomas:** new diagnostic markers and prognostic factors.

#### **7- Bleeding disorders and thrombosis:**

- Assessment of bleeding disorders caused by abnormalities of platelets.
- Disorders of coagulation, haemophilia and thrombosis. Study of different aspects of bleeding disorders caused by abnormalities of blood vessels.

#### **8- Blood banking:** study of blood group system disorders.

#### **9- Antimicrobial resistance:** different antimicrobial resistance mechanisms and their surveillance.

#### **10- Nosocomial infections:** identification and tracing the causative organisms using modern methods including MALDI-TOF and gene sequencing.

#### **11- Infections:**

- Study of implant associated infections, blood stream infections and sepsis.
- Study of different infections caused by anaerobic, aerobic bacteria, fungal and viral causes.

#### **12- Viral hepatitis:**

- Genetic basis, cytological and chemical biomarkers for diagnosis, prognosis and treatment monitoring.
- Study new methods for early diagnosis of viral hepatitis.

#### **13- Glomerular and tubular dysfunction:** new era for diagnosis and treatment of glomerular and tubular diseases.

#### **14- Diabetes Mellitus:** genetic basis, chemical biomarkers for diagnosis and diagnosis of complications and monitoring of treatment.

#### **15- Cancers:** conducting tailored clinical researches to improve the quality of life of cancer patients through better diagnosis, state of the art of treatment modalities and improving the prognosis of cancer patients.

#### **16- Chemical biomarkers.**



### **Sixth: Pharmacology Department**

- 1- Immuno pharmacology
- 2- Molecular biology
- 3- Stem cell
- 4- Nanotechnology
- 5- Common diseases as diabetes, hypertension, skeletal muscle disorders and GIT disorders

### **Seventh: Physiology Department**

- 1- Stem cells and its role in biological functions of different organs.
- 2- Exercise and its effect on the physiology of different body organs.
- 3- Behavior and training in laboratory animals' physiology.
- 4- Ischemia and reperfusion and its effects on the physiology of the different body organs.
- 5- Adipocytokines and its effects on the cardiovascular, reproductive and endocrine systems and its relation to metabolism.
- 6- Obesity and its complications especially diabetes mellitus and its connection with some adipocytokines.

### **Eighth: Anesthesia Department**

- 1- Safety and preoperative optimization.
- 2- Updated management of critically ill and trauma patients.
- 3- Regional anesthesia.
- 4- Sonar guided diagnostic and interventional procedures.
- 5- Training in anesthesia and intensive care.
- 6- Infection control and related drug therapy.
- 7- Pain management.
- 8- Airway amangement.

### **Ninth: Rheumatology and Rehabilitation department**

- 1- Epidemiological studies of different rheumatic diseases.
- 2- Electrophysiological studies.



- 3- Different rehabilitation protocols and strategies.
- 4- Imaging evaluation of rheumatic disorders.
- 5- Recent advances of rheumatic diseases.
- 6- Impact of rheumatic diseases on quality of life and socioeconomic burden of rheumatic diseases.
- 7- Different assessments and outcome measures of rheumatic diseases.
- 8- Studies of different tools and or drugs in management of rheumatic diseases.
- 9- Interventional therapy.

### **Tenth: Cardiology Department**

- 1-Rheumatic heart diseases.
- 2-Coronary artery diseases.
- 3-Cardiomyopathy.
- 4-Arrhythmias.
- 5-Congenital heart diseases.
- 6-Hypertension.
- 7-Cardiac manifestations of other systemic diseases like diabetes, hepatic, renal and pulmonary diseases.
- 8-Interventional therapy.
  - a)Prevalence and incidence.
  - b)Risk factors.
  - c)Assessment of various diagnostic and treatment modalities.
  - d)Assessment of efficacy of preventive programs.
  - e)Use of recent high technology for diagnostic imaging and treatment of various cardiac diseases.
  - f)Evaluation of recent diagnostic modalities.
  - g)New era in treatment techniques.

### **Eleventh: Community, Environmental and Industrial Medicine Department.**

- 1-Infectious diseases: Respiratory, Gastrointestinal ,Skin and Insects-transmitted.
- 2-Community-related hazards: Air pollution, Water pollution, Food pollution and Wastes of industry.
- 3-Nutrition-related health problems among different community classes of population.



4-Non- infectious health problems: cardiovascular, accidents, diabetes mellitus, hypertension and neoplasia.

5-Health services prevalence in the community.

Epidemiologic studies to highlight the magnitude of these health problems in Sharkia governorate.

Assessment of various risk factors and underlying etiologies as well as preventive programs.

**Recent studies related to recent advances in the field of :**

- 1-Sports, irradiation and travel medicine.
- 2-Quality of life.
- 3-Economy of health affairs.
- 4-Medical education.

**Twelfth: Pathology department.**

- 1- Building a capacity to prevent and reduce cancer burden e.g: HCC, breast cancer and urinary bladder cancer.
- 2- Conducting clinical researches to improve the quality of life of cancer patients through:
  - a)Survey studies for early detection of cancer and predisposing factor
  - b)Treatment modalities
  - c)Improving the prognosis of cancer patients
- 3- Use of molecular biology and genetic counseling for cancer risk reduction and effective treatment.
- 4- Use of imaging analysis and FISH technique for early diagnosis of cancer.
- 5- Early diagnosis and treatment of chronic diseases eg: chronic gastritis, chronic hepatitis and kidney disease.

**Thirteen : Neurology Department.**

- 1-Laboratory biomarkers
- 2-Genetic studies
- 3-Interventional neurology
- 4-Imaging studies
- 5-Epidemiological studies



### **Fourteenth: Histology Department**

Histological changes on the human and experimental animals on the followings:

- 1-Nutrition and histological structure.
- 2-Age related changes.
- 3-Trying new drugs for different diseases.
- 4-Cytogenic studies (human, experimental).
- 5-Environmental pollution.
- 6-Replacement therapy.
- 7-Reproductive health.
- 8-Drawbacks of new technologies

### **Fifteenth: Parasitology Department**

- 1-Alternative natural remedies in treatment of parasitic diseases
- 2-Nanotechnology in diagnosis and treatment of parasitic diseases.
- 3-Relationship between immune response mediated by parasites and other diseases.
- 4-Role of stem cells in treatment of some parasitic diseases.
- 5-Vaccination and prophylaxis from some parasitic diseases.
- 6-New molecular techniques and PCR as a diagnostic method of parasitic diseases
- 7-Genotyping of some parasites.

### **Sixteenth: Microbiology Department**

- Health care associated infections and drug resistance.
- Immunologic disorders-Allergy
- infectious diseases
- Drug (antimicrobial) resistance.
- Nanotechnology and stem cells.

### **Seventeenth: Cardiothoracic Surgery Department**

- 1- Rheumatic heart disease: epidemiologic studies that reflect the prevalence of rheumatic heart diseases in sharia that leads to heart valvular damage and necessitate surgical intervention. Applied research about new surgical techniques for valve repair and replacement.



- 2- Congenital heart diseases: epidemiologic studies about prevalence and incidence of congenital heart diseases in sharia governorate. Applied research about new surgical treatment modalities for some complicated congenital heart diseases.
- 3- Pulmonary T.B: prevalence in sharkia governorate. Applied research to assess the efficacy of surgical intervention in some cases with pulmonary T.B.
- 4- Studies about the efficacy of surgical intervention by thoracoscope.
- 5- Advanced research in the field of lung and heart transplantation.

### **Eighteenth: Ophthalmology Department**

- 1- Blindness control
- 2- Eye ball tumour.
- 3- Eye ball trauma.
- 4- Corneal infections.
- 5- Glaucoma.
- 6- Ocular complications of diabetes mellitus.
  - a) Prevalence and incidence.
  - b) Etiopathogenesis, diagnostic and treatment modalities.
  - c) Advanced up to date research about diagnostic and treatment modalities.

### **Nineteenth: Oncology and Nuclear Medicine Department**

- 1- Cancer epidemiology: prevalence and incidence.
- 2- Cancer management.
- 3- Applied research about programs to improve quality of life in patients with cancer.
- 4- Studies about group therapy programs to improve survival for patients with cancer.
- 5- Studies to find out suitable modalities to maintain proper function of vital organs and systems of patient with cancer.
- 6- Studies for assessment of current and new diagnostic modalities for early detection of cancer.
- 7- Applied research to study and evaluate the efficacy of various cancer treatment modalities.
- 8- Studies for prevention programs and ways to decrease side effects of chemo and radiotherapy.
- 9- Studies in the field of anticancer biological therapy and tailoring therapy.



## **Twentieth: Biochemistry Department**

- 1- PACHA project in collaboration with internal medicine department for early detection of diabetes mellitus.
- 2- Billharziasis Project in collaboration with parasitology department about detection of pathological changes related to the disease.
- 3- Cancer Breast Tumor Marker Project in collaboration with the Oncology department for early detection of cancer breast.
- 4- Hepatocellular Carcinoma Tumor Marker Project in collaboration with the oncology department for early detection of HCC in sharkia.
- 5- Atopy project for cytogenetic diagnosis of atopic disorders in collaboration with the chest department.
- 6- Extended Atopy Project to study the impact of environmental pollutants on children with atopic disorders in collaboration with pediatrics department.
- 7- Rheumatoid Arthritis project in collaboration with Rheumatology and Rehabilitation Department. For detection of osteoporotic changes in patients with rheumatoid arthritis in Sharkia.
- 8- Osteoarthritis Project in collaboration with Rheumatology and Rehabilitation Department for assessment of impact of certain genetic mutations on presentation and prognosis of osteoarthritis.
- 9- Impact of Nigella Sativa and ginger on portal hypertension to assess the benefits and harms of these herbs on patients with portal hypertension.

## **Twenty first: Forensic Medicine and Clinical Toxicology Department**

### **Forensic medicine**

- 1- Nano Technology
- 2- Stem cell
- 3- Addiction
- 4- Molecular biology
- 5- Updates in forensic medicine.

### **Clinical Toxicology**

- 1- The effect, diagnosis and treatment of toxic effects of some environmental pollutants on health. Environmental pollutants include: insecticides, chemical fertilizers, heavy metals and industrial toxic wastes.



- 2- Protective and therapeutic effects of some antioxidants against toxic effects of some drugs.
- 3- New trends in treatment of addiction (immunotherapy, vaccination).
- 4- Updates in clinical toxicology.

### **Twenty second: Neurosurgery Department**

- 1- Vertebral column deformities in adults
- 2- Role of stem cells in vertebral column and spinal cord injuries.
- 3- Minimally invasive surgeries in vertebral column diseases.
- 4- Prevalence of vertebral column disorders and new treatment modalities.
- 5- Recent advances in the surgical treatment of stroke.
- 6- Tumors of the nervous system.
- 7- Congenital anomalies of the nervous system.
- 8- Injuries of the brain and spinal cord.

### **Twenty third: Psychiatry Department**

- 1- Affective and addiction disorders: depressive illness, anxiety and obsession and drug abuse. Prevalence and incidence.
- 2- Consultative psychiatry about affective and addiction disorders.
- 3- Studies evaluating the relationship between psychiatry and other medical specialties regarding mutual consultations.
- 4- Updates in psychotic disorders: etiopathogenesis including biochemical and genetic changes in patients with schizophrenia and psychosis.
- 5- Emotional disturbance
- 6- Mental disturbance
- 7- Irritabilities disorders
- 8- Sleep disturbance
- 9- Personality disturbance
- 10- Psychiatric disturbance in women
- 11- Obsessive compulsive disorder
- 12- Depression
- 13- Food and appetite disturbance
- 14- Disorders of dementia and mental retardation.
- 15- Social phobia



### **Twenty Fourth: dermatology and Venereology Department**

- 1- Immune mediated skin disorders.
- 2- Skin tumors.
- 3- Dermaological therapies, lasers, phototherapy.
- 4- Chronic skin disorders.
- 5- Infectious skin disorders.
- 6- New diagnostic methods in dermatology and immunohistochemistry.
- 7- Keratinization disorders.
- 8- Pigmentation disorders.
- 9- Hair nail glandular disorders.
- 10- Cosmetology.
- 11- Connective tissue disorders.
- 12- Genetic skin disorders.
- 13- Nutritional, metabolic and occupational disorders.
- 14- Male infertility, andrological disorders and sexually transmitted diseases.

### **Twenty Fifth: Anatomy Department**

- **Cell biology:** assessment of aging on the structure of: cardiovascular and nervous systems. Molecular basis of aging.
- **Embryology:** assessment of effects of fetal insults on the development of: skeletal system and digestive system. Genetic influences upon development.
- **Gross anatomy:** assessment of effects of environmental toxins on the structure of: different systems in experimental animals . Ultrastructural changes and their clinical significance.
- Studying effect of the obesity on the structure of different body organs in experimental animals
- **Radiological anatomy:** normal parameters of adult and emryos using ultrasounds and MRI. Sectional anatomy and CT in diagnosis.
- **Surgical anatomy:** applying anatomical date in surgical diagnosis and management. Applying anatomical parameters for fixation procedures.
- **Anthropometric studies:** on different parts of the human skeleton.



## **Twenty Sixth: General Surgery Department**

- Epidemiological studies to detect the prevalence and incidence of tumors in Sharkia Governorate.
  - 1- Tumors of the thyroid, adrenal and salivary glands.
  - 2- GIT tumors.
  - 3- Tumors of the rectum and anal canal.
  - 4- Pancreatic and hepatobiliary tumors.
  - 5- Connective tissue tumors.
  - 6- Head and neck and lymph node tumors.
  - 7- Breast tumors.
- Research studies for endoscopy training and the use of GIT endoscopy in treatment.
  - 1- Treatment of hiatus hernia, esophageal reflux, cardiac achalasia using endoscopy.
  - 2- Excision of gastric, pancreatic, colo-rectal and anal canal tumors using endoscopy.
  - 3- Endoscopy guided morbid obesity operations.
  - 4- Hepato-biliary and pancreatic surgeries using endoscopy.
  - 5- GIT endoscopy in the diagnosis and treatment of GIT and hepato-biliary disorders.
- Research studies of new procedures in treatment and diagnosis of diseases:
  - 1- Stem cell therapy in treatment of various diseases.
  - 2- Using nanotechnology in surgery.
  - 3- Chemotherapy during and after tumor surgeries.
- Research studies in the diagnosis and treatment of surgical emergencies using endoscopy versus traditional surgical methods:
  - 1- Acute appendicitis.
  - 2- Acute cholecystitis.
  - 3- Gastric and intestinal perforation.
  - 4- Abdominal hematomas
  - 5- Intestinal obstruction and colostomy.
  - 6- Acute intestinal ischemia.
- Research studies to compare treatment procedures versus different surgeries in the treatment of surgical diseases:
  - 1- Comparison between different surgical techniques in the treatment of diseases.
  - 2- Comparison between surgical endoscopy and traditional surgery in different surgical procedures.
  - 3- Comparison between partial and total resection in the treatment of GIT and endocrine diseases.



## Twenty Seventh: Gynecology and Obstetrics Department

- **High risk pregnancy unit**

- 1- Toxemia of pregnancy.
- 2- Gestational DM.
- 3- Normal vaginal delivery and caesarean section.
- 4- Maternal and newly born morbidity and mortality.
- 5- Antenatal care.
- 6- Preconceptional counseling.
- 7- Fetal congenital anomalies.
- 8- Thyroid disorders during pregnancy.
- 9- Cardiovascular diseases and thromboembolic disorders during pregnancy and labour.
- 10- Renal disorders during pregnancy and labour.
- 11- Obstetric hemorrhage.

- **Epidemiologic studies about prevalence and incidence of the previous disorders in Sharkia governorate.**

- 1- Assessment of fetal status during pregnancy and labour.
- 2- Assessment of abnormal fetal growth (IUGR and Macrosomia) and ways of management.
- 3- Different modalities of in-utero fetal therapy.
- 4- Pathogenesis, prediction and management of pregnancy induced hypertension.
- 5- Impact of thyroid, cardiac, renal and hepatic disorders as well as DM on fetal and maternal outcomes.
- 6- Vaginal versus cesarean delivery and its impact on maternal health program.
- 7- Recent techniques for in-utero diagnosis of genetic disorders.
- 8- Recent techniques for follow up of the fetus in-utero and during labour.
- 9- Recent modalities for fetal management in-utero.
- 10- Recent modalities for control of peripartum hemorrhage.
- 11- Recent techniques for diagnosis and treatment of pregnancy associated diseases.

- **Oncology Unit**

- 1- Cancer ovary: prevalence and incidence.
- 2- Human papilloma virus (HPV): prevalence and incidence.
- 3- Laparoscopic versus conventional pelvic lymphadenopathy in pelvic malignancy.
- 4- Role of sentinel lymph nodes in pelvic cancer.
- 5- Genetic studies in cancer ovary and breast cancer.
- 6- Relation between pollution, insecticides, fertilizers and cancer ovary.



- **Infertility and Gynecological Endoscopy Unit**

- 1- Male factor infertility.
- 2- Congenital malformations 11-13 weeks.
- 3- Congenital malformations 18-22 weeks.
- 4- Pregnancy-induced hypertension.
- 5- Mullarian duct anomalies.
- 6- Endometriosis in zagazig university hospitals.
- 7- Ovarian cyst among teen agers children and nulliparous women.
- 8- Muller tube defects.
- 9- Intrauterine synechia.
- 10- Factors in female infertility (cervical, vaginal, uterine, tubal and ovarian).
- 11- Chromosomal malformations among women with reccurent abortions.

- **Prevalence and incidence of the previous research points.**

- 1- Oral drugs for ovulation induction.
- 2- Different strategies for ovulation induction.
- 3- Trial of treatment of endometriosis.
- 4- Low cost IVF.
- 5- PCO updated treatment.
- 6- Hysteroscopy versus sonohysteroscopy.
- 7- Adhesiolysis of intrapelvic adhesions.
- 8- Tuboplasty and surgery in cases of ectopic pregnancy.
- 9- Intrauterine adhesiolysis polypectomy, loop extraction in cases of missed loop.
- 10- Luna operation in cases of pelvic pain.
- 11- Operative interventions by laparoscopy for ovarian mases and cysts.
- 12- PCO genetics.
- 13- Ultrasound advanced technology.
- 14- Endometrial ablation versa point.
- 15- Bruch colposuspension by laparoscopy for stress incontinence.
- 16- Colposarcopexy for vault proposal.
- 17- Pelvic lymphadenopathy for laparoscopy.
- 18- Management of cancer ovary by laparoscopy.
- 19- Myomectomy by laparoscopy.
- 20- Laparoscopic and colpohysteroscopic correction of mullarian tube defects.
- 21- Management of cancer cervix and cancer body by laparoscopy.



## **Twenty Eighth: Radio diagnosis Department.**

- Radio-diagnostic procedures in hepatic and renal diseases and its effects on human health.
- Epidemiological studies of various body organs as part of environmental pollution studies.
- Follow up and evaluation of stem cell applications in diseases of body systems.
- Studies of malnutrition and obesity disorders and its post-operative complications using various radiodiagnostic procedures.
- Interventional radiology studies (diagnostic and therapeutic) in various body organs.
- Virtual CT studies in various body organs.
- Multi-slice CT studies in diagnosis of cardiovascular diseases.

## **Twenty Ninth: Urology Department**

- 1- Stricture ureter: prevalence and incidence.
- 2- Female incontinence: prevalence and incidence.
- 3- Hypospadias: prevalence and incidence.
- 4- PCNL: prevalence and incidence.
- 5- Modified supine position versus prone position in percutaneous nephrolithotomy. Comparative study.
- 6- Early cystectomy versus conservative management in treatment of T1G3 bladder cancer. Comparative study.

## **Thirtieth: Orthopedic Department**

### **1) Arthroplasty Unit**

#### **Hip arthritis:**

- Prevalence and incidence of: hip arthritis degenerative and inflammatory.
- Predisposing factors and underlying conditions leading to hip arthritis e.g acetabular dysplasia, avascular necrosis of the femoral head.
- Predisposing factors and underlying conditions and their different methods of management.
- Non- arthroplasty methods of management.



- Hip arthroplasty: types, techniques, materials, results and complications.
- Recent advances in the diagnosis and management of hip arthritis and the predisposing factors underlying conditions leading to it.

### **Knee arthritis**

- Prevalence and incidence of knee arthritis degenerative and inflammatory.
- Predisposing factors and underlying conditions leading to knee arthritis e.g deformities around the knee, obesity and its relationship to arthritis.
- Predisposing factors and underlying conditions and their different methods of management.
- Non- arthroplasty methods of management.
- Knee arthroplasty: types, techniques, materials, results and complications.
- Recent advances in the diagnosis and management of knee arthritis and the predisposing factors underlying conditions leading to it.

### **Shoulder arthroplasty**

- Prevalence and incidence of shoulder arthropathy in its different forms as well as predisposing factors and underlying conditions leading to it.
- Predisposing factors and underlying conditions and their different methods of management.
- Non- arthroplasty methods of management.
- Shoulder arthroplasty: types, techniques, materials, results and complications.
- Recent advances in the diagnosis and management of shoulder arthritis and the predisposing factors underlying conditions leading to it.

### **Ankle, wrist, elbow and small joint arthritis**

- Prevalence and incidence including predisposing factors and underlying conditions.
- Predisposing factors and underlying conditions and their different methods of management.
- Non- arthroplasty methods of management.
- Arthroplasty: types, techniques, materials, results and complications.
- Recent advances in the diagnosis and management including the predisposing factors and underlying conditions leading to it.



## **2) Arthroscopy and Sports Medicine Unit**

### **Knee traumatic injuries**

- Prevalence and incidence of knee ligamentous injuries; isolated, combined and complex, meniscal injuries and osteochondral injuries in adults, adolescents, children, amateurs and professional athletes.
- Knee ligament reconstruction: open, arthroscopic.
- Management of meniscal injuries.
- Management of osteochondral injuries and arthroscopic assisted fracture management.
- New methods of knee ligament reconstruction: fixation methods and graft types.
- Meniscal repair, transplant.
- Mosaicplast autologous chondrocyte implants.

### **Knee non-traumatic disorders**

- Prevalence and incidence of septic arthritis and post traumatic knee stiffness.
- Arthroscopic management of non-traumatic knee disorders.

### **Shoulder traumatic injuries**

- Prevalence and incidence of traumatic shoulder instability acute, recurrent and neglected, Traumatic rotator cuff injuries and SLAP lesions.
- Arthroscopic management of traumatic shoulder instability acute, recurrent and neglected, Traumatic rotator cuff injuries and SLAP lesions.
- Recent advances in shoulder arthroscopy: new indications, techniques and materials.

### **Shoulder non traumatic disorders**

- Prevalence and incidence of:  
Atraumatic shoulder instability, multidirectional, habitual, and voluntary.  
Degenerative rotator cuff lesions.  
Shoulder impingement.  
Adhesive capsulitis.  
Acromioclavicular joint disorders.
- Arthroscopic and open management of :  
Atraumatic shoulder instability, multidirectional, habitual, and voluntary.  
Degenerative rotator cuff lesions.  
Shoulder impingement.  
Adhesive capsulitis.  
Acromioclavicular joint disorders.



## **Ankle traumatic injuries**

- Prevalence and incidence of ankle osteochondral lesions.
- Arthroscopic management of traumatic ankle injuries.
- Recent advances in ankle arthroscopy; new indications, techniques and materials.

## **Elbow arthroscopy**

- Recent advances in elbow arthroscopy; new indications, techniques and materials.

### **3) Spine Unit**

#### **Degenerative lumbar spine disorders**

- Prevalence and incidence of:
  - back pain acute, chronic, adults, adolescents.
  - lumbar disc prolapse.
  - Spinal canal stenosis.
  - Segmental instability.
  - Degenerative scoliosis.
- Non-surgical and surgical management of :
  - lumbar disc prolapse.
  - spinal canal stenosis.
  - Segmental instability.
  - Degenerative scoliosis.
- Recent advances and new techniques in the management of :
  - lumbar disc prolapse.
  - spinal canal stenosis.
  - Segmental instability.
  - Degenerative scoliosis.
  - microscopic and endoscopic spinal surgery.

#### **Spinal deformities and congenital anomalies**

- Prevalence and incidence of :
  - scoliosis.
  - kyphosis.
  - Complex deformities of the spine.
  - congenital anomalies of the spine.
- Non-surgical and surgical management of:



- scoliosis.
- kyphosis.
- Complex deformities of the spine.
- congenital anomalies of the spine.

- Recent advances and new techniques in the management of :
  - scoliosis.
  - kyphosis.
  - Complex deformities of the spine.
  - congenital anomalies of the spine.

### **Cervical spine**

- Neck pain: acute, chronic, adults, adolescents.
- Cervical disc prolapse.
- Cervical spinal canal stenosis.
- Non- surgical and surgical management of cervical disc prolapse and cervical spinal canal stenosis.
- Recent advances and new techniques in the management of: cervical disc prolapse and cervical spinal canal stenosis.

### **Spinal trauma and fractures**

- Prevalence and incidence.
- Management techniques.
- Recent advances.

## **4) Pediatric Orthopedic Unit**

### **Pediatric hip disorders**

- Prevalence and incidence of
  - DDH.
  - Perthes disease.
  - neonatal septic arthritis.
  - Slipped capital femoral epiphysis.
  - coxa vara.
- Management techniques of
  - DDH.
  - Perthes disease.
  - neonatal septic arthritis.



- Slipped capital femoral epiphysis.
- Recent advances
  - DDH.
  - Perthes disease.
  - neonatal septic arthritis.
  - Slipped capital femoral epiphysis.

### **Lower limb deformities**

- Prevalence and incidence
  - angular lower limb deformities.
  - Rotational lower limb deformities.
  - congenital foot deformities.
  - Leg length inequalities.
- Management techniques
  - angular lower limb deformities.
  - Rotational lower limb deformities.
  - congenital foot deformities.
  - Leg length inequalities.
- Recent advances
  - angular lower limb deformities.
  - Rotational lower limb deformities.
  - congenital foot deformities.
  - Leg length inequalities.
- **Obstetric brachial plexus injuries** prevalence and incidence, management techniques and recent advances.
- **Cerebral palsy** prevalence and incidence, management techniques and recent advances.
- **Congenital anomalies and malformations** prevalence and incidence, management techniques and recent advances.

### **5) Limb Reconstruction Unit**

- **Post-traumatic bone and soft tissue defects** prevalence and incidence, management techniques and recent advances.
- **Musculoskeletal benign tumors and tumor like conditions** prevalence and incidence, bone and soft tissue reconstruction following tumor surgery and recent advances.



- **Musculoskeletal malignant tumors** prevalence and incidence. Limb sparing tumor surgery, bone and soft tissue reconstruction following tumor surgery and recent advances.

#### **6) Hand Surgery Unit**

- **Fracture around the hand and wrist:** prevalence and incidence, management techniques and recent advances.
- **Traumatic injuries of the hand:** prevalence and incidence, management techniques and recent advances.
- **Congenital anomalies of the hand:** prevalence and incidence, management techniques and recent advances.
- **Tumors and tumor like conditions of the hand:** prevalence and incidence, management techniques and recent advances.
- **Peripheral nerve injuries:** prevalence and incidence, management techniques and recent advances.
- **Compressive neuropathies:** prevalence and incidence, management techniques and recent advances.
- **Wrist arthroscopy:** prevalence and incidence, management techniques and recent advances.
- **Hand infections:** prevalence and incidence, management techniques and recent advances.

#### **7) General Orthopedic Unit**

- **Fractures and dislocations of the upper limb:** prevalence and incidence, management techniques and recent advances.
- **Fractures and dislocations of the lower limb.** Prevalence and incidence, management techniques and recent advances.
- **Fractures of the pelvis and acetabulum:** prevalence and incidence, management techniques and recent advances.
- **Fracture and dislocation of the spine:** prevalence and incidence, management techniques and recent advances.

### **Thirty First: Otolaryngology Department**

- 1- Tumors of larynx, nose, paranasal sinuses, salivary and pituitary glands
- 2- Microbiological and immunological studies of different ORL-H&N health problems, to help define a basis for their distribution, risk factors diagnosis and treatment.



- 3- Head and neck imaging: evaluation of current and recent imaging modalities in diagnosis and assessment of ORL-H&N lesions and health problems
- 4- Evaluation of various pharmacological agents and their role in treatment of head and neck inflammatory allergies and neoplastic diseases
- 5- Role of conventional and non-conventional methods in treatment of benign and malignant ORL- head and neck lesions including endoscopic laser and power-assisted techniques.
- 6- Reconstructive materials and techniques and their role in ORL-H&N surgery
- 7- Facial plastic and maxillofacial surgery: evaluation of different techniques in management of facial deformities
- 8- Radiotherapy and chemotherapy for head and neck neoplasms
- 9- Audiology: role of current and advanced audiological methods and tools for screening, diagnosis and rehabilitation of hearing problems
- 10- Cochlear implantation
- 11- Role of speech diagnostics tools in mapping, diagnosis and follow up of voice and speech
- 12- Tumor markers and their role in head and neck tumors.
- 13- Genetic studies for different ORL- head and neck diseases
- 14- Recent advances in ORL-H&N research
- 15- Stem cell and nanotechnology and otorhinolaryngology surgeries

### **Thirty Second: Pediatric surgery Department**

- 1- Endoscopic surgeries
- 2- Cancer surgeries
- 3- Genetic defect in pediatrics

### **Thirty Third: Vascular Surgery Department**

- 1- Optimal management of asymptomatic carotid stenosis.
- 2- Compare effectiveness of medical vs. invasive therapy (open or endovascular) for claudication.
- 3- Compare effectiveness of initial open vs. endovascular infra-lingual revascularization of critical limb ischemia.
- 4- Define the effectiveness of strategies to secure the falling of A-V fistula.
- 5- Develop the best practice for management of chronic venous ulcers.



- 6- Define optimal adjunctive medical therapy to enhance the success of lower extremity intervention.
- 7- Evaluate ultrasound and CT angiography as surveillance tools in AAA diagnosis.

### **Thirty fourth: Medical Oncology Department**

- 1- Cancer epidemiology: building a capacity to prevent and reduce cancer burden in Sharkia Governorate through high quality community based researches in various oncology fields e.g
  - Acute and chronic leukemia.
  - Genitourinary cancer
  - Gynecological cancer.
  - GIT tumors.
  - Lymphomas.
  - Breast cancer.
  - Lung and pleural tumors.
  - Hepatobiliary and pancreatic cancer.
  - MDS.
- 2- Cancer management: conducting tailored clinical researches to improve the quality of life of cancer patients through better diagnosis and state of the art of treatment modalities and improving the prognosis of different cancer types e.g
  - Acute and chronic leukemia.
  - Genitourinary cancer
  - Gynecological cancer.
  - GIT tumors.
  - Lymphomas.
  - Breast cancer.
  - Lung and pleural tumors.
  - Hepatobiliary and pancreatic cancer.
  - MDS.
- 3- Cancer biology and tailoring therapy: use of molecular biology and genetic counselling for cancer risk reduction and better selection of the effective treatment in different cancers e.g
  - Acute and chronic leukemia.
  - Genitourinary cancer
  - Gynecological cancer.
  - GIT tumors.



- Lymphomas.
- Breast cancer.
- Lung and pleural tumors.
- Hepatobiliary and pancreatic cancer.
- MDS.

### Part III

#### Study of the match between Zagazig University Research plan (2019-2024) and the faculty reasearch plan (2019-2021)

The areas of the research plan of Zagazig University 2019-2024 depended on the problems faced by the Sharkia Governorate and the attempt to solve them. The plan was prepared according to the Egyptian Vision 2020-2030 in the field of scientific research, with priority given to the following axes: -

- (1) New and renewable energy fields.
- (2) Water resources and their management and desalination.
- (3) Medical sciences in liver disease and obesity.
- (4) Biotechnology and Nanotechnology.
- (5) Agricultural sciences and food sources.
- (6) Information and Communication Technology

Egyptian scientific research Vision 2020-2030	Zagazig University Research Fields (2019-2024)		Faculty of Medicine Research fields (2019-2021)	Faculty of Medicine scientific departments Sharing in implementation
	Main Feild	Sub-Feild		
<b><u>First, the economic dimension includes the following axes:</u></b> Science, Technology	1- Modern technologies and their application in various	Nanotechnology, stem cells, modern applications and the possibility of activating them in the	-Stem cell, Molecular biology and their applications. ○ -Nanoparticles and its	Pediatrics Department - Department of Clinical Pathology - Department of Internal Medicines - Department of Physiology - Department of Pathology - Department of Neurology - Department of Histology and Cells Biology - Department of Parasitology - Department of Microbiology - Nuclear



and Innovation Economic development and energy	fields of science	treatment and early detection of diseases	applications	Medicine and Oncology - Department of Forensic Medicine and Clinical Toxicology - Department of Neurosurgery - Department of Dermatology - Department of General Surgery - Department of Radiology - Department of Ear, Nose and Throat - Department of Oncology
		Hepatitis viruses, kidney disease, common diseases, their rate of spread, their causes, their diagnosis, and how to treat and prevent them in the Sharkia governorate.	-Common health problems Tumors  -Allergic and immunological disorders  -Imaging and interventional techniques in diagnosis and treatment	Department of Internal Medicine - Department of Chest – pediatrics Department - Department of Tropical Medicine - Department of Clinical Pathology - Department of Cardiology - Department of Pathology - Department of Biochemistry - Department of Radiology - Department of Urology
		Malnutrition problems and their impact on public health, oral health, and obesity diseases with diagnosis and treatment	-Nutritional disorders and obesity	Department of Internal Medicine - Department of Chest – Pediatrics Department - Department of Physiology - Department of Environmental, Community and occupational Medicine - Department of Histology and Cells - Department of Psychiatric Diseases - Department of Anatomy - Department of General Surgery - Department of Radiology
		Recent trends and theories, biotechnolog y, genetic engineering, and mathematical modeling and their application in all fields.	-Genetic and developmental disorders -Reproductive and pregnancy related disorders	Department of Clinical Pathology - Department of Clinical Pharmacology - Department of Physiology - Department of Histology and Cell biology - Department of Biochemistry - Department of Forensic Medicine and Clinical Toxicology - Department of Psychiatry - Department of Otolaryngology
		Modern applications in sports medicine,	-New era and advanced techniques in medicine	Department of Physiology - Department of Anesthesiology - Department of Rheumatology and Rehabilitation - Department of Cardiology - Department



		alternative medicine and experimental medicine		of Pathology - Department of Histology and Cells - Department of Parasitology
<b><u>Secondly, the environmental dimension includes the following axes:</u></b> Environment and Urban Development	2- Optimal use of various resources and environmental safety	Pollution and environmental safety and its impact on human, animal and plant health, along with modern technologies to reduce them	-Chemicals and drugs -Pollution	Chest Department - Department of Environmental, Community and occupational Medicine - Department of Histology and Cells Department of Biochemistry - Department of Forensic Medicine and Clinical Toxicology - Department of Anatomy - Department of Radiology
<b><u>Third, the social dimension, and it includes the following axes:</u></b> Social justice and education And training And culture	3- Solving contemporary Egyptian problems	Legal and medical forensic aspects and their applications according to contemporary issues		Department of Forensic Medicine and Clinical Toxicology Clinical Pharmacology

**1-Nanotechnology, stem cells, modern applications and the possibility of activating them in the treatment and early detection of diseases**

**1) Pediatrics department**

Stem cells, nanotechnology

**2) Clinical pathology department**

- a. Solid organs and stem cell transplantation:
- b. Pre and post-operative laboratory investigations and methods used to avoid graft rejection.
- c. Hematopoietic stem cell transplantation.
- d. Advanced techniques (gene sequencing, stem cells and multiplex bead based assay):
- e. Efficacy and accuracy of techniques and comparison with traditional techniques indifferent diseases.
- f. Comparison and evaluation of advanced techniques including genomics and molecular methods in clinical microbiology.



- g. Stem cell biology, cell therapy and their application in diagnosis and treatment of different hematological diseases.
- h. Application of new era and advanced techniques in diagnosis of different hematological disorders.
- i. Application of gene targeting in hematological malignancies.

### **3) Pharmacology department**

- a. Immuno pharmacology
- b. Molecular biology
- c. Stem cell
- d. Nanotechnology

### **4) Physiology department**

- a. Stem cells and its role in biological functions of different organs.

### **5) Cardiology department**

- a. Interventional therapy.
  - a) Prevalence and incidence.
  - b) Risk factors.
  - c) Assessment of various diagnostic and treatment modalities.
  - d) Assessment of efficacy of preventive programs.
  - e) Use of recent high technology for diagnostic imaging and treatment of various cardiac diseases.
  - f) Evaluation of recent diagnostic modalities.
  - g) New era in treatment techniques.

### **6) pathology department:**

- a. Use of molecular biology and genetic counseling for cancer risk reduction and effective treatment.
- b. Use of imaging analysis and FISH technique for early diagnosis of cancer.

### **7) Histology department:**

- a. Cyto-genetic studies (human, experimental).

### **8) Parasitology department:**

- a. Nanotechnology in diagnosis and treatment of parasitic diseases.
- b. Role of stem cells in treatment of some parasitic diseases.
- c. New molecular techniques and PCR as a diagnostic method of parasitic diseases.
- d. Genotyping of some parasites.

### **9) Microbiology department:**

- a. Nanotechnology and stem cells.

### **10) Ophthalmology department:**



- a. Ocular complications of diabetes mellitus.
- b. Prevalence and incidence.
- c. Etio-pathogenesis, diagnostic and treatment modalities.
- d. Advanced up to date research about diagnostic and treatment modalities.

**11) Oncology and nuclear medicine department:**

- a. Studies for assessment of current and new diagnostic modalities for early detection of cancer.
- b. Applied research to study and evaluate the efficacy of various cancer treatment modalities.

**12) Forensic medicine**

- a. Nano Technology.
- b. Stem cell.
- c. Molecular biology.
- d. Updates in forensic medicine.

**13) Neurosurgery department:**

- a. Role of stem cells in vertebral column and spinal cord injuries.
- b. Minimally invasive surgeries in vertebral column diseases.
- c. Prevalence of vertebral column disorders and new treatment modalities.
- d. Recent advances in the surgical treatment of stroke.

**14) Dermatology and venereology department:**

- a. New diagnostic methods in dermatology and immunohistochemistry.

**15) Surgery department:**

Research studies of new procedures in treatment and diagnosis of diseases:

- a. Stem cell therapy in treatment of various diseases.
- b. Using nanotechnology in surgery.

**16) Radio-diagnosis department:**

- a. Follow up and evaluation of stem cell applications in diseases of body systems.
- b. Virtual CT studies in various body organs.
- c. Multi-slice CT studies in diagnosis of cardiovascular diseases.

**17) Oto-laryngeology department:**

- a. Stem cell and nanotechnology and otorhinolaryngology surgeries.

**2- Hepatitis viruses, kidney disease, common diseases, their rate of spread, their causes, their diagnosis, and how to treat and prevent them in the Sharkia governorate.**



### **1) Internal medicine department**

- a. Acute renal injuries.
- b. Chronic kidney disease.
- c. Renal replacement therapy (conservative, dialysis and transplantation).
- d. Renal affection in other diseases (hypertension, T2DM and SLE) (epidemiology, screening and early prediction, pathogenesis, novel markers and future management).
- e. HCC.
- f. Liver fibrosis (screening for early detection and preventive strategies, novel markers and future therapies).

### **2) Chest department**

- a. Renal diseases related to pulmonary diseases.
- b. Viral hepatitis and chest diseases.

### **3) Pediatrics department**

- a. HCV
- b. Renal diseases.

### **4) Tropical medicine department**

- a. Viral hepatitis (HBV & HCV) and its complications:
- b. Liver cirrhosis.
- c. Liver failure.
- d. Esophageal varices.
- e. Liver cancer.

### **5) Clinical pathology department**

- a. Viral hepatitis:

Genetic basis, cytological and chemical biomarkers for diagnosis, prognosis and treatment monitoring.

Study new methods for early diagnosis of viral hepatitis.

- b. Glomerular and tubular dysfunction: new era for diagnosis and treatment of glomerular and tubular diseases.

### **6) Cardiology department:**

- a. Cardiac manifestations of other systemic diseases like diabetes, hepatic, renal and pulmonary diseases.

### **7) Biochemistry department:**

- a. Hepatocellular Carcinoma Tumor Marker Project in collaboration with the oncology department for early detection of HCC in sharkia.

### **8) Surgery department:**



- a. Epidemiological studies to detect the prevalence and incidence of hepato-biliary tumors in Sharkia Governorate.
- b. GIT endoscopy in the diagnosis and treatment of GIT and hepato-biliary disorders.

### **3- Malnutrition problems and their impact on public health, oral health, and obesity diseases with diagnosis and treatment**

#### **1) Internal medicine department**

- a. Obesity & related morbidities (Epidemiology, screening and early prediction, novel markers and future management).
- b. Diabetes Mellitus(pre diabetes and diabetic complications)

#### **2) Chest department**

- a. Obesity and maturation

#### **3) Pediatrics department**

- a. Obesity, anemia.

#### **4) Physiology department**

- a. Obesity and its complications especially diabetes mellitus and its connection with some adipo-cytokines.

#### **5) Community, environmental and industrial medicine department:**

- a. Nutrition-related health problems among different community classes of population.

#### **6) Histology department**

- a. Nutrition and histological structure.

#### **7) Psychiatry department:**

- a. Food and appetite disturbances.

#### **8) Dermatology and venereology department:**

- a. Nutritional, metabolic and occupational disorders.

#### **9) Anatomy department:**

- a. Studying effect of the obesity on the structure of different body organs in experimental animals.

#### **10) Radio-diagnosis department:**

- a. Studies of malnutrition and obesity disorders and its post-operative complications using various radio-diagnostic procedures.

### **4-Recent trends and theories, biotechnology, genetic engineering, and mathematical modeling and their application in all fields.**



### 1) Tropical medicine department

- a. GIT motility disorders.  
Prevalence and incidence.  
Etio-pathogenesis, diagnostic and treatment modalities.  
Molecular biology studies and genetic based disease studies.  
Recent development in the field of gastrointestinal motility disorders.

### 2) Anesthesia Department

- a. Safety and preoperative optimization.
- b. Updated management of critically ill and trauma patients.

### 3) Neurology department:

- a. Laboratory biomarkers
- b. Genetic studies

### 4) Medical oncology department:

- a. Cancer biology and tailoring therapy: use of molecular biology and genetic counselling for cancer risk reduction and better selection of the effective treatment in different cancers e.g  
Acute and chronic leukemia.  
Genitourinary cancer  
Gynecological cancer.  
GIT tumors.  
Lymphomas.  
Breast cancer.  
Lung and pleural tumors.  
Hepatobiliary and pancreatic cancer.  
MDS.

## **5-Modern applications in sports medicine, alternative medicine and experimental medicine**

### 1) Physiology department

- a. Exercise and its effect on the physiology of different body organs.

### 2) Rheumatology and rehabilitation department

- Epidemiological studies of different rheumatic diseases.  
Electrophysiological studies.  
Different rehabilitation protocols and strategies.  
Imaging evaluation of rheumatic disorders.  
Recent advances of rheumatic diseases.



Impact of rheumatic diseases on quality of life and socioeconomic burden of rheumatic diseases.

Different assessments and outcome measures of rheumatic diseases.

Studies of different tools and or drugs in management of rheumatic diseases.

Interventional therapy.

### **3) Community, environmental and industrial health:**

- a. Recent studies related to recent advances in the field of: Sports, irradiation and travel medicine.

## **6-Pollution and environmental safety and its impact on human, animal and plant health, along with modern technologies to reduce them**

### **1) Chest department**

- a. Pollution

### **2) Community, environmental and industrial medicine department:**

- a. Community-related hazards: Air pollution, Water pollution, Food pollution and Wastes of industry.

### **3) Histology department:**

- a. Environmental pollution.

### **4) Biochemistry department:**

- a. Extended Atopy Project to study the impact of environmental pollutants on children with atopic disorders in collaboration with pediatrics department.

### **5) Clinical Toxicology**

- a. The effect, diagnosis and treatment of toxic effects of some environmental pollutants on health. Environmental pollutants include: insecticides, chemical fertilizers, heavy metals and industrial toxic wastes.

### **6) Anatomy department:**

- a. Assessment of effects of environmental toxins on the structure of: different systems in experimental animals. Ultrastructural changes and their clinical significance.

## **7-Legal and medical forensic aspects and their applications according to contemporary issues**

**1- Forensic Medicine and Clinical Toxicology department**

**2- Clinical pharmacology department**



**Part IV**  
**Scientific research plan follow up procedure**

