



Dow University of Health Sciences

Standardized Annual Report

FY 2016-2017

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Vice Chancellor's Message



Prof. Dr. Mohammed Saeed Quraishy,
Vice Chancellor,
Dow University of Health Sciences

I am glad to write this message for the Annual Standardized Report 2016-17. Dow University of Health Sciences was established in 2004, with the Vision to provide quality education in order to produce leaders in health education and healthcare, by imparting knowledge through excellence in research and education. Its ultimate aim is to develop strategies to cater to cost effective and quality community health services. Taking charge of a University is a unique opportunity. There is a great responsibility of assuring quality education and service delivery at all levels of the institution. This is only possible with the help of a dedicated team of directors, faculty members, and the supporting staff of the constituent departments and institutes.

By the Grace of God, Dow University of Health Sciences has emerged as the fastest growing institution offering quality medical education in all of South Asia. It is the result of the dedicated team efforts that Dow University is ranked ahead of many regional medical institutions.

Dow University of Health Sciences has also made an impact on national and international levels, especially through its graduates who have gone on to achieve progress and prosperity globally. The alumni of this University have proven to be successful, resourceful, and philanthropic individuals who have contributed their time, efforts and resources to make a significant impact on their society. We aim to create an environment that fosters physical, emotional, and psychological wellness, and look to advance healthy lifestyles. By constantly measuring our deliverables, we have succeeded in creating an infrastructure of state of the art equipment and technology that meets the need of the future, and provides superior healthcare delivery systems today. I am optimistic that graduates of our institution will bring honor to DUHS by strengthening the concept of knowledge based economy in Pakistan through their innovation, scientific and entrepreneurship skills.

Executive Summary

Dow University of Health Sciences is one of the most renowned educational institutions of Pakistan. Since its inception in 2003, this University has been the fastest growing healthcare institution of the country. The University has the distinction of being the largest medical university of the country with more than twenty academic schools/colleges and Institutes, which are providing education to more than 7000 students.

The Dow University of Health Sciences (DUHS) offers a multitude of undergraduate and postgraduate programs that cater to the needs in healthcare sciences by providing quality human resources. The University provides excellent academic facilities through its fully equipped laboratories, museums, information technology including video conferencing facility besides good logistic facilities at departments, hostels and the campuses in general.

At global level, the research creates a demarcation between the curricula of undergraduate and graduate level studies. DUHS also puts much emphasis to integrate research as part of regular curriculum as well as community work. The research when taught to students in the beginning develops their habit of learning and acquiring information through primary data sources.

Students have opportunities to participate in hands on training workshops and professional trainings offered by the Professional Development Centers (PDC) of the university, which are fully equipped with manikins, simulators, simulating I.C.U, and operation theatre, along with providing other equipment and simulations for the training of postgraduates. There is a separate skills lab for the training of undergraduates.

The Dow University of Health Sciences, since its inception has been focusing on community services to provide preventive, diagnostic and treatment facilities for community health care specially to the under privileged class. The students of various undergraduate and postgraduate programs of DUHS are also actively involved with the faculty members in all the civic engagements of DUHS.

ABOUT THE UNIVERSITY

VISION STATEMENT

To be an academic leader by generating creative, collaborative, contextual resources to improve health and education by all possible means.

MISSION STATEMENT

To provide leadership in creating and imparting knowledge through excellence in research and education with the aim to provide cost effective, contextually relevant and quality community services through its faculty, staff and graduates, with continuous efforts for improvement through reflection and learning.

Goals of Dow University of Health Sciences

The defined GOALS of the University are:

- Development and utilization of contemporary approaches in education and research to nurture future leaders in health professions.
- Promote an atmosphere of mutual respect, trust and teamwork to achieve the common goal of health care.
- Share and enhance knowledge and expertise through national and international collaborations
- Foster research through scientific investigations and capacity building in collaborations with local and global organizations.
- Reward scholarship in research, education and services to dedicated & successful persons.
- Impart Health Education to the masses for improving health status of the community.
- Identify and resolve issues affecting health and well-being of the communities in collaboration with all the stakeholders.
- Identify and resolve issues affecting health and well-being of students, faculty, staff and administration.
- Promote and practice cost effective, evidence-based service in local context.
- Ensure dynamism of the Institution by reflecting, reviewing, and revising the practices.

Constituent Colleges & Institutes of DUHS

S. No.	Name of Institute/Colleges
1	Dow Medical College (DMC)
2	Dow Dental College (DDC)
3	Dow International Dental College (DIDC)
4	Dow International Medical College (DIMC)
5	Dr. Ishrat-ul-Ebad Institute of Oral Health Sciences (DIKIOHS)
6	Dow College of Pharmacy (DCOP)
7	Institute of Health Management (IHM)
8	Dow Institute of Health Professionals Education (DIHPE)
9	Dow Institute of Radiology (DIR)
10	Institute of Nursing (ION)
11	Institute of Physical Medicine & Rehabilitation (IPM&R)
12	Institutes of Medical Technology (IMT)
13	School of Public Health (SPH)
14	Dow Research Institute of Bio-Technology & Bio-Medical Sciences (DRIBBS)
15	Dow College of Bio-Technology (DCOB)
16	Dow School of Bio-Medical Engineering Technology (DSBMET)
17	Institute of Basic Medical Sciences (IBMS)
18	Ojha Institute of Chest Diseases (OICD)
19	National Institute of Diabetes & Endocrinology (NIDE)
20	National Institute of Solid Organ & Tissue Transplant (NISOTT)
21	National Institute of Liver & GI Diseases (NILGID)

Departments & Centers of Dow University of Health Sciences

1. Department of Research
2. Department of Post Graduate Studies (DPGS)
3. Professional Development Centre (PDC)
4. Office of Research, Innovation, and Commercialization (ORIC)
5. Information Technology Department (IT)
6. Campus Management Solution (CMS)
7. Quality Enhancement Cell (QEC)
8. Finance Directorate
9. Planning and Development Department
10. Procurement Department
11. Examination Department
12. Question Bank (Q Bank)
13. Admission Department
14. Clinical Trial Unit (CTU)
15. Laboratory Animal house
16. Library
17. Dow Vocational Technical Training Centre (DVTTC)
18. Learning Resource Centre (LRC)
19. Dow Diagnostic Research & Reference Laboratory (DDRRL)
20. Sleep Lab (Polysomnography)
21. Thoracic Surgery Department
22. Bariatric Surgery Department
23. Day Care Centre
24. Centre of Cochlear Implant
25. Serobiological Centre DUHS (for anti-snake venom)
26. Dow LEJ Campus

27. Satellite Dow Clinic in Mehran Town, Korangi
28. Satellite Clinic in Nazimabad

Brief Profiles of Institutes & College Offering Academic Programs

Dow Medical College (DMC)

Dow Medical College (DMC) is one of the oldest medical college in Sindh and the second oldest in Pakistan. It was established in 1945. It has a highly qualified and experienced faculty who has been involved in the teaching and training of medical students since the establishment of the college. Over more than 60 years, the college has produced around 17 thousands alumni who have been serving with distinction all over the world. It has attached to Civil Hospital Karachi, Pakistan's largest teaching hospital with departments of almost all major specialties with more than 2000 bed occupancy. The students are imparted clinical teaching in this hospital.

Teaching is on semester basis. The five years course has been divided in 10 semesters. A new system of integrated teaching comprises of applied knowledge in which the students are taught basic subjects in the usual manner, which is later on followed by clinically oriented teaching sessions to explain the clinical application of the basic knowledge. The alumni of Dow University of Health Sciences are serving all over the world in different capacities including senior academic positions, research scholars and clinicians.

Dow International Medical College (DIMC)

Dow International Medical College was established in order to facilitate children of overseas Pakistanis as they face various difficulties in entering into medical profession abroad. It is a 150 seat Medical College that has been recognized internationally as it has been included in INTERNATIONAL MEDICAL EDUCATION DIRECTORY (IMED).

The laboratories are fully equipped with the most modern equipment, including power labs, lecture halls, tutorial rooms and other basic laboratories. Classrooms/lecture halls are fully air-conditioned and powerful generators provide electricity around the clock in case of power failure. A state of the art gymnasium and sports and recreational complex also provides extra-curricular activities to the students. Separate hostels for boys and girls are available along within the same campus with a regularly monitored security system. Clinical training for the MBBS program of DIMC is provided in the 800-bedded Dow University Hospital.

Dow College of Pharmacy (DCOP)

Dow College of Pharmacy (DCOP) was established in 2007, and it is recognized and accredited by the Pharmacy Council of Pakistan. Dow College of Pharmacy provides pharmacy education to its students, offering graduate and post-graduate degree programs in the field of pharmacy:

1. Pharm D (Morning and Evening)- A Five years Program for degree of Doctor of Pharmacy
2. Master Philosophy

Dow College of pharmacy is a leading institute in training of the allied healthcare professionals who are able to conduct innovative research, provide quality pharmaceutical care and consultancies, along with being at the forefront in formulating pharmaceutical products.

The college is well equipped with audiovisual enabled lecture halls, fully equipped laboratories for Pharmaceutics, Pharmacology, Pharmaceutical Chemistry, Pharmacognosy, Industrial Pharmacy, Quality Assurance, Instrumentation, Anatomy, Physiology and Pathology, Microbiology.

Institute of Nursing (ION)

Institute of Nursing was established in June, 2006 with the help of Higher Education Commission (HEC) Pakistan. It is envisioned to promote nursing education in Pakistan, preparing the leaders in the nursing and producing a sufficient number of highly skilled and trained nursing professionals who can meet the challenges of modern preventive and curative healthcare.

The Institute of Nursing has a state-of-art building and all the modern facilities of teaching and learning. Both undergraduate and post-graduate programs are offered at Institute of Nursing. For nearly 11 years, the Institute has helped prepare qualified professional nurses to work as highly skilled nursing staff, competent teachers and leaders in public and private health care sectors.

The Institute of Nursing represents a strong and extraordinary community of excellent students, well-prepared faculty, dedicated staff, and supportive alumni

The institute is currently offering following programs:

1. Masters in Nursing (MSN)
2. Post RN BSc Nursing
3. BS Nursing

All programs, which are offered at Institute of Nursing are accredited by Pakistan Nursing Council (PNC) and Higher Education Commission (HEC), Pakistan.

Dr. Ishrat-ul-Ibad Khan Institute of Oral Health Sciences (DIKIOHS)

Dr. Ishrat ul Ebad Khan Institute of Oral Health Sciences (DIKIOHS) is offering the following programs:

- Bachelor in Dental Surgery (BDS)
- Bachelor in Dental Care Professionals (DCP)
- Masters in Dental Surgery (MDS)

This institute currently has:

The Dental College for imparting under-graduate dental education leading to the degree of Bachelor of Dental Surgery (BDS), fulfilling the requirements of the Pakistan Medical & Dental Council (PM&DC). Training in all Basic and Clinical Dental sciences, and Community Dental Health is provided under the Semester System. Currently there are departments of Oral & Maxillofacial Surgery, Prosthodontics, Oral Pathology & Oral Microbiology, Oral Medicine, Periodontology, Oral Biology and Tooth Morphology, Sciences of Dental Materials, and Community Dentistry.

This college is one of the four in the country, which has been permitted to enroll 100 undergraduate dental students every year.

b) The Dental Hospital. With 125 dental chairs, has Nine Out-patient Departments namely Oral Diagnosis, Oral Surgery, Oral Medicine, Oral Radiology, Periodontology, Prosthodontics, Crown & Bridge, Orthodontics and Operative Dentistry, Procedures including extraction of teeth, filling, root canal, capping and emergency oral treatment is offered. The clinical work at the hospital is augmented by best practice, good sterilization protocols and requisite gadgetry.

All its departments are provided with material and equipment, which are further provided to patients at minimum cost.

c) Post Graduate Training and Research Centre of DIKIOHS is providing fellowship (FCPS) Part II training at the Departments of Orthodontics, Prosthodontics, and Oral Surgery, after being recognized by College of Physicians & Surgeon (CPSP).

Institute of Health Management (IHM)

Institute of Health Management is a constituent part of Dow University of Health Sciences and was established in 2007 to offer programs in Healthcare Management. The institute was established with the aim of creating an environment that facilitates learning and innovation, to bridge the gap between academia and healthcare industry, and to provide quality graduates to contribute to the healthcare workforce. Institute of Health Management (IHM) is a unique blend of partnerships with pharmaceutical industry, health care providers and hospitals of Pakistan. In order to meet objectives of providing quality health managers, IHM is offering following programs:

- Bachelors of Business Administration- BBA
- Masters of Business Administration - MBA (regular)
- Executive Masters of Business Administration- (EMBA)

Institute of Medical Technology (IMT)

Medical Technologists are recognized globally as important and essential members of the health care team, not only for routine medical and surgical care but also for emergency medicine, critical care and management of disaster victims. The Institute of Medical Technology of Dow University was established for Human resource development in these areas.

It offers a four years degree program in following specialties:

- Clinical Pathology
- Critical Care
- Operation Theatre
- Ophthalmology
- Perfusion Science Technology

It has eight semesters over four years and comprises of a core course where training is imparted in Basic Computer Skills, English proficiency, Behavioral Sciences, Research Methodology and Fundamentals of Basic Medical Sciences. The Institute has its own state of the art Skill Laboratory and a 26 station Digital library with Internet and PERN connectivity. Practical classes are held in well-equipped Science laboratories.

Additional training programs at Institute of Medical Technology include:

- Adult Echocardiography / vascular technician course
- Cardiac technologist training program
- Electrocardiography training program
- Technician courses for ultrasound, radiography, CT scan and MRI

Institute of Physical Medicine and Rehabilitation (IPM&R)

Institute of Physical Medicine and Rehabilitation was established in August 2007 and since then it is making a difference in the lives of people with disabilities through multidisciplinary Rehabilitative care to restore fullest possible, physical, mental, social and economic independence.

IPM&R is committed to provide comprehensive multidisciplinary rehabilitation services and evidence based practice to help the patients return to an active and healthy lifestyle. IPM&R is dedicated to being an internationally significant rehabilitation institute in the promotion, development and dissemination of research and education in the science of Rehabilitation through its activities and partnerships with internal and external communities.

Dow International Dental College (DIDC)

Dow International Dental College (DIDC) has been established at Ojha Campus, to meet deficiency of dental surgeons in Pakistan as well as abroad. It is located on the Top floors of DIMC building and offers admissions mainly to overseas students, however due to acute deficiency of Dental Surgeons; the option for admission is also given to local students.

Pakistan Medical & Dental Council (PM&DC) has recognized this college in 2011 for fifty students. Two batches of BDS are presently studying at DIDC. This college is fully equipped with most modern facilities including regular library having books, journals etc. besides the digital library.

Dow Dental College (DDC)

Dow Dental College (DDC) was established in November 2012 at Dow Medical College (DMC). The College is recognized and registered with PMDC for BDS (4 year) program and is authorized to take 50 students per annum.

DDC is working to prepare competent and professional dentists in the existing oral health care educational and patient management system in Pakistan and outside the country with a focus to serve community and research and to develop academic excellence and to deliver the utmost quality of scientifically proven preventive, educational and therapeutic services to the community.

This college and its dental hospital are fully equipped with most modern equipment in the laboratories along with simulators to teach clinical procedures at pre-clinical & clinical level. It has highly qualified and experienced faculty who carry out all dental procedures ranging from simple diagnostic procedures to extractions and implant placements.

National Institute of Diabetes and Endocrinology (NIDE)

It was established in 2006. It provides consultation and counseling of patients suffering from Diabetes and other Endocrine diseases. This institute is offering a two-year Master's program in Diabetes & Endocrinology. This institute is also conducting public awareness programs regularly as the prevalence of diabetes and endocrine diseases are on the rise in Pakistan, in particular Sindh. This institute also has facilities for management and treatment of eye complications of diabetes through its Eye Care Center, which offers the patients:

- Complete Eye Examinations
- Screening for Diabetic Retinopathy
- Fundus Fluorescein Angiography
- Laser photocoagulation

More than 5000 patients have been registered. A comprehensive facility for diabetic diet consultation, foot care, early diagnosis and treatment based facilities for other endocrine diseases, especially thyroid diseases, growth disorders and obesity, is also offered to the patients.

National Institute of Liver and GI Diseases (NILGID)

The National Institute of Liver & GI Diseases NILGID has been established at Ojha Campus. Approximately 100 patients are seen and managed each day in NILGID OPD that comprise the full spectrum of liver and GI diseases ranging from functional dyspepsia to Hepatitis B and C, other liver diseases and gastrointestinal tumors. The OPD is conducted from 8 am to 8 pm.

NILGID has state of the art endoscopic equipment and the faculty has the expertise to perform all the GI endoscopic procedures. Approximately 20 to 25 endoscopic procedures are being done daily that includes both the diagnostic as well as therapeutic procedures; Gastrosopies, colonoscopies, polypectomies, and variceal band ligation are routinely being done. In addition, complex therapeutic procedures that involve fluoroscopy like ERCPs, stenting, dilatations are also increasingly being performed in the unit. The Endoscopy department provides round the clock coverage for all GI emergencies; the coverage also includes all public holidays.

NILGID has a novel facility of FIBROSCAN machine through which liver stiffness and fibrosis is measured noninvasively, first of its kind in Pakistan and presently is also in the process of starting Endoscopic Ultrasound, a unique modality incorporating Ultrasound probe within the endoscope, which would be the first in the huge Cosmopolitan city of Karachi. Even in Pakistan only two centers has this facility.

NILGID has dedicated high dependency bleeding care unit with trained staff to take care of variceal and non-variceal bleeders for prompt pre and post procedure management.

Various researches as well as randomized controlled trials are being done at NILGID; some of them have been presented in the premier conferences of Gastroenterology like American Association for the study of liver diseases (AASLD), and United European Gastroenterology week (UEGW).

Public Awareness program are regularly held to increase the awareness of GI diseases amongst masses particularly viral hepatitis seminars are conducted by our faculty and masses are educated regarding signs, symptoms and care of viral hepatitis.

Similarly free medical camps are also held routinely to screen people for Hepatitis B and C, with a large population taking part both in medical camps and in education programs.

Dr. Ishrat-ul-Ebad Khan Institute of Blood Diseases (DIKIBD)

Dr. Ishrat-Ul-Ebad Khan Institute of Blood Diseases is a center of excellence in Hematology & related Health Care Management, Research and Diagnostics, established by DUHS in 2012.

This Institute has emerged with excellence in Technical, under graduate, Postgraduate Teaching, Training & Research program. This institute has following components:

1. Hematology Section
2. Blood Banking
3. Thalassemia Support Program: (for Blood Transfusion Dependent Patients)
4. Dow Thalassemia Assistance Program (Dow-TAP): volunteer program for Awareness, Screening, Diagnosis & Pre-marriage/pre-marriage Counseling services with DNA analysis
5. Research & Development in the field of Hematology
6. Post graduate Teaching / Training Programs

The entire benefits of this Institute include:

- Quality Controlled and Screened Blood products like Packed Red Cells, FFP. Platelets & other blood components on “NO PROFIT NO LOSS BASIS” are provided to the public.
- Reliable resource for Hematology related Diagnostic services at an affordable price.
- Smooth running of Clinics for Thalassemia and Hemophilia.
- To establish a Registry for Leukemia, lymphomas & other blood disorders.

School of Public Health (SPH)

Public Health is an important component of health services that is often ignored in the developing world and highly emphasized in the developed world. Keeping in view the needs of Pakistani population, the DUHS took this initiative to establish the first public health school in a public sector university in Sindh Province.

Dow University of Health Sciences established the School of Public Health (SPH) at OJHA campus in 2012. The aim of this school is to improve the health of our population by addressing the major health issues. The programs at SPH include Master of Public Health, Master of Sciences (Biostatistics and Epidemiology), Master of Sciences in Public Health (Nutrition Sciences, Health Policy and Management, Social and Behavioral Sciences) and Master of Philosophy (Health Education). Pakistan Medical and Dental Council (PM&DC) has approved all these programs.

The faculty and students of SPH are also conducting community based research and health activities. The SPH has various sections to focus separately such as epidemiology division (examining communicable and non-communicable diseases in Pakistani population), nutrition division (studying the role of nutrition in disease development and prognosis) and economic and policy group (examining the impact of economic indicators on health of Pakistani population and health policy).

Dow Institute of Radiology

The Dow Radiology Complex was established in 2008 to have the highest quality medical imaging, research opportunities, and Radiology educational experiences. Besides providing economic benefits to the patients, the department of Imaging Services is committed to be at the forefront of new developments and clinical applications in the rapidly changing field of medical imaging.

Services include the provision of all modern diagnostic facilities like;

- X-rays
- Ultrasound (09 Nine Machines)
- Fluoroscopy
- DEXA Scan
- Echocardiography
- Mammography
- CT Scan (03 Three Machines)
- MRI (03 Three Machines including one open MRI for Claustrophobic patients).
- 2 MRI Machines (including 1.5 Tesla) and 2 CT Machines, which are functioning 24 hours.

Considering the growing demands of patient a City Campus on Stadium Road has been established, named as ‘Dow LEJ Campus’ and it provides facilities of CT & MRI, 24 hrs.

Highly qualified and experienced faculty, staff, and technologists perform all the teachings and services at Dow Institute of Radiology.

Ojha Institute of Chest Diseases (OICD)

The Ojha Institute of Chest Diseases (OICD) is also a constituent institute of the Dow University of Health Sciences, since its inception in Jan 2004. It was established in the early forties, as a TB sanatorium and now recognized as a center of excellence for Tuberculosis by the World Health Organization (WHO).

The diploma course in chest diseases (DTCD) is also conducted at OICD. It is also recognized for fellowship and membership courses in chest diseases.

Four out-patient clinics of OICD in the periphery of the city are also functioning, these are chest clinics of Iqbal Yad, Nazimabad, Lyari and Malir. Each clinic has well-organized DOTS (Directly Observed Treatment), where these patients with TB are provided medicines and health education.

Daily about 600 patients visit these TB clinics for DOTS treatment and follow up.

TB Hospital of 250 beds provides all possible facilities to indoor and outdoor patients for diagnosis and treatment of tuberculosis.

Multi Drug Resistant (MDR) TB is a great problem. In Pakistan about 15,000-20,000 tuberculosis patients presently suffering from Multi-Drug Resistant (MDR TB), each patient requires approx. Rs. 500,000. for management including costly medicines and other logistics but at OICD, their treatment is free.

Vocational training program have specially been designed and introduced to engage regular TB patients, while undergoing treatment for at least 9 months, to engage them mentally and simultaneously help them to earn daily living.

INSTITUTE OF BIOCHEMICAL, BIOLOGICAL AND PHARMACEUTICAL SCIENCES (IBBPS)

Institute of Biochemical, Biological and Pharmaceutical Sciences (IBBPS), established in 2010 and formerly it was named as Institute of Pharmaceutical and Environmental Research (IPER). It is the first interdisciplinary institute of its kind in any medical university of Pakistan, which provides link between academia and industries.

This institute has now also been certified for bioavailability and bioequivalence of drugs. It is the great service to the pharmaceutical companies of Pakistan, who presently acquire services from outside Pakistan to have bioequivalence of their drugs for its microbiological testing, potency and efficacy.

The team of IBBPS is well trained from Germany, USA, Jordan, Pakistan and comprises of Ph.D. scientists, medical doctors, pharmacist, biotechnologist, microbiologist, biochemist,

This institute also provides facility of contract research organization (CRO, Bioequivalence/ bioavailability, clinical trials, survey, method development, trainings, analysis, lab scale pilot production extra.

The laboratories are equipped with high performance liquid chromatography, gas chromatography, spectrophotometer, lyophilizer, flame photometer, polar meter, Tintometer, Dissolution, Disintegrator etc. The Dow University has also signed a memorandum of understanding (MoU) with a local pharmaceutical company, to focus on production of high quality drugs in accordance with the critical health requirements of the country. This will particularly include anti-snake venom, frequently required in rural and sub urban parts of Pakistan. Presently its production in short hand thus collaboration efforts will fill up the gap.

Department of Post Graduate Studies (DPGS)

The postgraduate education in Dow University of Health Sciences is conducted under the overall supervision of Department of Post Graduate Studies. The University bodies such as Board of Advanced Studies and Research, Institutional (ethical) Review Board and Scientific Committee facilitates monitors both the research activity and the overall programs.

Dow University conducts 35 Ph.D., Masters, Fellowship, Diploma and Certificate programs. Each year around 150 FCPS students, complete training form Dow University of Health Sciences. To date 140 candidates have passed M.Phil. MDS, MSBE, MS diabetes, MS Physiotherapy and MBA from Dow University.

Institute of Basic Medical Sciences (IBMS)

Institute of Basic Medical Sciences (IBMS) has been established for M.Phil. and PhD courses in Basic Sciences i.e. Anatomy, Physiology, Biochemistry, Pathology, Microbiology and Pharmacology to develop human resources. It is a part of medical research city. The building has spacious air-conditioned lecture halls and seminar rooms having necessary audiovisual multimedia facilities.

The contemporary techniques involved in basic sciences research activities, is conducted in the labs of different departments, which are well equipped with modern equipment for variety of anatomical, physiological, biochemical, hematological, pathological, pharmacological, immunological and molecular biological experiments for specific research. The curriculum has been designed with multidisciplinary approach, focusing at molecular and cellular level. In addition, core and supportive courses provide competencies in research Biostatistics, critical analysis, and interpersonal communication and computer skills. This institute is helping in bridging the deficiency gap of Basic Medical Sciences research in Pakistan.

Dow School of Biomedical Engineering and Technology (DSBMET)

Dow University Department of Biomedical Engineering is a driving force in creating engineering knowledge and novel biomedical technology that improve the human care through the advancement of clinical care and biomedical sciences.

The school closely work with medical researchers to identify important problems that impact human health and solve them using our technical expertise. We engage motivated and talented students in the classroom, laboratory and clinic, imparting to them the spirit of our mission as we prepare them for future careers as effective, knowledgeable, and ethical leaders in corporate, professional, and academic communities.

This program prepares individuals who are interested in technology and health sciences to enter a challenging career in biomedical engineering. The program produces biomedical engineering technologists with the ability to participate in the development and application of technology in medicine and biology. The curriculum provides practical hands-on understanding in the fundamental principles, operations and design of medical diagnostic and therapeutic devices (e.g.: heart monitors, cardiac defibrillators, clinical laboratory analyzers and x-ray equipment). Medical device-related standards and protocols, research and design methodologies, technology life-cycle management strategies, safe clinical practices, problem solving skills, performance assurance-testing procedures, and troubleshooting techniques are all studied in this program. Career Prospects for Biomedical Technologist includes;

- Biomedical Technologist in Hospitals
- Medical Equipment Manufacturers
- Healthcare Management System (HMS)

- Research in Academia, Hospital and Medical Businesses
- Government Health Service Agencies
- Development of new Diagnostic Instrumentation
- Implementing International Electrical Safety & Hazards Standards on Medical Devices
- Healthcare Information System (e-Health) & e-Learning

Chapter 1

Academic Activities

1.1 Undergraduate and Postgraduate Programs:

Details of Undergraduate Programs

Institute	Program	DESCRIPTION	Speciality
DMC	MBBS	Bachelor of Medicine and Bachelors of Surgery	
DIMC	MBBS	Bachelor of Medicine and Bachelors of Surgery	
DIKIOHS	BDS	Bachelor of Dental Surgery	
DIDC	BDS	Bachelor of Dental Surgery	
DIKIOHS	BS-DCP	Dental Care Professional	Dental Technology
			Dental Hygienist
DCOP	PHARM-D	Doctor of Pharmacy (Pharm D)	
IMT	BSMT	BS Medical Tecnology In	Clinical Laboratory Sciences
			Critical Care
			Operation Theatre
			Ophthalmology
			Cardiovascular Perfusionist
IPMR	BSPMR	Bs Physical Medicine and Rehabilitation	BS Occupational Therapy
			BS Prosthetics and Orthotics
	DPT	Doctor of Physiotherapy	Rehabilitation
IHM	BBA	Bachelor of Business Administration	Health Management
			Pharmaceutical
			Marketng
			Finance+HRM+IT Management
ION	BSNUR	BS in Nursing (4 Year)	Nursing
	PRNBS	Post Rn BSc Nursing 2 Year Program	
	BSCNFT	Diploma in Nursing (One Year Fast Track Program)	
DIR	AAS	Associate of Applied Sciences	

DETAILS OF POSTGRADUATE PROGRAMS

1. Masters in Dental Surgery (MDS-Basic & Clinical) (4-Years Program)

1. Operative Dentistry
2. Oral Surgery
3. Prosthodontics
4. Orthodontics
5. Oral Biology
6. Oral Pathology
7. Dental Material
8. Comm. Dentistry

2. Masters in Science Dental Surgery (M. Sc.) (2-Years Program)

- a. Operative Dentistry
- b. Oral Surgery
- c. Prosthodontics
- d. Orthodontics
- e. Oral Biology
- f. Oral Pathology
- g. Dental Material
- h. Comm. Dentistry
- i. Periodontology
- j. Oral Medicine

3. Masters in Diabetics & Endocrinology (M.Sc. D.E)

4. Masters in Biostatistics and Epidemiology (MSBE)

5. Masters in Health Profession Education (MHPE)

6. Masters in Advanced Physiotherapy (MSAPT)

7. Masters in Nursing (MSN)

8. Masters in Public Health (MPH)

9. Masters in Transfusion Medicine & Tissue Typing (MSTMTT)

10. Masters in Bio-Physics (MS-BPHY)

11. Masters of Business Administration (Mor. / Eve) (MBA)

A. Hospital Management B. Pharmaceutical Management
Management

C. Health Services

12. Masters in Science (Social & Behavioral Sciences) (MSPH)

13. Masters in Science (Health Policy and Management) (MHPM)

14. Masters of Science in (Nutritional Sciences) (MSNS)

TWO - YEARS CLINICAL DIPLOMA PROGRAMS:

1. Diploma in Family Medicine

(DFM)

2. Diploma in Medical Jurisprudence

(DMJ)

3. Diploma in Cardiology

(Dip-Card)

4. Diploma in Critical Care Medicine

(DCCM)

5. Diploma in Tuberculosis & Chest Diseases

(DTCD)

6. Diploma in Child Health

(DCH)

7. Diploma in Dermatology

(D- Derm)

8. Diploma in Radiology

(DMRD)

9. Diploma in Anesthesiology

(DA)

10. Diploma in Ophthalmology

(DO)

11. Diploma in Psychiatric Medicine

(DPM)

12. Diploma in Laryngo Otorhinology

(DLO)

FCPS-II FELLOWSHIP TRAINING IN THE FOLLOWING SPECIALTIES (4-Years Program)

1. Medicine
2. Surgery
3. Gynae
4. Paeds
5. Cardiology
6. Radiology
7. Forensic Medicine
8. Pulmonology
9. Ophthalmology
10. Anesthesiology
11. Plastic Surgery
12. Neurology
13. ENT
14. Psychiatry
15. Community Medicine
16. Operative Dentistry
17. Oral Surgery
18. Orthodontics
19. Prosthodontics
20. Cardiac Surgery
21. Orthopedic
22. Dermatology
23. Physical Medicine and Rehabilitation

1.2 MS AND PHD PROGRAMMES

MS/MD- MASTERS OF SURGERY/ DOCTOR OF MEDICINE PROGRAMS (5-Years Program)

MD-PROGRAMS SPECIALITIES

1. Internal Medicine
2. Neurology
3. Cardiology
4. Dermatology
5. Community Medicine
6. Pediatric
7. Critical Care Medicine
8. Family Medicine
9. Pulmonology
10. Anesthesiology
11. Psychiatry
12. Gastroenterology
13. Sports Medicine
14. Radiology

MS-PROGRAMS SPECIALITIES

1. General Surgery
2. Gynae & Obs.
3. Orthopedics Surgery
4. Plastic Surgery
5. Neurosurgery
6. Cardiac Surgery
7. Ophthalmology
8. Pediatric Surgery
9. ENT

M. Phil & Ph. D. PROGRAMS:

M. Phil in Basic Sciences

1. Anatomy
2. Physiology
3. Pharmacology
4. Biochemistry
5. Hematology
6. Medical Genetics
7. Histopathology
8. Medical Microbiology
9. Chemical Pathology
10. Bio-Technology
11. Molecular Pathology.
12. Molecular Biology
13. Molecular Medicine & Bioinformatics.
14. M. Phil Health Education and Promotion

M. Phil in Pharmaceutical Sciences

1. Pharmacology
2. Pharmaceutics
3. Pharmaceutical Chemistry
4. Pharmacognosy

Ph. D. in Dental Sciences, Clinical Sciences, Basic Sciences and Public Health

1.3 ACADEMIC ACHIEVEMENTS

- **Student Passed-out During the Year 2016-17**

In the year 2016-17, 1672 students passed out under various undergraduate and postgraduate program. The details are as follows:

Total Passed out Students in Undergraduate Courses

S.No	Course Title	No. of Students
1.	MBBS	851
2.	BDS	224
3.	Pham-D	071
4.	DPT	049
5.	BSMT	120
6.	BSOT	022
7.	BSPO	019
8.	BSDCP	005
9.	BS Nursing (Generic)	067
10.	Post RN Nursing	071
11.	BBA	018
12.	AASRT	009
Sub. Total Undergraduate (A)		1526

Total Passed out Students in Postgraduate Course

S.No	Course Title	No. of Students
1.	MSAPT	02
2.	MSPT	01
3.	MPH	07
4.	MPhil	05
5.	MSBE	10
6.	MSDE	05
7.	MS Nursing	02
8.	MSPH	03
9.	MDS	01
10.	MBA	16
11.	MHPE	08
12.	PhD	02
Sub. Total Postgraduate (B)		62

Total Passed out Students in Diploma Courses

S.No	Course Title	No. of Students
1.	DMJ	03
2.	Dip.Card.	36
3.	DA	01
4.	D. Derm	10
5.	DFM	03
6.	DMRD	22
7.	DCH	03
8.	DTCD	01
9.	DIP. CT	01
10.	DIP. MRI	03
11.	D.O	01
Sub. Total Diploma (C)		84

Sub. Total Undergraduate (A)	1526
Sub. Total Postgraduate (B)	0062
Sub. Total Diploma (C)	0084
Grand total (A+B+C)	1672

- **Research Achievements**

During the years 2016 and 2017, total number of projects approved were 116, in which 30 were newly launched. The research publication for the years 2016 and 2017 was 516.

1.4 Foreign Academic Linkages

For the year 2016-17 following academic linkages with the foreign medical boards/associations/universities are as follows:

- Tech4 Life Enterprises Canada Inc.
- International Committee of the Red Cross (ICRC), Geneva, Switzerland
- Universiti Sultan Zainal Abidin, Malaysia
- American Medical Residency Certification Board (AMRCB)
- Educational Commission for Foreign Medical Graduates (ECFMG)
- Foundation for Advancement of International Medical Education and Research (FAIMER).
- Global Health Learning Opportunities (GHLO)
- Medical Board of California
- University of Illinois-Chicago
- International Committee of the Red Cross

1.5 Honors and Awards:

Brig. Shoaib Ahmed S.I (M) Rtd, Executive Director I.B.S received Sitara e Imtiaz, in March 2017.

1.6 Institutional Linkages:

Following are the Institutional linkages:

Academics – for the purpose of post graduate trainings offered:

- Aga Khan University Karachi
- Jinnah Post Graduate Medical Center Karachi
- Patel Hospital Karachi
- Darul-Sehat Hospital Karachi
- Karachi Adventist Hospital
- Tabba Heart Institute Karachi
- Ghulam Muhammad Mehr Medical College Sukkur
- Chandka Medical College Larkana
- Pakistan Council for Scientific And Industrial Research (PCSIR)
- Pakistan Standard Quality Control Authority (PSQCA)
- Executive Membership From Sind Province In Scaling Up Nutrition Academia & Research (SUNAR)
- Martin Dow Limited

Educational visits of Medical College students of:

- Karachi Medical and Dental College Karachi
- Hamdard Medical University Karachi
- Sir Syed Medical college Karachi
- Liaquat College of Medicine and Dentistry Karachi
- Dr. Abdul Wahab Dogar and Associates (AWD Associates), Lahore
- Combined Military Hospital, Malir Cantonment Karachi
- M/s PIQC Institute of Quality

Research work

- Aga Khan University Karachi
- National TB control program Karachi
- Bridge consultant foundation Karachi
- Pakistan Chest Society

Nursing training

- Dr Ziauddin Medical University Karachi
- Karachi Kings College of Nursing Karachi
- Jinnah Medical and Nursing College Karachi
- New life College of Nursing Karachi

Chapter 2

Research and Development

2.1 R & D – An Overview:

The establishment of Department of Research took place with the inception of Dow University of Health Sciences. Since then, Research Department is providing its services to enhance university position in research, training and consultation areas. The particular activities of the department are briefly highlighted below:

• **Postgraduate Synopsis and Thesis Review:**

• **Scientific Research Committee:** This committee was formed in November, 2012 with the approval of Board of Advanced Studies and Research of DUHS. The committee consisted of faculty of DUHS from various fields. In this committee, research proposals of postgraduate students are scientifically reviewed and advised the modifications to the students.

• **PhD Advisory Committee:** The purpose of this committee is to evaluate synopses submitted by PhD students. The committee comprises of indigenous experts from different fields. In this committee, research synopses of doctorate students are scientifically reviewed and advised the modifications to the students.

• **Institutional Review Board:** Department also administered and organized Institutional Review Board of DUHS which consists of 14 members from different specialty such as medicines, law, religious scholar, ethics, social work etc. It reviews and approves research proposals conducted by DUHS. Besides, DUHS offers this service to those institutes who have not their own IRB/ERB.

• **Board of Advanced Studies and Research:** All the official works related to this Board are administered and organized under Research Department. The Board consists of 10 members under the Chairmanship of the Vice Chancellor. The functions of this board are:

01. To advise authorities on all matters connected with the promotion of Advanced Studies and Research in university
02. To propose regulations regarding the award of research degrees.
03. To appoint supervisors for research students to determine the subject of their thesis.
04. To recommend panels of names of paper setters and examiners for research examination after considering the proposals of Board of Studies in this behalf; and
05. To perform such other functions as may be prescribed by the statutes.

Furthermore, the Board also gives final approval for the synopsis.

• **Thesis Review and Examination Processes:** To search reviewers and examiners of postgraduate thesis of DUHS is also performed by the departmental members. Sending abstracts, taking approvals, dispatching theses and arrange examination days stuffs are the major tasks required during the process.

- **Academic Activities:**

- **Undergraduate Students Research Activities:** A research component was also incorporated in MBBS curriculum of DUHS five years ago. Each clinical group works under a faculty member of DUHS.

- **Fourth Year Research Book:** The researches of undergraduate students are published annually under department of research. This book contains reports of all the clinical groups of DUHS.

- **Postgraduate Programs:** Research Department is running a postgraduate level program, Master of Science in Biostatistics and Epidemiology (MSBE). MSBE program was started in October 2008. This is a two years program comprises of four semesters with a research thesis work in second year of the program.

- **Summer Short Courses:** Department has initiated three months summer short courses last year. The courses on Applied Biostatistics, Fundamental Epidemiology, Statistical softwares in health sciences and Research methodology are taught during June to August. The classes are conducted in weekends.

- **Training on Biostatistics and Research Methodology:** Department also facilitates training on specific topics of biostatistics and research methodology. Several workshops have been conducted by the faculty of Research Department on the same.

- **Foreign Scholarship program:** Foreign Scholarship program is funded by Higher Education Commission (HEC) of Pakistan. Twenty scholars were sent for PhD program at overseas universities. Fifteen scholars enrolled in United Kingdom's universities and one each in Australia, Canada, Sweden, Scotland and Germany. These scholars were selected after through screening by Graduate Assessment Test (GAT), subject and protocol writing tests and then following by two interviews based on candidate's research interest and specialty. Eighteen scholars have successfully completed their PhD program and joined the DUHS back.

- **Research and Bio-statistical Consultation:** The faculty of Research Department also provides research and bio-statistical consultation not only to faculty and students but also to pharmaceutical industries till now. The consultation is classified following three major parts

1. Statistical Consultation:

Department consults all kind of statistical works to different academic and research based organizations including pharmaceutical industries. These services include, but not limited to, sample size calculation, data entry, data analysis and formatted table & graph of the output of the analyses.

2. Writing Consultation:

Department also provides consultation in writing analysis and result sections of the research project/report. Besides, investigators who wants to write by themselves, department guides them how to interpret the statistical results.

3. Research Protocol Review Guides:

The faculty also assists research student and faculty about the processes of research work and writing including questionnaire formatting, structure of protocol, literature review and consent form etc.

• **Other Related Activities:**

• **Research Posters Competition:** Each year, research department celebrates Faculty and Student Research Days. On these days, researches of faculty and students are displayed through posters. The best three researches present their works orally are awarded.

• **Journal of Dow University of Health Sciences:** Department of Research, DUHS administered and published Journal of Dow University of Health Sciences (JDUHS) 3 times a year. This journal is approved by PMRC and indexed in IMEMR, PakMediNet and CABI. The journal is also recognized by Higher Education Commission (HEC), Pakistan. The journal is available online and submission and processes of manuscript can be made while emailing to jduhs@duhs.edu.pk.

• **Abstract Book:** Each year Research Department compiles and publishes ‘Abstract Book’ which contains abstracts of research works published by DUHS faculty. The first book was published in 2010.

• **Registration of Research Projects:** All the faculty and students of DUHS have to register their intended research project at the Research Department, so that the projects should not be duplicated by other faculty members and candidates.

2 Projects:

i) Completed

Total number of Approved in 2016	59
Total number of Approved in 2017	27

ii) Newly launched

Total number of Newly Launched in 2016	18
Total number of Newly Launched in 2017	12

3 Publications & Authors

2016	
W	120
X	26
Y	42
Z	26
Total	261
2017	
W	109
X	21
Y	13
Z	26
Total	255

4: Conferences, Seminars and Workshops, etc. (attended by Faculty)

S.no	Faculty Name	Event	Topic	Date/Time	Venue
1	Dr. Mehwish Hussain (Senior Lecturer Biostatistics)	8 th Annual Research Day 2017	EndNote & SPSS	22 nd to 23 rd February, 2017	Karachi
2	Ms. Saba Mughal (Lecturer Biostatistics)	8 th Annual Research Day 2017	SPSS	22 nd to 23 rd February, 2017	Karachi
3	Ms. Hira Fatima Wassem (Lecturer Biostatistics)	8 th Annual Research Day 2017	SPSS	22 nd to 23 rd February, 2017	Karachi
4	Mr. Syed Arif Ali (Senior Lecturer Biostatistics)	8 th Annual Research Day 2017	Designing Research Poster	22 nd to 23 rd February, 2017	Karachi
5	Mr. Syed Omair Adil (Lecturer Biostatistics)	8 th Annual Research Day 2017	None	22 nd to 23 rd February, 2017	Karachi
6	Mr. Abdur Rasheed (Deputy Director & Senior Lecturer Biostatistics)	8 th Annual Research Day 2017	EpiData , SAS	22 nd to 23 rd February, 2017	Karachi
7	Mr. Waqas Ahmed Farouqui (Assistant Director & Lecturer Biostatistics)	8 th Annual Research Day 2017	Data Analysis & Sample Size Calculation	22 nd to 23 rd February, 2017	Karachi

5: Research Journals

Journal name: Journal of Dow University of Health Sciences (JDUHS)

Year 2016:

Volume- 10	Issue- 2	May to August - 2016
Volume- 10	Issue- 3	September to December - 2016
Total Issues of Journals in the month of July to December 2016		02 Issues

Year 2017:

Volume- 11	Issue- 1	January to April - 2017
Volume- 11	Issue- 2	May to August - 2017
Total Issues of Journals in the month of January to December 2017		02 Issues

6: Research Collaboration

Indigenous.

- Agha Khan University, Karachi
- University of Karachi, Karachi
- International Center of Biological and Biomedical Sciences, Karachi

Foreign Linkages.

1. School of Public Health with University of Groningen
2. Dow University of Health Sciences with Staffordshire University

Funding Grants for R&D

S.no	Principal Investigator (PI)	Project Name	Total Fund	Different Agencies	Starting and Ending Year
1	Prof. Dr. Sumbul Shamim	"In vitro pharmacodynamics study of potential antimicrobial natural compounds against carbapenem resistant enterobacteriaceae from local clinics isolate"	Rs. 2774607	HEC	19/05/2017

2	Dr. Amjad Sattar	"Detection of Hepatocellular carcinoma by liver specific contrast enhanced magnetic resonance imaging in patients with chronic liver disease"	Rs.3257872/-	HEC	19/05/2017
3	Dr. Shaukat Ali	"Establishment of high cell density culture of saccharomyces boulardii and scale up using bench scale bioreactor : Demonstration of lab scale probiotic production"	Rs.2021100/-	HEC	19/05/2017

Operation of Office of Research, Innovation and Commercialization (ORIC)

With the establishment of Dow University of Health Sciences (DUHS), Directorate of Research inceptioned with the aim of growing quality research culture in the institute. Many sections were introduced to strengthen advancement of research culture in DUHS. These included registration and approval research proposals by Institutional Review Boards (IRB) and publishing Journal of Dow University of Health Sciences (JDUHS). Faculty research profile and research poster competition were the other stones for growing research culture in DUHS. Besides, introducing graded courses, degree program and occasional trainings assisted to increase the knowledge of research based courses among faculty and students.

In 2011, under the directives of Higher Education Commission (HEC) of Pakistan, DUHS developed Office of Research, Innovation and Commercialization (ORIC) to promote innovation and commercialization at the university. The ORIC, DUHS since then, adapted policies for augmenting activities related to innovation and commercialization at DUHS. The ORIC office at DUHS has divided its activities into four diverse segments including research projects, linkage establishment, innovation support and commercialization. Following is a report on progress in all four segments in financial year 2016-17.

SEGMENT 1: RESEARCH PROJECTS

It is the vision of ORIC, DUHS to promote various research projects at the university which have direct impact on the society. Aligned with the same vision following research projects were initiated in financial year 2016-17:

- Assessment of Extent of Rational Drug Use among Patients and Healthcare Providers and Intervention for Improved practices
- Establishment of high cell density culture of *saccharomyces boulardii* and scale up using bench scale bioreactor
- Identification of different mutation in globin gene responsible for thalassemia by using PCR and sequencing
- A joint project between Centre of Molecular Medicines and Drug Research, ICCBS, University of Karachi and Dow University of Health Sciences. Title of the Project was Analysis of Oral Micro biome in type-2 diabetes mellitus patients.
- A joint project between Department of TB Clinic, Indus Hospital Karachi and Dow University of Health Sciences, the title of the project was “Time to culture conversion, predictors of interim outcomes, drug resistance patterns in treatment causes of pulmonary multiple drug resistant tuberculosis”.
- A joint project between department of pediatrics and child health, Agha Khan University Hospital and Karachi and Dow University of Health Sciences title of the research project was “Building the evidence base for care of acutely ill, undernourished children in limited resource settings – cohort study
- A joint research project between APPNA Institute of Public Health JSMU & DOW University of Health Sciences. The title of the project was Effectiveness of De-Escalation Training on Frequency and Management of Violence faced by Health Care Providers in hospitals of Karachi, Pakistan.
- A joint research project between Center of Molecular Medicines and Drug Research, ICCBS, University of Karachi and Dow University of Health Sciences. The title of the project was Molecular characterization of genomic susceptibility loci associated with Type 2 diabetes mellitus.
- A joint project between COMSATS Institute of Information Technology and DOW University of Health Sciences. The title of the project was Analysis of Single Nucleotide Polymorphisms in Human osteopontin gene in Pakistan with relevance to HCV infection
- Two research projects were completed on Materials in collaboration with Rockefeller University New your city.

SEGMENT 2: UNIVERSITY- INDUSTRY LINKAGE AND OTHER COLLABORATIONS

ORIC, DUHS always encourages all constituent institutes to develop collaborative linkages with other national and international academic institutes and industry to facilitate exchange of knowledge among human resource from diverse background. Following are the linkages and collaborations established between DUHS and above mentioned entities in financial year 2016-17:

- MOU signed between Dow Research Institute of Biotechnology and Biomedical Sciences (DRIBBS) and Institute of Biophysics, Chinese academy of Sciences to apply for joint research grant under “one belt one road research initiative”.
- Yearly continuation of MOU signed between DICE Health Platform, DUHS and Distinguished Innovations, Collaboration and Entrepreneurship (DICE Foundation Inc.)
- Yearly continuation of Physical Rehabilitation Program in collaboration with The International Committee of the Red Cross (ICRC)
- A contract was signed between Transport department Dow University of Health Sciences and Deen Muhammad & Sons Transport Company
- Collaboration between DUHS Children’s Burn and Reconstructive Surgery Center and House of Charity Houston
- MOU between mobility program and University of Sultan Zainulabidin was signed for various academic activities
- Collaboration for Promotion of Education and Entrepreneurship was signed with Virtual University
- Research Collaboration was signed with Tech4Life Enterprises Canada Inc. for various research activities
- Dow Institute of Cardiology signed an MOU for Facilitation of Medical in general and cardiology services with Combined Military Hospital Malir Cantonment
- MOU was signed with ANG Center of Liver and Biliary Surgery Private limited company for medical facilitation

SEGMENT 3: INNOVATION

ORIC, DUHS promote innovative research ideas at the university through workshops, brainstorming sessions and intellectual property discussion with all major stakeholders of the university. Followings are innovative research projects that have been initiated during financial year 2016-17 at DUHS:

- Production of cellulose enzyme using bagasse as industrial waste
- Isolation of Pakistan’s first indigenous *Saccharomyces boulardii* for local probiotic preparation
- Nutrition App development for Adolescents
- Anti-Venom Vaccine
- Mass production of commercially important microalgae

SEGMENT 4: COMMERCIALIZATION

ORIC, DUHS envisions financial sustainability of the university and therefore it always promote transformation of innovative discoveries into industrial ventures. Due to continuous efforts of the ORIC, entrepreneurship spirit has been nurtured at the university leading to following commercial projects in the financial year 2016-17:

- Alcohol Free Hand Sanitizer
- Riva Drinking Water Distribution
- Daily Life Activities (ADL) Devices
- Artificial Limbs

Chapter 3

Quality Assurance

3.1 Impact of Quality Assurance in the University:

Worldwide, universities rely on quality assurance procedures to achieve excellence in their academic programs, as well as to sustain it in future. In 2006, as per the directives of Higher Education Commission (HEC) Pakistan, the Quality Enhancement Cell (QEC) at Dow University of Health Sciences was established.

Dow University of Health Sciences has a well-developed Quality Assurance system that monitors the academic and clinical services. In this regard, number of measures for quality enhancement and assurance has introduced to have an effective quality assurance setup with standardized procedures and practices in health education, which includes:

- Preparation of Program Self-Assessment Reports
- Faculty assessment through student feedback
- Implementation of Quality Management System at Dow University of Health Sciences

3.2 Quality Enhancement Cell

The Quality Enhancement Cell at Dow University of Health Sciences was established in the 1st phase of HEC implementation in 2006, along with 29 other cells in various public sector universities throughout Pakistan. The prime objective of QEC is to practice evaluative measures in order to achieve excellence in program delivery. Since its establishment, QEC is continuously involved in monitoring and measurement of Quality Management System (QMS) processes and the academic services throughout the DUHS.

Score of QEC-DUHS in 2016-17 by HEC

In 2016-17, the QEC-DUHS has scored 94% and placed in W-category by HEC.

Responsibilities of QEC

The responsibilities of QEC include:

- Preparing and reviewing the program evaluation through Self- Assessment.
- Reviewing the Quality of teaching and learning in each subjected area through HEC prescribed feedback forms as per the guidelines given for each form in coordination with QMS coordinators and SAR Program Teams.
- Ensuring that the University's Quality Management System is designed to fit with the requirements of HEC.
- Reviewing the quality standards and procedures used in quality assurance in terms of internal and surveillance quality audits for ISO certification 9001:2008,

Major Achievements of QEC-DUHS in 2016-17

The major achievements of QEC DUHS in 2016-17 includes:

➤ Self-Assessment Reports:

QEC-DUHS from its establishment until 2016-17 has completed Self-Assessment Reports in 47 various undergraduate and postgraduate programs of Dow University.

➤ **HEC prescribed feedback forms:**

QEC-DUHS successfully conducted the following online proformas for feedback evaluation in all the degree-awarding programs of DUHS:

1. Teacher Evaluation by students
2. Course Evaluation by students
3. Faculty Course Review Report

➤ **Internal Quality Audit at DUHS:**

Completion of Internal Quality Audit (IQA) in ten institutes and support departments of DUHS with the help of Internal Auditors of DUHS, PIQC Consultants and QEC officials, to monitor the implementation of Quality Management System (QMS) of ISO 9001:2008 in DUHS.

3.3 Membership of Association/ Networks

Following are the memberships of different association/ networks;

1. Member of Tallories Network since 2009.
2. Member of Learning Innovation Division, HEC Pakistan since 2005.
3. American Association of Medical Colleges- Visiting Students Learning Opportunities.
4. Prospective member of Asia Pacific Quality Network (APQN).
5. Corporate and Associate Member of Association of National and International Universities, Research and Educational centers.

3.4 Accreditation of programs from relevant councils.

Following programs are accredited by their respective accreditation council/s:

1. MBBS program at Dow Medical College (DMC) - Accredited by Pakistan Medical & Dental Council (PM&DC).
2. MBBS program at Dow International Medical College (DIMC) - Accredited by Pakistan Medical & Dental Council (PM&DC).
3. Bachelor of Dental Surgery (BDS) program at Dr. Ishrat ul Ebad Khan Institute of Oral Health Sciences (DIKIOHS) – Accredited by Pakistan Medical and Dental Council (PM&DC)
4. Bachelor of Dental Surgery (BDS) program at Dow International Dental College (DIDC) – Accredited by Pakistan Medical and Dental Council (PM&DC)
5. Pharm D program at Dow College of Pharmacy (DCOP) - Accredited by Pakistan Pharmacy Council (PPC).
6. Post RN Nursing program at Institute of Nursing (ION) - Accredited by Pakistan Nursing Council (PNC).
7. BS Generic Nursing program - Accredited by Pakistan Nursing Council (PNC).
8. Master of Nursing (MSN) program- Accredited by Pakistan Nursing Council (PNC).
9. MPhil (Basic Medical Sciences) at Institute of Basic Medical Sciences- Accredited by Pakistan Medical & Dental Council (PM&DC).

10. Master of Dental Surgery (MDS) program at Dr. Ishrat ul Ebad Khan Institute of Oral Health Sciences (DIKIOHS) - Accredited by Pakistan Medical & Dental Council (PM&DC).
11. Master of Public Health (MPH) at School of Public Health- Accredited by Pakistan Medical & Dental Council (PM&DC).
12. MS in Epidemiology and Biostatistics (MSBE) at School of Public Health- Accredited by Pakistan Medical & Dental Council (PM&DC).
13. MS in Public Health (MSPH) at School of Public Health- Accredited by Pakistan Medical & Dental Council (PM&DC).
14. Master in Health Professional Education (MHPE) at Dow Institute of Health Professionals Education- Accredited by Pakistan Medical & Dental Council (PM&DC).
15. Master of Surgery (MS) at Department of Postgraduate Studies- Accredited by Pakistan Medical & Dental Council (PM&DC).
16. Doctor of Medicine (MD) program at Department of Postgraduate Studies- Accredited by Pakistan Medical & Dental Council (PM&DC).
17. BBA & MBA Programs are in the process of accreditation from National Business Education Accreditation Council (NBEAC).

Chapter 4

Faculty Development

Professional Development Center (PDC) DUHS

With the establishment of Dow University of Health Sciences (DUHS) in 2004, it was envisioned that Continuing Medical Education (CME) should be promoted within the faculty and students of Dow University. Professional Development Center started working as the “Office of CME” as of January 2004. Under this office, CME lectures, seminars, symposia and conferences were conducted on a regular basis. Furthermore International Health Days were celebrated regularly. Over a period of a year and a half, the faculty dedicated to PDC managed to organize more than a 100 national and International events, with the dedication and efforts of the Faculty and Alumni abroad.

After the devastating earthquake of 2005, it was thought to add hands-on workshops in addition to the CME lectures, which were mostly theoretical. Thus the Office of CME was amalgamated into a more comprehensive “Professional Development Centre” (PDC) of Dow University of Health Sciences. Also, a formal inauguration was performed by the Chancellor of the University, Governor of Sindh.

Subsequent to its formation, two divisions were formed within the PDC, namely Surgical and Allied and the Medical and Allied, where faculty members were designated as Directors of these two divisions. They were given the task to do a Training Needs Assessment and offer programs for different categories of health Professionals.

The Professional Development Centre has simulated ICU, simulated Operation Theatre, Laparoscopic / Endoscopic Suites, three training halls and a Conference Room. Equipped with the latest audio-visual and multimedia systems, state of art equipment, electronic simulators and manikins, the PDC is a site for all those healthcare professionals looking to enhance their skills with hands-on training.

Professional Development Centre currently provides training facility in the basic and advanced skills to undergraduates, postgraduates, residents, faculty members and other health professionals. PDC has its head office at DMC with its branch at Dow International Medical College (DIMC), Ojha with similar facilities, equipment and instructors. Each wing of PDC has a dedicated Undergraduate Skills Lab.

PDC consists of four major divisions:

Continuing Medical Education (which deals with Seminars, lectures, symposia and conferences).

Continuing Professional Development (that deals with long duration & short duration training courses and hands-on workshops).

Undergraduate Skills Lab (which deals with the training of undergraduate students).

Miscellaneous programs (that include programs like visiting faculty, reproductive health and alumni affairs).

Since its inception in October, 2005 Professional Development Centre has conducted CME & Miscellaneous Programs in collaboration with National & International Organizations like PTC Foundation UK, American Heart Association, North Middlesex University Hospital, London, IMPACT Nepal, Amber Institute of California, INTER BURNS, INFORM, EMAME & EmONC, FALAH, US AID, UNFPA & WHO etc.

4.1 Faculty Development Programs (MS/Ph.D local +Foreign):

Foreign Scholarship program is funded by Higher Education Commission (HEC) of Pakistan. Twenty scholars were sent for PhD program at overseas universities. Fifteen scholars enrolled in United Kingdom's universities and one each in Australia, Canada, Sweden, and Germany. These scholars were selected after through screening by Graduate Assessment Test (GAT), subject and protocol writing tests and then following by two interviews based on candidate's research interest and specialty.

Twelve scholars have successfully completed their PhD program and joined the DUHS back from 2013 to date. The University is trying to strengthen its faculty under the following Faculty Development Program.

4.2 Returned scholars:

S.No.	Name	Returned Scholars FY:2016-17
1.	Dr. Yasir Hamid	Returned
2.	Mr. M. Munir	Returned

4.3 Present Scholars:

S.No.	Name	Present Scholars FY:2016-17
1.	Dr. Sameer Qurehi	Present
2.	Ms. Sadaf Khan	Present
3.	Ms. Rafat Amin	Present
4.	Mr. Shaukat Ali	Present
5.	Dr. Mohsin Wahid	Present
6.	Dr. M. Asif Qureshi	Present
7.	Dr. Kashif Shafique	Present
8.	Dr. Nouman Mughal	Present
9.	Dr. M. Yahya Noori	Present
10.	Ms. Tehseen Fatima	Present
11.	Dr. M. Furqan Bari	Present
12.	Dr. Ashraf Jahanger	Present
13.	Mr. Mushtaq Hussain	Present

4.4 Pre Service and in Service Professional development Programs



STATISTICAL DATA OF HEALTH PERSONNEL TRAINED

BY

Professional Development Centre

July 1, 2016 to June 30, 2017

S. No	Workshops	Dated	Number of Workshops	Professor	Associate Professor	Assistant Professor	Senior Reg/ Demonstrator	Total participants
1	Basic Life Support (BLS)	Nov 14, 2016 & Jan 09, 2017	2	0	0	1	1	2
2	Advanced Cardiac Life Support (ACLS)	Nov 23 & 24, 2016	1	0	1	1	0	2
3	On the Occasion of APPNA-DUHS Winter Meeting 2016	December 22, 2016	4	3	1	10	4	18
4	Pediatric Advanced Life Support (PALS)	Sept. 28 & 29, 2016 & Feb 1 & 2, 2017	2	0	0	1	4	5
5	PRIMARY TRAUMA CARE (PTC)	September 2 & 3, 2016	1	0	5	13	0	18
6	BCQ Writing Skills	January 25, 2017	1	0	0	13	1	14
7	Article Writing	January 28, 2017	1	0	0	1	1	2
8	Workshop on Movement Disorders	April 25, 2017	1	0	0	5	0	5
Total			13	3	7	45	11	66

4.5 Achievement of Foreign Faculty

S. No.	Faculty Member Name	Institute/ Department	Degree/ Diploma / Certificate	Place of Study
1	Dr. Kashif Shafique	School of Public Health	MPH and PhD (Public Health)	University of Glasgow, UK
2	Dr. Tahir Rizwan Khan	School of Public Health	MPhil. In international Community Health	University of OSLO, Norway
3	Dr. Saima Mehmood	Dow College of Pharmacy	collaborative PhD work.	Turkey
4	Dr. Zulfiqar Ali Shaikh	Dow Medical College	Graduate Certificate	Bloomberg School of Public Health, John Hopkins University, USA
5	Dr. Syed M. Ashraf Jahangeer Al. Sani	Dow Medical College	MS Epidemiology	London School of Hygiene & Tropical Medicine, UK

Chapter 5

Access

5.1 Basic enrolment

Total Enrolment during 2016-17 was 7493.

The detail of undergraduate and postgraduate basic enrollment is attached as Annex-A.

5.2 Equity

In Dow University of Health Sciences, admissions are granted on transparent open merit basis for all applicants either male or female.

5.3 Gender-Wise Detail

The gender wise detail is already provided in Annex-A.

5.4 Employability

The graduates of Dow University of Health Sciences are serving in almost all prominent health care institutions of Pakistan as well as at international level. List of some major employers of DUHS graduates is following:

- College of Physicians and Surgeons Pakistan
- Sindh Institute of Urology and Transplantation (SIUT)
- National and Multinational Pharmaceutical Companies
- Private Hospitals
- Public & Private Sector Medical Colleges & Universities
- Multinational and Private Limited companies

5.5 Faculty-student ratio

In the year 2016-2017, the faculty-student ratio is as under:

- Total No. of Faculty: 849
- Total No. of Enrolled Students: 7493
- Ratio: 1:9

Chapter 6

University Building Economies

6.1 University- Industry Linkage

Dow University of Health Sciences, Karachi, builds up various linkages with national and international industries and still engaged in the process of enhancing strong linkages.

- ❖ Dow University of Health Sciences has developed university industry linkage with M/S Mactor International Ltd, and signed MOU, for establishment of Department of Sero-biology for anti-snake venom regarding Research and development as well as for production purpose, to serve humanity.
- ❖ The University enhanced its industry linkage by signing MOU with the international organization, DICE Foundation. It will act as a pragmatic platform for health related innovation & for collaboration among academia, industry, government, entrepreneurs and expatriate community on all matters pertaining to the growth of health sector in Pakistan.

6.2 New initiatives

• DOW CLUB CARD

Dow Club Card has been introduced as an innovative way for source of comfort to providers as well as users of health services. Dow Club Card had been launched at Dow University of Health Sciences since two years to provide maximum possible facilities to the students, faculty members, and alumni of DUHS. Multiple alliances were taken on board and variable discounts can be availed at various places including restaurants, hotels, saloons and number of other outlets. The donors of Dow Endowment Fund who join hands with Dow University to provide enjoyable lifestyle for health care services to under-privileged people of the community, free of charge or at meager cost. Member will get double satisfaction by holding Dow Club Card, one for caring others and the other by saving on discounts at multiple places along-with enhanced life style. The Dow Club Card has to be carried by the member to avail variety of massive benefits at various places. The Club Card holders can also inspire others to become club members to help under-privileged people as well as enjoy discounts on their own.

• PROJECT OF RIVA PREMIUM DRINKING WATER PLANT

The Dow University of Health Sciences established state-of-art Reverse Osmosis Double Pass Premium Drinking Water Plant for the provision of Safe Drinking Water by name of 'RIVA' packed in 19 liters bottles. The premium drinking water plant aim for the benefit of patients and the general public, 1000 Gallons/day are produced to be sealed in 19 liter bottles. Riva drinking water is purified through 11 steps of Hydration, starting from chlorination and ending with UV sterilization. The manufacturing facilities are of international standards.

- In line with the excellent image of Dow University of Health Sciences a Quality Healthcare Organization want to establish RIVA water as Premium Drinking Water which could be recognized as the Purest, Safest, and Healthiest water in Pakistan, with surety that our RIVA water process of Sourcing Processing Packaging, Distribution and Customer Satisfaction is truly in line with established international standards. The University has a world class GMP compliant manufacturing facility having State of Art machinery which ensure that our water produced is of the highest quality standard and also approved by PSQCA Standards. This manufacturing facilities is of international standards and can prepare premium quality drinking water up to one thousand gallon per day, the water is filled/sealed in a 19litre bottles (FD approved poly carbonate) which can be mounted on ceramic and electric dispensers. Our quality in line with PSQCA (Pakistan Standards and Quality Control Authority) certification.

- University started its production of 19 liter Riva water bottle in the month of December 2014, and after satisfactory QC report University started its initial supplies to few departments for testing purposes.
 - From January 2015 onwards University producing around 1500 bottles of Riva premium drinking water and is being consumed by approximately 112 departments/ out reached labs/Offices of 4 campuses of Dow University. In 2015 the commercialization of Riva premium drinker water was initiated. More than 7000 bottles per month of 19liter is being supplied to household and corporate customers across Karachi as of 2015.
 - Future perspective is to get Trademark Registration by the Government of Pakistan, the trade mark registry, Karachi.
 - In order to fitful its CRS responsibility, Dow will supply its water to natural calamity hit areas, and those areas deprived of drinking water.
 - To produce High Quality Premium Drinking water by using state of art water treatment technologies and supplying at competitive prices to general masses while keeping professionalism dedication and excellence to meet the international standards.
- **ANTI SNAKE VENOM**
 - Establishment of Department of Sero-biology was approved by the Sindh Government in the 2011. The Sero-biology lab started its work on pre-clinical animal studies in 2011 and after successfully completion of lab scale studies on anti-snake venom the research data of Anti snake venom was submitted to Drug Regulatory Agency of Pakistan for evaluation and approval to conduct human clinical trials and pilot production subsequently anti snake venom production required GMP facility for large scale and pilot scale production
 - Currently 60 liters of hyper immunized Horse sera have been stored for pilot production purpose. More over Dow University of Health sciences is also trying to collaborate with various biological institutes of china for technology transfer and technology incubation center.
- **ARTIFICIAL LIMB CENTRE**
 - Department of Prosthetics & Orthotics successfully delivered prosthetics & orthotics appliances and follow-up 1580 patients in the year 2014
 - Currently facilitates Jinnah Post Graduate Medical Centre, Department of Orthopedics Club Foot Clinic by providing 300 Dennis brown splints for their congenital equi-varus patients, and orthopedic association of Pakistan by providing Hands on training to Post-graduate fellows.
- **AQUEOUS GEL HAND SANITIZER**
 - Formulation of water based gel hand sanitizer for commercial use at Dow University of Health sciences, in collaboration with Institute of Biological Biochemical and Pharmaceutical Sciences (IBBPS) for better application of the subject. The major goal of this project is to serve society a natural anti-bacterial product.

6.3 Technology Incubation Centre

The Dow University of Health Sciences, Karachi, is still in process of the development of Technology Incubation Centre. As far as current innovations are concerned, there are various technologies, infrastructure etc. are used which may vary product-to-product.

6.4 Patents/ Trademark

Dow University of Health Sciences is engaged in process of trademark registration by University Legal Consultant. There are various applications are under process for the registration.

As desired, please find below status of your trademark applications, which we are handling:

S. #	App. #	Class	Trademark	F. Date	Status
1	308949	44	DOW	21/10/14	REGISTERED
2	344473	5	Shaffaf (Logo)	05/08/13	IN PROCESS
3	344474	32	Riva (Label mark)	05/08/13	ADVERTISED
4	368710	41	DR ISHRAT UL EBAD KHAN INSTITUTE OF ORAL HEALTH SCIENCES (DIKIOHS)	21/08/14	IN PROCESS
5	368711	44	DR ISHRAT UL EBAD KHAN INSTITUTE OF ORAL HEALTH SCIENCES (DIKIOHS)	21/08/14	IN PROCESS
6	368712	42	DR ISHRAT UL EBAD KHAN INSTITUTE OF ORAL HEALTH SCIENCES (DIKIOHS)	21/08/14	IN PROCESS
7	-	35	DOW UNIVERSITY HEALTH CARE(Logo)	18/11/14	IN PROCESS
8	-	32	DOW UNIVERSITY HEALTH CARE(Logo)	18/11/14	IN PROCESS
9	-	32	Dow Riva	22/9/2015	IN PROCESS
10	-	35	Dow Riva	22/9/2015	IN PROCESS
11	-	32	Cherish Your Life	22/9/2015	IN PROCESS
12	-	35	Cherish Your Life	22/9/2015	IN PROCESS

6.5 Internship and Placement Office:

• CLINICAL ELECTIVES:

In the recent years, there is an increasing interest of the final year students of Medicine for doing electives in different medical schools/hospitals in the United States. The Quality Enhancement Cell, QEC-DUHS is also responsible for developing collaboration and linkages with other universities and colleges around the globe in different areas of interest. DUHS has developed a

Memorandum of Agreement with some of the prestigious foreign Medical Schools and associations for clinical electives namely:

- University of Illinois-Chicago
- AAMC- Visiting Students GHLO Learning Opportunities

- **INTERSHIPS:**

“Placement Office” ensures the student secures a placement that will support their learning requirements and nurture their professional development.

All work placements must be officially approved by the Placement Office and primarily involves the process of CV selection and competitive interview (if necessary), but can also be secured by direct matching. The selection process is determined by the host organization. Placement Officer and coordinator provide both group and one-to-one support to the student in the researching, sourcing, securing placement and ongoing support of student whilst on placement.

At Institute of Health Management (IHM), we are fully conscious of the utility of earning practical experience for students by undergoing internship(s) during their studies and after completion their studies. Interning in a field of choice will stand out on students’ resume and help them with their job search after graduation. Students/interns should endeavor to gain on-the-job training that integrates education and career development; while organizations and companies hosting interns also benefit from the contributions of creative and innovative students. People/Students meet during the course of their internship become subsequently professional “contacts” who can help guide their career path as they make their way into professional world.

Final year students of Institute of Physical Medicine and Rehabilitation-Occupational Therapy department are placed at different hospitals and clinics for rotations and learning purpose.

Establishment Students Placement Department

Placement department was established in 2015. This office is made responsible to interact with different organizations including Dow University Health Sciences (internally), offices and industries for placement of IHM students for internship during their studies and subsequently for their employment after their graduation. Students at IPM&R are placed at the following institutes under the placement program:

- Ziauddin Hospital Clifton Campus
- Ziauddin Hospital North Nazimabad Campus
- Ziauddin Hospital Kemari Campus
- Jinnah Postgraduate Medical Center
- Ma Ayesha Memorial Centre
- Ashfaque Memorial Center
- Rabia Moon Trust
- Indus Hospital
- Tabba Heart Institute
- National Institute of Cardiovascular Disease
- Mamji Hospital
- Patel Hospital

- Civil Hospital
- Trauma center

Dow college of Pharmacy is directly involved in facilitating career counselling and internship placements. Workshops are organized for students to help them develop an understanding about their career, professional fields and scope of these domains. However currently a placement office is being constituted at the Dow college of Pharmacy, in this reference a placement officer has been assigned.

Benefits of Internship to Students

In spring & fall -2017, IHM selected 13 students for the BBA program 2013. The placement department offered paid internship for 6 months to 13 Graduates of 2016-2017 who have applied for the internship and selected by the placement committee. They benefited from the internship and were placed in different departments of DUHS after the approval of the Registrar vide letter Ref., DUHS/Reg.2016/-1411 dated on 2nd May, 2017(enclosed).

The duration of internship was from May-October 2017, according to the duty roster which was designed on rotational basis (2 month), was handed over the interns, before going to their relevant departments such as Registrar Head office, Quality Enhancement Cell, OPD, Radiology, IHM and DDRL. The purpose of offering them internship was to increase their career related knowledge and provide them valuable work experience.

6.6 Student Counseling and Career Guidance

Student Counseling Services are provided at the departmental level regarding academics, personnel or group counseling, crisis assessment/ management, career exploration and professional training guidelines. Student counseling is also offered through the official mentoring program at the Departmental/Collegiate level. Student Counseling involves meeting with and seeking help from a trained professional who can help you identify your strengths, weaknesses and interests regarding academic/career matters and also offer emotional support and guidance. Dow University of Health Sciences wants all enrolled students to prosper in life and pursue the career of their interest. Thus, the students can count upon their Departmental Head or faculty members for guidance and mentorship. Institute of Physical Medicine and Rehabilitation IPM&R have a well-organized mentoring system at department to provide counseling, guidance and appropriate suggestions to students to rectify their academic, personal and other issues to improve the quality.

Student-teacher interaction helps us ascertain students' need for career counselling. Teachers and management personnel are always available to the students to hear to their queries. Additionally DCOP has developed a system of mentoring, which may serve as a platform for addressing needs of the students. In mentoring system we have assigned mentors over every 20 students and a chief mentor to lead all the mentors. Apart from this they also periodically organize career counselling sessions in which experts from the industry are invited to guide students.

Chapter 7

Strengthening Physical Infrastructure

PLANNING AND DEVELOPMENT DEPARTMENT

The Department of Planning and Development of Dow University planned renovations and refurbishments of old Dow Medical College, and a number of old buildings at Ojha campus. All plans have been executed amicably.

7.1 Development Projects (Laboratories, Libraries, etc.)

It also planned & constructed various new buildings, which have been designed and constructed by reputable and renowned architects and construction companies.

- Establishment of National Institute of Liver and Gastro Intestinal Diseases (NILGID).
- Establishment of Postgraduate Medical Sciences Research Centre.
- Establishment of Faculties of Oral Health Sciences and Medical Technology.
- Renovation, Rehabilitation and Addition in T.B. Hospital (Institute of Chest Diseases).
- Strengthening of Institute of Physical Medicine and Rehabilitation of Disabled.
- Establishment of Department of Serobiology and Providing Power Generation by Gas along with Heat Recovery System.
- Establishment of Trauma Centre, BSL-3 Lab. and Provision of Support Services at Institute of Chest Diseases.
- Construction of Boys Hostel.
- Addition of 4th Floor in Dow University Hospital.

7.2 Research Equipment

- Establishment of BSL-III Laboratory.
- Establishment of Serobiological Laboratory.
- Establishment of new Endoscope Suite at NILGID.
- Establishment of 9 ORs and 40 Bedded ICU.
- Strengthen the Radiology Department.
- Strengthen the Diagnostic Research & Reference Laboratory.

7.3 Construction Projects

COMPLETED PROJECTS

- Boys Hostel

ONGOING PROJECTS

Strengthening of Faculty of Oral Health Sciences and Support Facilities at Dow University of Health Sciences, Karachi.

Some other renovated and refurbished projects are mentioned below:

- Old boys' hostel of DMC Campus was shifted into new IPM&R building.

Chapter 8

Strengthening Technological Infrastructure

8.1 Digital Library

Digital Library program was propelled by HEC to help researchers and mentor at public sector universities. Digital Libraries developed by Dow University of Health Sciences in their various campuses and institutes give access to global insightful writing in view of online delivery, peer-reviewed journals, databases, articles and e-books crosswise over extensive variety of controls. Through HEC's digital library which is available from all computerized libraries built up in DUHS, clients can get to more than 75,000 electronic substances. Taking after are the rundown of digital libraries at various campuses of Dow University of Health Sciences alongside the quantity of accessible systems.

- Main Digital Library (Ojha Campus) – 150 Systems
- Digital Library (DMC Campus) – 124 Systems
- Digital Library (Institute of Nursing) – 38 Systems
- Digital Library (Institute of Health Management) – 40 Systems
- Digital Library (Dow College of Pharmacy) – 14 Systems
- Digital Library (Institute of Physical Medicine and Rehabilitation) – 28 Systems
- Digital Library (Institute of Dow International Dental College) – (Proposed)

8.2 PERN (Pakistan Education and Research Network)

PERN was initially launched in year 2002 as a part of IT action plan providing Internet facility and interconnectivity between universities for data bank integration, research collaboration and upgrade learning and teaching skills. Dow University of Health Sciences receive a total of 242 MBPS distributed in DMC and Ojha Campus, DUHS is acquiring the services of PERN-III Network. Said bandwidth is further distributed to all other campuses. Now due to expansions we are planning to upgrade up to 100%.

- Dow Medical College Campus - 82 MBPS

Internet Bandwidth Backup link of 8 MBPS is provided by NTC DSL.

- Ojha Campus - 160 MBPS

10 MBPS Internet Bandwidth Backup link is provided by CyberNet Pakistan.

8.3 Video Conferencing

Video conferencing facility is provided by the information technology in all campuses. Clary Icon (PC based web conferencing) setup is installed in Ojha Campus for advance conferencing. Tandberg 990 MXP (Multiple unit supporting up to 4 sites) is deployed in DMC campus. Polygon PVX software is utilized in Ojha Campus for seamless video conferencing and web conferencing experience; which works on H-323 protocol. Cisco WebEx is deployed in DMC campus for conferencing – DUHS currently own license of Cisco WebEx for 25 simultaneous nodes and planning to expend up to 100 users.

APNA training, CTU (CRCP and CRC) classes, HEC workshops, interviews and official meeting are usually conducted through video conferencing facility of DUHS.

8.4 Campus Management Solution

Dow University has been aiming for provision of facilities to students, faculty, and staff with immediate access to real-time information which connects that information to specific action. Campus Management System CMS is logically divided into several modules, each of which maps to a university function/department. DUHS worked closely with the HEC (Higher Education Commission) and “Campus Management Solution” project was initiated at Dow University first time in any university of Pakistan. Higher Education Commission selected six public sector universities for the implementation of Oracle People Soft Campus Solutions, Dow University did the pilot model, successfully for the initial period of two years.

The Campus Management software is an integrated solution which takes care of the various activities of an educational institution like institution management, student management, administrative functions, etc. The solution is available as a basic integrated application upgradeable to an Intranet/Internet system.

Oracle Corporation has a customized ERP Solution for academic institutions i.e. Campus Management or Student Information System. The solution is a combination of software and hardware. It helps to manage the business processes of an academic institute in an efficient and professional manner.

The integration between various processes and departments i.e. admissions (electronic and manual), enrolment, examination, fees etc. helps in automating the manual and traditional methods of functioning of a campus.

SALIENT FEATURES

- User Interface.
- Easy to Customize.
- Hot Access keys.
- Multi-level Password protection.
- Full featured backup and restoration.
- Unlimited number of users.
- Customized reports.

GAINS AND BENEFITS

- The web-based features enable the faculty, students as well as the management to interact.
- Student's services are enhanced by allocating user name and password whereby they can view their mark lists, attendance, syllabus, important notes and other information related to their course on the browser.
- The application generates various reports useful to the management, to the faculty and to the end user separately, for each module.
- The security levels can be administered at three levels.
- The management has the option to set user's right of the end user, depending on the role and job responsibility.
- CMS make easier to prepare and generate reports from different required aspects.

CMS MODULES

- Students Admission: This module can automate the admission process of the university; it generates merit lists as per admission criteria and score of the admission test results.
- Records and Enrolment: This Module is can enroll different Batches Individually, with Term Activation and individual Process.
- Student's Financial Matters: Student Financial module keeps the record of each student's financials including the tuition fees, other Charges and Payments made.
- Curriculum Management: This Module is a set of business processes which can maintain Course Catalog, maintain Schedule of Classes, and define Repeat Checking Rules, Maintain Course Requisites, permissions, term activations and other term related activities.
- Campus Community: It is the foundation of PeopleSoft Campus Solutions package which provides the 3C's concept i.e. Communications, Checklists and Comments. It enables to maintain People Biographical Data, Service Indicators and Organizations data.
- Student's Grade Book: The Students' Grade book helps to monitor class assignments and grades acquired.

- Student Self-Service: They can access of Biographical Information, Fee Vouchers and Examination Forms, with their own password.
- Enterprise Portal: It is a world class portal solution with many robust content and collaborative features, which is in use at DUHS also.

8.5 Web Portal

Web portal of Dow University of Health Sciences assist in timely update of news, events, information on the official website of the university which is managed by IT department. It provides all the information regarding admissions, curriculum, examination and events planned in the university. Following facility are provided through web portal.

- Accessibility to DUHS official email
- Faculty Profile
- Professional Development Center Website
- Quality Enhancement Cell Website
- ORIC Website DUHS Career Opportunities/Jobs
- Admissions Cell Area
- Picture Gallery of the latest news & events
- Microsoft for all Convocation Data
- Dow Club Card
- Alumni Data
- Dow Executive Clinic
- Tenders and Advertisement
- DUHS CME (Continuous Medical Education)
- JDUHS (Journal of Dow University of Health Sciences)
- Curriculum and Course outline of MBBS
- Computer base online QEC forms and analysis
- Online Degree Application Tracking System
- Information of All the Colleges and Departments of DUHS
- Social Media Links

8.6 Online Admission System

Online admission assists in reducing work load, avoid data entry mistakes and of course in keeping up to date record by electronic means. DUHS announces admissions in different programs; online admission assists in form filling over the website, provision of electronic copy of prospectus along with related information, eligibility criteria & fee structure of the courses, day to day updates and news alerts about admissions, entry test & interview dates announcements, display of online Merit list.

Following are the server configurations of the Dow University website:

- Operating System: Linux
- Web server: Apache/PHP
- Database: MySQL
- VPS based hosting is acquired from Hostmonster.com

Chapter 9

University Building Communities

9.1 University-Community Interaction

Description of Dow University Hospital

Dow University Hospital was established in the year 2009. It serves as a tertiary care University Hospital attached to Dow International Medical College for teaching and training of MBBS & Post-graduate students. The Dow hospital is a 5 story building, with large capacity of 1000 beds, fully equipped emergency room, spacious general wards, semi-private rooms, private rooms, an operation theater complex and labor rooms. It is also equipped with most modern facilities and units for treatment of surgical and medical problems, like the 12 bedded ICU and HDU, Nursery, Special Care Unit, Endoscopy Units, and the Liver Transplant Center. The hospital consists of Ultrasound, Echocardiography and pharmacy besides Seminar Rooms, a cafeteria, and the administrative departments.

All types of routine and specialized surgeries are carried out by qualified and experienced surgeons of every specialty, including neurosurgery, cardiac surgery and even plastic surgery. The Intensive Care Unit (ICU) is also fully equipped with ventilators and other required equipment and monitors. High Dependency Unit (HDU) is meant for serious patients, not requiring ventilators. 10 dialysis machines are providing services till late night daily, separate machines are designated for Hepatitis B and C patients. A new dialysis lab has also been created to meet with demand for dialysis around the clock. A lab collection point is placed within the Dow Hospital to facilitate indoor and emergency patients, besides specialized collection centers all over the city, and interior of Sindh.

The teaching facilities in the hospital include faculty rooms with Computer and internet facilities, along with seminar rooms, composed of modern audio visual facilities. Dow University Hospital is also providing round the clock emergency services, subsidized food for patients and medicines at market competitive rates.

This hospital serves as a teaching institution for the Institute of Nursing and Clinical Pharmacology rotation for students of the College of pharmacy, along with the MBBS students of Dow International Medical College.

Some of the service areas within Dow University, of the OJHA campus are:

- Dow University Hospital
- Intensive Care Unit (ICU)
- OJHA Institute of Chest diseases (OICD)
- National Institute of Diabetes and Endocrinology (NIDE)
- Dental Section, DIMC
- National Institute of Liver and Gastrointestinal Diseases with Liver Transplant unit (NILGID)
- Renal Transplant Unit
- Center for Surgical Oncology

Type	Fee
Token Timing:	
General OPD	Rs. 200/-
Executive OPD	Rs. 400/-
Clinic Timing:	
General	Rs. 200/-
Executive	Rs. 400/-

Pharmacy Services:

Pharmacy provides 6 days a week services to its customer. All prescription drugs and over the counter drugs are stocked by pharmacy to cater the needs of our patients as well as patients from outside.

Vaccination Services:

Vaccination services are available as per provided by National Expanded Programme of Immunization (EPI).

Physiotherapy Services:

The Department of Physiotherapy provides comprehensive inpatient and outpatient. All Physiotherapists are here to assess and treat patients of all ages and ailments and provide an important support service for our inpatients and out patients

In Patient Departments:

- Surgical
- Medical
- Gynae / Obs
- Orthopedic
- Paeds
- Psychiatry
- E.N.T
- Dialysis
- Ultrasound
-

Critical Care Unit

- Medical ICU (11 Bed)

- Surgical ICU (06 Bed)
- Neonatal ICU (06 Incubators)
- Operation Theater (04 O.T Tables)
- Labor Room
- Emergency Department (15 monitored Bed)
- Fully equipped 24 hours running ER including separate minor O.T, Ultrasound & X-Ray.
- Sleep Lab (Polysomnography)
- Pulmonary Function Test
- EMG / NCV
- EEG
- CTG
- VEP
- G.A Fitness

9.2 University Role In Building Community

The Dow University of Health Sciences, since its inception has been focusing on community services to provide preventive, diagnostic and treatment facilities for community health care specially to the under privileged class. The students of various undergraduate and postgraduate programs of DUHS are also actively involved with the faculty members in all the Civic Engagements of DUHS.

Civic Engagements of DUHS

- World Diabetes Day Awareness Seminar organized by National Institute of Diabetes and Endocrinology –DUHS.
- Ramadan and Diabetes Awareness Seminar organized by National Institute of Diabetes and Endocrinology –DUHS.
- Awareness walk and seminar on diabetic patient and their relatives organized by National Institute of Diabetes and Endocrinology –DUHS.
- Developed linkages with different public sector schools in various low income communities across six districts of Karachi as part of NRPU-HEC funded research grant to the School of Public Health on “Association between Micronutrient’s Levels and Cardiovascular Risk Factors Among Pakistani Adolescents”
- Developed linkages with private Schools situated in middle income communities across six districts of Karachi as part of Scaling up Nutrition Academia and Research (SUNAR) funded grant to “Develop Smartphone Technology For Nutrition Education Delivery Amongst Adolescents”
- Students at Institute of Physical Medicine and Rehabilitation provide their services to the patients at their home under supervision of senior therapist’s .By visiting the patient they

assess and evaluate the hindrances which affect their mobility and provide home modifications services and ideas to remove the hurdles by replacements of objects according to ideal specifications for their feasibility. In 2016 we took initiative step to work on this area and visited a home of one client with progressive condition and provide replacements and fixings according to her needs and requirements to improve her quality of life.

- **SOCIAL ENTREPRENEURS**

- **PROVISION OF SAFE DRINKING WATER**

- There is a dearth of safe drinking water especially in slum areas of Karachi. Dow University designed a filter plant, which can operate with solar light and provide clean & safe drinking water to a larger community.
- Presently three filter plants are installed at three slum areas one in Karachi and two in the interior of Sindh, which are helping the community. Further, Installations will take place soon.

- **SERVICES FOR IMPROVING QUALITY OF LIFE**

- **CORRECTION OF FUNCTIONAL DISABILITIES**

- The incidence of congenital physical and functional disorders is on the rise in Pakistan. Therefore Dow University has established Institute of Physical Medicine & Rehabilitation, a part of which is the child development center which deals with ‘Autism’ a common problem, recognized quite late by the parents.
- This Centre also conducts awareness programs for the community with the help of students for early recognition of this functional disorder and the required management.

- **TOOLS TO MAKE DEPENDENT PATIENTS INDEPENDENT**

- **PROVISION OF PHYSICAL AIDS TO DISABLE PERSONS**

- The Dow University artificial limb Centre (DUAL), provides artificial limbs, almost free of cost to limbless people so as to make them independent for their daily activities.
- More than 3500 people have been provided artificial limbs free of cost until now.

- **CREATING AWARENESS FOR PREVENTIVE STRATEGIES**

- **HEALTH EXPO**

Dow Health Expo was held at a very large scale on a span of three days at the Expo Centre Karachi, where public was attracted with light entertainment and then checkups of all specialties were offered by specialists free of cost. Blood tests and dental checkups were also done free of cost.

- **HELPING FOR CORRECTIONS**

- **COSMETIC REPAIR FOR SEVERE BURNS**

Dow University in collaboration with Ms Hashmat Affendi from House of Charity (Texas USA) got two reconstructive surgery sessions performed by experienced Plastic Surgeons of Houston. About 70-80 severely disable patients were benefitted.

- **AWARENESS PROGRAMS**
COMMUNITY HEALTH WORK (for Dentistry)

Students of Dow International Dental College along with their faculty members also performed the Community work regarding free dental checkups.

COMMUNITY HEALTH WORK (for Medical Checkups)

Students of Dow International Medical College (DIMC) along with the faculty and an NGO have been holding camps at frequent intervals for general screening and counseling of the public.

GOOD PRACTICES IN NURSING

The profession of Nursing in Pakistan's lacks in depth of knowledge and skills in clinical practice which is a great hindrance in quality of health care practices as Nurses are the back bone of Health Professions along with other paramedical staff. Therefore, students of nursing at Dow University conducted various seminars not only in various hospitals but also in the community to attract students in this dynamic profession.

- **HELPING PATIENTS OF CHRONIC DISEASES**
TREATMENT THROUGH CAMPS AND STUDENT'S MOTIVATION FOR PUBLIC SERVICES

Dow University of Health Sciences organized several eye camps at various peripheral areas of the city to provide free consultation and treatment to the under privileged class of the community.

- **PROMOTING SENSE OF WELL BEING**

FREE PLASTIC SURGERY FOR BIRTH DEFECTS (OUTREACH PROGRAM)

- In Pakistan, there are increasing incidences of congenital birth defects eg cleft lip & Palate, specially seen in under privileged class of the society due to various reasons including malnourishment. Dow University conducted several camps in this connection mainly in the interior of Sindh.
- Students took keen interest in motivating the patient's relatives for operation and maintaining record for further follow-up.

- **TRAINING OF HEALTH VOLUNTEERS**

FOR FIRST AID TREATMENTS by Professional Development Centre

Professional Development Centre of DUHS is not only training undergraduates, postgraduates and the faculty members but also the Allied health related workers eg Nurses, Paramedics, general students and laymen for first aid procedures.

- **REHABILITATION**

CHRONICALLY ILL PATIENTS

- The Institute of Physical Medicine & Rehabilitation (IPM&R) provides physiotherapy manually and with machines for wide variety of disorders.
- **TB PATIENTS TO BE MADE SELF EARNER**

TECHNICAL TRAINING OF TB PATIENTSDURING TREATMENT PHASE

Patients of TB require long term treatment for about 9 months to 1 year, during this period they even lose jobs, therefore the Dow University not only provides free medicines, food and others sorts of treatment but also provides technical training so that they can acquire skills and become self-earner. These skills include candle making, block printing, stitching and computer training etc.

- **BLOOD DONATION CAMPAIGN**

- Dr. Ishrat ul Ebad Khan Institute of Blood Diseases has been established for clinical research in blood diseases and for MPhil & PhD courses besides blood transfusion services to the community.
- It will also meet increasing demands of blood needed in diseases, road traffic accidents, gunshot wounds and other conditions.
- **HELPING SNAKE BITE PATIENTS**

INDUSTRIAL LINKAGE OF DOW UNIVERSITY DEVELOPED FOR ANTISNAKE VENUM PRODUCTION

Thousands of Pakistanis die every year due to non-availability of anti-snake venom, which is usually imported. Considering this problem the Dow University has developed anti-snake venom after nurturing all available species of snakes in its animal house as per required protocol. Twenty horses are hyper immunized against the snake poison. The serum of these horses will now be processed by Macter International (Pvt. Ltd) for commercial production of anti-snake venom.

9.3 Alumni Affairs: Outstanding Achievement etc

Huge counts of alumni from Dow University of Health Sciences are serving in various medical and allied health sciences of national as well international repute.

- **International Alumni Outstanding Achievements**

Above 3000 graduates of Dow University of Health Sciences are practicing in various medical institutions of USA, UK, KSA and other countries. Majority of them are supervising the different medical departments, contributing in the medical researches etc.

- **National Alumni Outstanding Achievements**

A large number of graduates of Dow University of Health Sciences are serving humanity throughout the country and hold key posts. Majority of them are the heads of various health care institutions.

Graduates of Dow College of Pharmacy are rendering their services in highly reputable private and public sector organizations. Some notable entities where alumni of our institute are performing their duties include Drug regulatory authority of Pakistan, Aga Khan University Hospital, South city Hospital, NMC Hospital, NIBD, Kiran Hospital, Indus Hospital Korangi, leading pharmaceutical manufacturing companies and many others. Our alumni have been outperforming alumni from other universities in various fields, one such example is AKUH entrance test for internship program where our alumni have been performing extraordinarily every year. Several graduates are playing their roles in industrial pharmacy and working in multinational and local pharmaceutical industries including Abbot, GSK, Brookes Pharma (Private) Limited, Bosch Pharmaceuticals, The Searle Company Ltd., Hilton Pharma (Pvt) Ltd, AGP Limited and many others.

Chapter 10

Sports

10.1 Inter-departmental sports

The Dow University of Health Sciences regularly organizes Annual Sports Week every year. Every 4th year the student week is held under the name of Dow Olympics. The students of all the constituents 'colleges/institutes of DUHS actively participate in the event. Sports facilities including gymnasium and fitness club has been developed at Ojha Campus which is free for all students, faculty and staff.

Different types of sports events keep them physically fit and active, whereas debates and other intellectual activities enhance their soul and heart. Not only now, but these activities also groom them for their future practical lives. These activities instills in them good communication skills, leadership qualities, team work, ability to gracefully accept their failures and elegantly celebrate their success.

During the week, various events like Naat, Qirat, English and Urdu Debates, Bait Bazi and cooking competitions are arranged. Outdoor events like cricket (for both boys and girls), Football, Races, Shot put, Javelin Throw etc. are held.

Indoor events like Basket Ball, Throwball, Netball, Badminton, Table Tennis etc are held in the state of art Gymnasium at Ojha Campus. All the events are supervised and scrutinized by Judges and referees of respected fields for transparency and professionalism.

Finally, this week long event ends with Talent Show in which students show their talents in Drama, Songs etc. followed by a grand prize distribution ceremony in which medals/shields and certificates are given.

10.2 Participation in national championships

The students of DUHS participate in various local and regional competitions and have brought laurels for the university. The details include as;

Institute of Nursing has always been proud of their male and female athletes and their contribution to Dow University organized event both inter university or intra-university.

- Female athlete of the year from institute of Nursing-DUHS Uzma Khan, Haseena Khan, and Seema Memon.
- 4 times Mr. DUHS Aadil Khan and Saddam Hussain from Institute of Nursing-DUHS.
- Institute of Nursing-DUHS Volley runners up 2016-2017.
- Cricket winner 2017 and runner up 2016.
- In 2016-17 won 12 gold medals, 15 bronze and 9 silver medals.
- 3RD Dow Olympics week was celebrated from 22-02-2016 to 13-03-2016. 13 constituent Institutions participated in Dow Olympics including Dow Medical College (DMC), Dow International Medical College (DIMC), Dr. Ishrat-ul-Ebad Khan Institute of Oral Health Sciences (DIKIOHS), Dow International Dental College (DIDC), Dow Dental College (DDC), Dow College of Pharmacy (DCOP), Institute of Health Management (IHM), Institute of Medical Technology (IMT), Institute of Physical Medicine and Rehabilitation (IPM&R) and Institute of Nursing (ION), Dow Institute of Radiology (DIR), Dow College of Biotechnology (DCOB) and School of Public Health (SPH). The winners were awarded with winners and runners up cups, medals and certificates.

10.3 Achievement at Regional /National level

- Inshal Javed secured 1st position in Urdu debate at Regional level.
- Inshal Javed secured 1st position in Urdu debate at Liaquat University of Health Sciences Trilingual Declamation Contest.
- Inshal Javed & Rida Majeed was the runners up in All Pakistan Declamation Contest at PAF Academy Risalpur.
- Students of DIMT participated in the Inter Karachi All Medical College Sports Competition where they contributed in Cricket, football, badminton and races.
- DUHS team (girls) for Throw Ball was the winner for the throw ball Competition at Bahria University.
- DUHS team (boys) for Volley Ball was the winner for the Volley ball Competition at Bahria University.
- DUHS team (girls) for Volley Ball was the runners up for the Volley ball Competition at Bahria University.
- DUHS team (boys) for Volley Ball was the runners up for the Volley ball Competition at NED University Sports Fiesta.

10.4 Incentives and honors/ awards for sports persons.

DUHS awards special shields and certificates of appreciation to the winners of different sports and co-curricular / extra-curricular activities contests held at regional and / or national level.

Medallions and shields are also awarded to the winners of inter departmental sports/ contest winners.

Chapter 11

University Building Leadership

11.1 Faculty Leadership (Awards and representation in Govt policy making committees, memberships on various councils etc.)

Faculty Leadership Awards of faculty members are mentioned below:

Name of Faculty Member	Title of Award	Year	Name of Org.
Prof. Dr. Sumbul Shamim	Productive Scientist of Pakistan	2016	Pakistan Council for Science and Technology, Ministry of Science and Technology-Pakistan
Prof. Dr. Sumbul Shamim	NRPU-Research Grant Awarded	2016	Higher Education Commission
Dr. Tariq Ali	Productive Scientist of Pakistan	2018	Pakistan Council for Science and technology. Govt of Pakistan
Dr. Fakhshena Anjum	Productive Scientist of Pakistan	2018	Pakistan Council for Science and technology. Govt of Pakistan
Dr. Anab Fatima	Productive Scientist of Pakistan	2018	Pakistan Council for Science and technology. Govt of Pakistan
Dr. Washdev Amar	Best Young Research Presenter Award	2017	22 nd Information Psychiatric Conference
Dr. Nilofer Fatimi Safdar	NRPU-Research Grant Awarded of 4 Million to conduct the research on “Association between micronutrients level and CVD risk factors among Pakistani adolescents”	2016	Higher Education Commission
Dr. Nilofer Fatimi Safdar	Early Career Travel Grant of 3000 US \$	2017	21st International Union of Nutritional Sciences (IUNS) International Congress of Nutrition (ICN), Buenos Aires, Argentina.

2- Representation in Govt. Policy Making Committee (FY 2016-17)

Name of Faculty Member	Name of Committee / Representation	Year	Name of Org.
Prof. Dr. Sumbul Shamim	Syndicate	2016	Dow University of Health Sciences
Prof. Dr. Sumbul Shamim	Board of Studies, Department of Pharmacology	2016	Faculty of Pharmacy, University of Karachi
Prof. Dr. Sumbul Shamim	Board of Faculty	2016	Faculty of Pharmacy, Federal Urdu University of Arts, science and Technology
Prof. Dr. Iftekhar Ahmed	Head of Medicine Department In charge ICU, Program Director and Supervisor post-graduation in MD A&E Program, Member Academic Council Member welfare committee, Chairman Infection control Committee, Member of Curriculum Committee	2016-2017	Dow International Medical College, Dow University of Health Sciences
Dr. Nasreen Naz	DOGANA Research Award	2017	DOGANA
Dr. Nasreen Naz	Member OF QEC	2017	DUHS
Dr. Nasreen Naz	Admission in MHPE	2017	AKUH
Prof. Dr. M. Aurangzeb	Chairman House Job Committee DIMC/DUH, Chairman of DCHT, Chairman Grievance Committee, Additional Director Professional	2016-2017	Dow International Medical College, Dow University of Health Sciences

	development Centre DIMC, Member of Curriculum Committee, Supervisor MD Program, Member board of Advance studies of NIDE, Member Ethical Committee renal transplant		
Dr. Munir Hussain Siddiqui	Member of Curriculum Committee	2016- 2017	Dow International Medical College, Dow University of Health Sciences
Dr. Jawwad us Salam	Member of academic council DIMC Member of Curriculum Committee Member of Scientific Committee	2016- 2017	Dow International Medical College, Dow University of Health Sciences
Mr. Tariq Ahmed	DUHS-DICE 2016 , 2017	2016	Dow University of Health Sciences
Prof. Nisar Ahmed Rao	Strategic Treatment Advisory Group (STAG)	2016-17	National TB Control Program Ministry of Health
Dr. Sahar Iqbal	Dow Center of Excellence of Biosafety and Biosecurity	2016	Dow University of Health Sciences and Health Security partner USA
Dr. Sahar Iqbal	Quality Management system committee of DDRRL	2016	Dow University of Health Sciences
Dr. Sahar Iqbal	Total Laboratory automation (TLA) System, Chemical Pathology, DDRRL	2016	Abbott Diagnostics

Dr. Saifullah Baig	Strategic Treatment Advisory Group (STAG)	2016-17	National TB Control Program Ministry of Health
Prof. Dr. Arshad Hasan	Syndicate, IRB, Migration Committee, PMDC Committee	2018	Pakistan Medical and Dental Council
Prof. Dr. Shahjahan Katpar	Chairperson of Oral & Maxillofacial Surgery Department, Member of Academic Council	2018	Dow University of Health Sciences
Dr. Shazia Akbar Ansari	Disciplinary Committee DDC, Chairperson of Oral Pathology Department, Academic Council	2018	Dow University of Health Sciences
Dr. Faiza Amin	Disciplinary Committee DDC	2018	Dow University of Health Sciences
Dr. Kashif Aslam	Chairperson of Prosthodontics Department, Academic Council	2018	Dow University of Health Sciences
Muhammad Khan	Member	2016	DPT National Curriculum Review Committee (NCRC) HEC
Saeed Akhtar	Member	2016	DPT National Curriculum Review Committee (NCRC) HEC
Dr. Nilofer Fatimi Safdar	Scaling up Nutrition, Research & Advocacy (SUNAR), Executive Committee member	2016	(Nutrition Section/SUN Secretariat). Govt. of Pakistan
Dr. Nilofer Fatimi Safdar	Committee for developing Dietary Guidelines for Pakistani People". Expert member	2016	Ministry of planning, development & Reform. Islamabad
Dr. Nilofer Fatimi Safdar	Sindh Food Fortification Alliance Academia member	2017	Ministry of Planning & Development, Sind Government

Dr. Nilofer Fatimi Safdar	Fill the Nutrient Gap (FNG) in the “Scaling Up Nutrition” (SUN) Expert member	2017	Ministry of Planning & Development, Sind Government
Dr. Nilofer Fatimi Safdar	National Nutrition Program, Adolescent Nutrition Expert member	2017	Ministry of National Health Services, Regulations & Coordination
Prof. Shaheen Sharafat	PhD Advisory Committee/ Chairperson Scientific Committee / Member	2017	Dow University of Health Sciences
Dr Amjad Sattar	MS-MD RADIOLOGY	2017	Dow University of Health Sciences
Dr Naureen Ibrahim	MRI COMMITTEE	2018	Dow University of Health Sciences
Saeed Akhtar	Curriculum revising committee	2016-17	Higher Education Commission
Dr Mariam Taufiq	CT COMMITTEE	2018	Dow University of Health Sciences
Dr Quratulain Hadi	CT COMMITTEE	2018	Dow University of Health Sciences
DR Muhammad.Awais	MRI COMMITTEE	2018	Dow University of Health Sciences
Dr Ayesha Waleed	FELLOWSHIP PROGRAM IN WOMEN IMAGING	2017	Dow University of Health Sciences
Prof. Zeba Haque	Institutional Review Committee / Chairperson Animal, IRB/ Chairperson PhD Advisory Committee / Member Scientific Committee /	2017	Dow University of Health Sciences

	Member		
Prof. Saba Sohail	PhD Advisory Committee/ Member	2017	Dow University of Health Sciences
Prof. Shaheen Bhatti	PhD Advisory Committee/ Member	2017	Dow University of Health Sciences
Prof. Fauzia Imtiaz	PhD Advisory Committee/ Member Institutional Review Board/ Member	2017	Dow University of Health Sciences
Dr. Kashif Shafique	PhD Advisory Committee/ Member & Secretary Scientific Committee / Member & Secretary Institutional Review Board/ Member	2017	Dow University of Health Sciences
Dr. Mushtaq Hussain	PhD Advisory Committee/ Member	2017	Dow University of Health Sciences
Dr. Furqan Bari	PhD Advisory Committee/ Member	2017	Dow University of Health Sciences
Dr. Muhammad Asif Qureshi	Institutional Review Board/ Member PhD Advisory Committee/ Member Scientific Committee / Member	2017	Dow University of Health Sciences
Prof. Naheed Khan	Scientific Committee / Member	2017	Dow University of Health Sciences
Dr. Mohsin Wahid	Scientific Committee / Member	2017	Dow University of Health Sciences
Dr. Yahya Noori	Institutional Review Board/ Member	2017	Dow University of Health Sciences
Dr. Mahjabeen Khan	Curriculum for Educational Peace and human rights	2018	Higher Education Commission

Dr. Talat Roome	Animal IRB/ Member	2017	Dow University of Health Sciences
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3- Membership in Various Councils (FY 2016-17)

Name of Faculty Member	Status	Year	Name of Council.
Prof. Dr. Sumbul Shamim	Inspector (name accepted and letter awaited)	2016	Pharmacy Council of Pakistan (PCP)
M. Saeed Quraishy	President , PSG + GIE	2017	Pakistan Society of Gastroenterology + GI Endoscopy
M. Saeed Quraishy	President, Pakistan Chapter	2016	International Hepato-Pancreato-Biliary Association
Atiq ur Rehman	Board of Director	2017	Pakistan Society Therapy Association (PPTA)
Umesh Kumar	Information Secretary	2017	PPTA (Sindh Chapter)

11.2 Student leadership (Co-curricular Activities: University dramas, exhibition, expos, competitions debates at national and international levels)

- **Sarim Ahmed**- (Dow College of Pharmacy) winner of National & Regional English Debate Contests
- **InshalJaved**–Member of the Youth Parliament, Sindh, Pakistan.
- **AdilHanif, MehreenSohail, Umber Saeed, &UnaizaShafiq** Presented Poster in World Extreme Medicine Conference, in 2015 at United Kingdom.
- Students at Institute of Physical Medicine and Rehabilitation participated in dice health expo as dice members and won the special prize.
- Exhibition held in 2017 of students made Adaptive devices and other final projects (already the adaptive devices are innovative project of department.
- Psychodrama presentations continuously held in department as the learning outcome of psychosocial rehab.
- Programs organized by department to celebrate 14th august and also for world occupational therapy day and its celebrated by different outdoor activities including awareness sessions in schools and colleges , charity fun mela for kids and also one day food gala for charity purpose and finally conducted a seminar to post event of occupational therapy day.

Chapter 12

Finance

DOW UNIVERSITY OF HEALTH SCIENCES, KARACHI			
FINANCE DIRECTORATE			
SUMMARY			
			Amount In Million
	Particular	Approved Budget 2016-17	Actual 2016-17
12.1	Annual Statement of Accounts	Annexure: I	
12.2	Financial Year at a Glance		
12.3	Audit Report	DG Audt Sindh Report at Annexure : II	
12.4	Development Budget HEC	HEC Rs.	150.000
		GOS Rs.	110.977
		UDWP Rs.	2216.499
12.5	Recurring Budget	2266.141	2566.463 (Annex: III)
12.6	Self-Generated Income	1391.458	1469.186 (Annex: IV)
12.7	SAP related activites	Not Applicable	
12.8	Trend per Student Spending	Actual 2566.463/ 7493 (Annex: V)	Exp. 2016-17 Students 0.343

DOW UNIVERSITY OF HEALTH SCIENCES, KARACHI		
12.1 ANNUAL STATEMENT OF ACCOUNTS (2016-17)		(Annex-I)
		[Million Rs.]
Particulars		2016-17 (Actual)
1	Opening Balance:	
2	Total Grants & Donations [a - f]	819.639
a.	Federal Government (Annual)	543.618
b.	Supplementary / Additional Grant	
c.	Grant for Tenure Track Faculty	9.214
d.	Provincial Govt. Grant	100.000
e.	Donations	7.336
f.	Any Other Grant	159.471
3	Students Related Income [3(i) a - 3(i) e]	1,356.187
	Tuition Fees	1,116.566
	All Other Fees	204.293
	Hostel / User Charges, etc.	32.173
a.	On Campus Students (sub-total)	1,353.031
b.	Affiliated College/Institutions' Students	-
c.	External (Private) Students	
d.	Income from Continuing Professional Development Courses for Business & Community	3.156
e.	Income from Continuing Education [CE] Courses for Business & Community	
3 (ii)	Other Venues of Income [3(ii) a - 3(ii) f]	95.932
a.	Income from Collaborative and Contract Research	
b.	Income from Consultancy & Testing	
c.	Income from Intellectual Property	
d.	Income from Regeneration & Development Programs	18.805

e.	Alumini	
f.	Any Other Income	77.127
3 (iii)	Receipts from Endowment Fund (if any)	17.067
3	Total Own Resources	1,469.186
A.		
	Total Available Resources [1+2+3]	2,288.825
4		
	Expenditure Break-up:	2,566.463
a.	Faculty Salary	869.945
b.	TTS Faculty Salary/ Gratuity	18.112
c.	Salary of Officers & Staff -Teaching Departments	-
d.	Salary of Officers & staff -All Non-Teaching Departt:	374.365
e.	Other Establishment Charges	81.057
f.	Non Salary Expenses / Other Charges	1,183.696
g.	Research	30.389
h.	Library Expenses	8.899
5		
	Total Establishment Charges [4 a to e]	1,343.479
6		
	Total Non Salary Expenses [4 f to h]	1,222.984
B.		
	Total Expenditures [5 + 6]	2,566.463
C.		
	Surplus / Deficit [A - B]	(277.638)

DOW UNIVERSITY OF HEALTH SCIENCES, KARACHI**12.2 FINANCIAL YEAR AT A GLANCE (2016-17) (Annex-I)****A- RECEIPTS:**

As per Actuals, total receipts for the FY 2016-17 increased by 17.15%, as compare to Budget Estimates 2016-17, mainly due to the following factors:

Particulars	BUDGET 2016-17	ACTUAL 2016-17	Increase/ (Decrease)	Remarks
HEC	543.618	543.618	-	-
Grant for TTS	13.696	9.214	(4.482)	Less grant released from HEC
Provincial Govt. Grant	-	100.000	100.000	U&B Department Govt of Sindh released Rs. 100 (m) for recurring expenditure
Donations	5.000	7.336	2.336	Increased contribution from society
Any Other Grant	-	159.471	159.471	Rs.159.471 million is additional grant for stipend of PG's
Self-generated income	1391.458	1,469.186	77.728	Increase in tuition fee, Income from transport and other income.
Total	1953.772	2288.825	335.053	

B- EXPENDITURES:

The Actual Expenditure for 2016-17 have seen an increase of 13.25% as compared to Budgeted Estimates 2016-17. A summarized comparison of different expenditure heads is as follows:

Description	BUDGET 2016-17	ACTUAL 2016-17	Difference
Pay & Allowances	1227.336	1343.479	116.143
Utility	77.500	83.240	5.740
Occupancy Cost	49.900	51.078	1.178
Travel & Transport	79.855	70.562	(9.293)

Operating Expenses	389.800	598.783	208.983
Employees Retirement Benefits	120.000	77.408	(42.592)
Repair & Maintenance	63.300	64.662	1.362
Research & Feasibility Studies	37.000	30.389	(6.611)
Financial Assistance / Scholarship	30.500	64.960	34.460
Entertainments & Transfer Payment	56.500	93.552	37.052
Physical Assets	102.000	62.735	(39.265)
Civil Work	10.000	6.880	(3.120)
Others	22.450	18.735	(3.715)
Total	2266.141	2566.463	300.322

DOW UNIVERSITY OF HEALTH SCIENCES, KARACHI			
12.3 RECURRING BUDGET (2016-17) (Annex-III)			
			[Million Rs.]
Code No.	Budget Heads	2016-17 (Approved Budget)	2016-17 (Actual)
A012	Pay & Allowances	1,227.336	1,343.479
A031	Fees (Total)	2.200	4.896
A03101	Bank Fees	2.200	2.770
A03102	Legal Fees	-	2.126
A032	Communication (Total)	11.050	10.331
A03201	Postage and Telegraph	0.050	0.015
A03202	Telephone & Trunk Calls	3.000	2.175
A0320402	PERN	4.000	4.684

A0320403	Internet Charges	2.000	2.342
A03205	Courier and Pilot Services	2.000	1.115
A033	Utilities (Total)	77.500	83.240
A03301	Gas	2.500	1.378
A03302	Water	5.000	7.897
A03303	Electricity	70.000	73.965
A034	Occupancy Costs (Total)	49.900	51.078
A03402	Rent for Office Building	1.650	
A03407	Rates and Taxes	0.250	
A03410	Security Charges	20.000	15.721
A03470	Other Occupancey Cost	28.000	35.357
A036	Motor Vehicles (Total)	3.200	0.362
A03602	Insurance	3.000	0.133
A03603	Registration	0.200	0.229
A037	Consultancy & Contractual Work (Total)	6.000	3.146
A03702	Management	6.000	3.146
A038	Travel & Transportation [Total]	79.855	70.562
A03801	Training - Domestic	4.005	0.815
A03802	Training - International	10.000	
A03805	Travelling Allowance - TA/DA	2.500	4.670
A03806	Transportation of Goods	1.500	1.073

A03807	P.O.L. Charges	11.000	11.996
A03808	Conveance Charges - for late sitting	0.350	0.542
A03810	Study Tours	0.500	
A03820	Others-Transport Exp.	50.000	51.466
A039	General Operating Expenses (Total)	389.800	598.783
A03901	Stationery	4.500	8.461
A03902	Printing and publications	8.000	8.609
A03903	Conferences / Seminars / Workshops / Symposia	4.000	4.815
A0397006	Convocation Expenses	2.000	8.413
A03904	Hire of Vehicles	-	
A03905	Newspapers Periodicals and Books	4.500	8.899
A03906	Uniforms and Protective Clothing	-	
A03907	Advertising & Publicity	6.000	11.058
A03912	Expenditure on Pakistani Delegations to Foreign Countries	0.600	
A03913	Contribution & Subscription	-	
A03915	Payment to Govt. Department for Services Rendered	0.200	0.098
A03917	Law Charges	4.000	
A03918	Exhibitions Fairs & Other National Celebrations	2.000	0.270
A03919	Payments to Other services rendered - Audit Fee etc.	2.000	0.849
A03933	Service Charges	4.000	
A03936	Foreign / Inland Training Course Fee	2.500	
A03940	Unforeseen Expenditure / Contingencies	2.000	11.618
A0394203	Generic Consumable	-	

A0394204	Consumable	12.500	3.048
A03959	Stipends Incentives to PG's/Stipent to MDS/ etc.	275.000	473.599
A03970	Others	7.000	11.641
A0397002	i. Operational Cost- Office of Research Innovation & Commercialization (ORIC)	20.000	25.632
A0397003	ii. Operational Cost of Quality Enhancement Cell (QEC)	3.500	4.522
A0397004	iii. Operational Cost of Financial Aid Development Office (FADO)	1.500	0.600
A0397005	iv. Conduct of Examinations	13.000	8.857
A0397006	v. Sports Activities	1.000	0.385
A0397008	vii. Remuneration to Part-time Teachers / Visiting Faculty	10.000	7.409
A03	Total Operating Expenses	627.145	822.398
A04	Employees Retirement Benefits (Total)	120.000	77.408
A04102	Commuted Value of Pension/ GP Fund (University Share)	114.500	49.394
A04114	Superannuation Encashment of LPR	0.500	27.314
A04170	Others - Assistance Package for Families of Emps	5.000	0.700
A13	Repair and Maintenance (Total)	63.300	64.662
A13001	Transport	4.000	3.611
A13101	Machinery & Equipment	12.000	15.114
A13201	Furniture & Fixture	1.500	4.044
A13301	Office Buildings	30.000	18.471
A13302	Residential Buildings	10.000	7.567
A13701	Hardware	-	0.180
A13702	Software	-	4.184

A13703	I.T. Equipment	1.500	1.054
A13801	Maintenance of Gardens	2.500	9.426
A13901	Lines & Wires - Repair	0.300	0.446
A13920	Others - Repair	1.500	0.565
A021	Feasibility Studies (Total)	2.000	-
A02101	Feasibility Studies	2.000	
A022	Research Survey & Exploratory Operations (Total)	35.000	30.389
A02201	Research and Survey	35.000	30.389
A061	Financial Assistance/ Scholarships (Total)	30.500	64.960
A0610102	Need Based Scholarships	-	64.960
A0610103	Faculty Scholarships	20.000	
A06102	Other Scholarships- Medical Education	10.000	
A06103	Cash Awards - for Meritorious Services	0.500	
A063	Entertainments and Gifts (Total)	3.500	4.602
A06301	Entertainments	3.500	4.602
A064	Other Transfer Payments (Total)	53.000	88.950
A0640202	Contribution / Transfers to Pension Fund	50.000	80.532
A0640204	Cobtribution / Transfers to Benevolent Fund	3.000	8.418
A09	Expenditure on Acquiring of Physical Assets (Total)	102.000	62.735
A09201	Hardware	25.000	27.922
A09202	Software	2.000	1.662

A09203	Purchase of I.T. Equipment	3.000	4.589
A09501	Purchase of Transport	48.000	2.469
A09601	Purchase of Plant & Machinery	10.000	7.212
A09701	Purchase of Furniture & Fixture	9.000	10.242
A09801	Purchase of Livestock	2.000	1.266
A09470	Others	3.000	7.373
A124	Civil Works - Buildings & Structures (Total)	10.000	6.880
A12405	Electrification Plumbing and Other Infrastructure	10.000	6.575
A12470	Others - Civil Works	-	0.305
	Total Expenses	2,266.141	2,566.463

DOW UNIVERSITY OF HEALTH SCIENCES, KARACHI			
12.4 SELF-GENERATED INCOME (2016-17) (Annex-IV)			
			[Million Rs.]
Particulars		2016-17 (Approved Budget)	2016-17 (Actual)
(i)	Students Related Income [(i) a - (i) e]	1,277.958	1,356.187
	Tuition Fees	1,023.258	1,116.566
	All Other Fees	211.000	204.293
	Hostel / User Charges, etc.	35.500	32.173
a.	On Campus Students (sub-total)	1,269.758	1,353.031
b.	Affiliated College/Institutions' Students	1.200	-
c.	External (Private) Students		
d.	Income from continuing Professional Development Courses for Business & Community	7.000	3.156

e.	Income from Continuing Education [CE] Courses for Business & Community		
(ii)	Other Venues of Income [(ii) a - (ii) f]	98.500	95.932
a.	Income from Collaborative and Contract Research		
b.	Income from Consultancy & Testing		
c.	Income from Intellectual Property		
d.	Income from Regeneration & Development Programs		18.805
e.	Alumini		
f.	Any Other Income	98.500	77.127
(iii)	Receipts from Endowment Fund (if any)	15.000	17.067
	Total Self-Generated Income	1,391.458	1,469.186

DOW UNIVERSITY OF HEALTH SCIENCES, KARACHI**12.5 STUDENT STRENGTH 2016-17 (ACTUALS) (Annex-V)**

Title of Academic Programs		Beachelor	Master	MS/ M.phil	PhD	Total
1	MBBS	2,344				2,344
2	BDS	816				816
3	Pharm-D	618				618
4	BS Medical Technology	451				451
5	BS Dental Care Professional	81				81
6	DPT	648				648
7	BS- PMR	107				107
8	ABME	24				24
9	AAS	26				26
10	BS in Nursing	116				116
11	Post RN BSc in Nursing	84				84
12	BS Biomedical Technology	177				177
13	BS Radiology	52				52
14	BS Nutrition	98				98
15	BBA	184				184
16	MBA		81			81
17	EMBA		48			48
18	FCPS		853			853
19	MDS		96			96
20	MS			29		29
21	MD		61			61
22	MHPE		25			25
23	MScDS		45			45
24	MSAPT		4			4
25	MS NURSING		24			24
26	MPH		29			29
27	MSPH		5			5
28	MScDE		21			21
29	MPHIL			51		51
30	Phd				187	187
31	Diploma	108				108
Total		5,934	1,292	80	187	7,493

Chapter 13

University Governance

13.1 Syndicate Meeting

No Syndicate meetings were held in 2016-17

13.2 Academic Council Meeting

No Academic Council Meeting meetings were held in 2016-17

13.3 BOARD OF ADVANCED STUDIES AND RESEARCH MEETINGS

2016 (5 meetings)

46th meeting of the Board of Advanced Studies and Research held on 8th February, 2016

47th meeting of the Board of Advanced Studies and Research held on 9th May, 2016

48th meeting of the Board of Advanced Studies and Research held on 12th May, 2016

49th meeting of the Board of Advanced Studies and Research held on 17th August, 2016

50th meeting of the Board of Advanced Studies and Research held on 9th November, 2016

2017 (3 meetings)

51st meeting of the Board of Advanced Studies and Research held on 14th March, 2017

52nd meeting of the Board of Advanced Studies and Research held on 13th June, 2017

53rd meeting of the Board of Advanced Studies and Research held on 14th November, 2017

Chapter 14

Office of Resource Generation Development

The Vice Chancellor of Dow University of Health Sciences heads the office of Resource Generation / Development. The office is responsible to organize, administrate and manage projects for University Development and control the general activities of the University. The main function of this office is to generate resources for University Development Programs and provide better health service to the community. The office is also working on National or International collaboration with Universities and industrial linkages with organizations to enhance the various activities of the University.

14.1 New Initiatives & Implementations

No new initiatives are in process.

14.2 Future Plans

1. Establishment of Medical & Dental College, Hospital and other Allied Institute at DHA City, Karachi.
2. Establishment of Genomics and Genetic Diseases Research & Treatment Centre at Ojha Campus, Duhs, Karachi
3. Constructuon of additional block for Dow International Girls Hostel and School of Public Health at Ojha Campus, Duhs, Karachi
4. New Academic BLock for Dow College of Pharmacy (Block-C) and Auditorium for 500 Students at Ojha Campus, DUHS, Karachi

Chapter 15

Health Centre/Medical Facilities

15.1 Medical Facilities available

Dow University Hospital was established in the year 2009. It serves as a tertiary care University Hospital attached to Dow International Medical College for teaching and training of MBBS & Post-graduate students. The Dow hospital is a 5 story building, with large capacity of 1000 beds, fully equipped emergency room, spacious general wards, semi-private rooms, private rooms, an operation theater complex and labor rooms. It is also equipped with most modern facilities and units for treatment of surgical and medical problems, like the 12 bedded ICU and HDU, Nursery, Special Care Unit, Endoscopy Units, and the Liver Transplant Center. The hospital consists of Ultrasound, Echocardiography and pharmacy besides Seminar Rooms, a cafeteria, and the administrative departments.

All types of routine and specialized surgeries are carried out by qualified and experienced surgeons of every specialty, including neurosurgery, cardiac surgery and even plastic surgery. The Intensive Care Unit (ICU) is also fully equipped with ventilators and other required equipment and monitors. High Dependency Unit (HDU) is meant for serious patients, not requiring ventilators. 10 dialysis machines are providing services till late night daily, separate machines are designated for Hepatitis B and C patients. A new dialysis lab has also been created to meet with demand for dialysis around the clock. A lab collection point is placed within the Dow Hospital to facilitate indoor and emergency patients, besides specialized collection centers all over the city, and interior of Sindh.

Hospital and Health Care Facilities Established/Managed by DUHS

The Dow University Hospital is supported with the diagnostic facilities from Dow Diagnostic & Research laboratories (DDRRL) and Dow Radiology Complex; both of them are equipped with cutting edge technology, well-trained technologists and faculty. Labor room is also functional round the clock along with Intensive Care Unit, which is fully equipped.

All treatment packages of Surgeries and procedures are bare minimum to meet the running cost on no profit no loss basis. The needy patients are evaluated to be treated from Zakat fund.

In summary, Dow hospital provides following services and facilities to their patients:

1	24 hours Emergency Service Department
2	Out Patient Department (OPD Block)
3	Intensive Care Unit (ICU)

4	High Dependency Unit (HDU)
5	Neonatal Intensive Care Unit (NICU)
6	Labor Rooms
7	Dialysis Department
8	24 hours Emergency Service Department
9	Bariatric Surgery Center
10	Vascular Interventional Radiology (VIR), highly specialized procedure for various diseases minimizing major surgeries
11	Living donor Liver transplant
12	Hepato-pancreatic biliary surgeries
13	All types of medical & surgical treatments to cardiac patients
14	Operation Theatre (OT) Complex for all major & minor surgeries

The Dow University Hospital consists of the following departments:

1. General Medicine
2. Diabetes & Endocrinology
3. GI & Liver diseases
4. Chest diseases
5. General Surgery
6. Orthopedic
7. Urology

8. ENT
9. Eye
10. Pediatrics
11. Plastic Surgery
12. Cardiology & Cardiac Surgery
13. Neurosurgery

Dow Institute of Cardiology is the third public sector Institute for Cardio Vascular diseases in Karachi, Pakistan, following in the footsteps of NICVD and KIHD. It was established in 2016 to provide the immediate cardiac services to the residents of Gulistan-e-Jauhar, Safoora Goth, Sachal Goth and also the residents of Malir Cantt.

The institute provides specialized and affordable cardiac care to patients. Cardiology is one of the most important components of medicine. It incorporates leading technologies and techniques to provide the highest level of care to the country. The institute hopes to provide leadership to the development of protocols and standards appropriate for the care throughout the Sindh region.

National Institute of Liver & GI Diseases (NILGID)

This Institute was established in May 2004, as a Sarwar Zuberi Liver Center (SZLC) in the name of renowned hepatologist Madam Sarwar Jahan Zuberi. This center worked for about ten years and provided services to about one lac patients.

Few years later considering the load of Liver diseases, NILGID was established at Ojha Campus of DUHS. It provides all possible diagnostic and treatment facilities under one roof.

NILGID has state of the art ENDOSCOPIC EQUIPMENT and the faculty has the expertise to perform all the GI endoscopic procedures. Approximately 30-40 endoscopic procedures are being done daily that includes both the diagnostic as well as therapeutic procedures.

In addition complex therapeutic procedures that involve fluoroscopy like ERCPs, stenting, dilatations, TIPSS etc. are also increasingly being performed in the unit.

The Endoscopy department provides round the clock coverage for all GI emergencies; the coverage also includes all public holidays.

NILGID has a novel facility of FIBROSCAN and Elastograph machine through which liver stiffness and fibrosis is measured noninvasively.

Public Awareness programs are regularly held to increase the awareness of GI diseases amongst masses particularly viral hepatitis seminars are conducted by our faculty and masses are educated regarding signs, symptoms and care of viral hepatitis

National Institute of Solid Organ & Tissue Transplantation (NISOTT)

The National Institute of Solid Organ & Tissue Transplantation, (NISOTT) Dow University of Health Sciences is established in 2016 for providing excellent healthcare services, including all solid organ as well tissue transplantation, at a very affordable cost for the poor to be benefited.

Our vision is to become a regional center of excellence in the field of Transplantation as well transplant research, providing services to the people and professional of Pakistan, SAARC and Middle East region.

Main objectives are:

To become the Institution of choice, in the field of solid organ and tissue transplantation, of the Region.

To provide the most efficient and affordable transplant facilities for all socioeconomic classes of Pakistan as well the South and Middle East region.

To become a premier research center in the field of Transplantation known for its cutting edge researches within 10 years of inception.

To produce and engender highly trained and skilled transplant Physician and Surgeons to fulfill their rapidly growing need in the region.

Liver Transplant & Hepatopancreatobiliary Surgery Unit

Liver Transplant and Hepatopancreatobiliary Surgery section is first ever unit of its kind in any Public sector university of Pakistan. It is equipped with state of the art facilities including operation theatres, ICU and wards. It has a team of Surgeons, Physicians, Anaesthesiologists, intensivists, Nurses and allied staff who are especially trained to take care of Hepatopancreatobiliary & GI diseases and Liver Transplant patients.

This section in a very short time has become a referral center in the city for management of complex Hepatopancreatobiliary diseases. Here surgeries for all type of Hepatobiliary problems including laparoscopic cholecystectomies, CBD explorations, biliary tumors, Gall bladder Cancers, liver cancers and Whipple's procedures are routinely performed at very affordable price.

Surgical oncology

This section is one of the newest sections of NILGID. It was started in August 2015. There has been increased number of patients who are diagnosed with cancers of GI tract and Breast for which this dedicated section was started.

This section provides comprehensive services to patients with Gastrointestinal and Breast cancers. From initial examination to complete diagnostic workup, all is directed by surgery team. Each patient is discussed in a multidisciplinary team (MDT) meeting and a Tumor board. Based on recent international guidelines and following Evidence based practice each patient's treatment is discussed and finalized. Management plan based on recommendation of these boards is executed.

We offer all kind of minor and major diagnostic and therapeutic surgical procedures. These include laparoscopic and open surgeries. Our centre is successfully carrying out major procedures for Breast, oesophageal, gastric, liver, biliary tract, gallbladder, pancreatic, colonic and retroperitoneal cancers.

Apart from providing clinical services Section of surgical oncology and HBP surgery is fully committed to teaching activities. Our section has successfully established first Multi-disciplinary Team Meetings (MDT) and Tumor board dedicated to Gastrointestinal and Breast oncology. These meetings are a valuable source of learning for all level of medical personals involved in oncology care.

In future Dow University has a vision of making this section a center of excellence in field of Liver Transplant, HBP surgery and Surgical oncology for patients and medical personals where it will be training people to fulfill the much needed requirement of trained medical personals for the country.

7. Dow Diagnostic Research and Reference Laboratory (DDRRL)

Dow Diagnostic Research and Reference Laboratory (DDRRL) was established in October 2007 to provide reliable, high quality diagnostic services of International standards for routine and specialized tests at economical rates (i.e. approximately at 30% as compared to private rates), for all socio-economic segments of the population. The laboratory is the fastest growing lab in Pakistan, whose internal quality assurance is guaranteed by daily controls. DDRRL also has the provision of online electronic reporting and Image transfer facilities for all patients.

8. Radiological Testing Services

The Dow Institute of Radiology and Dow Diagnostic Complex are facilitated with services that include the provision of all modern diagnostic facilities like:

- X-rays
- Ultrasound
- Computed Tomography (CT) Scan
- Magnetic Resonance Imaging (MRI)
- Fluoroscopy
- General Radiography
- Dual Energy X-Ray Absorptiometry (DEXA) Scan
- Echocardiography
- Mammography

Operation Theatre (OT) Complex

Dow University Hospital established a huge operation purpose built theater i.e. OT Complex of International standards having 80,000 sq. ft. area which is fully equipped with most modern equipment. The OT Complex has nine 09 operation theatres. Two are designated for Liver Transplant and hepato pancreatic biliary surgeries while two theatres are designated for Cardiac and Orthopedic Surgeries; the required special instruments and gadgets for the purpose are installed and provided.

The remaining five Theatres are also fully equipped with most modern equipment to have operations of General Surgery, Urology, ENT, Plastic Surgery, Neuro Surgery and Thoracic Surgery, Bariatric Surgery etc. This complex also has fully equipped recovery room. The operation floor has a unique channelizing operating in automation to collect the dirty liner with safety, which is then washed, sterilized and stored hygienically preventing infection.

The OT complex has state of art equipment including ventilators, invasive hemodynamic monitoring system and hemodialysis. Since various specialties also provide Postgraduate training, camera recording and CCTV system is also installed for telecasting live operative procedures. This new OT complex has lot of facilities for the doctors, staff and students, including rest rooms, canteens and separate lockers besides other facilities.

9. Physiotherapy Department

Dow University of Health Sciences also offers physiotherapy services to outpatients through the attached department of the School of Physical Therapy at Institute of Physical Medicine & Rehabilitation (IPM&R). This department provides comprehensive rehabilitation services, i.e. cardiac, neurological musculoskeletal and pediatric rehabilitation, currently providing physiotherapy services to more than 55 patients per day. Since its establishment 14000 patients have been provided with physiotherapy services.

10. Artificial Limb Centre

The Department of Prosthetics & Orthotics is serving the community by providing high quality prosthetics & orthotics appliances. During the year 2014, approx. 1580 patients benefited from the services of this department. Other than serving patients arriving at the center, this center is also facilitating other medical institutions for artificial limbs and appliances. Some of these services include facilitation offered to Jinnah Post Graduate Medical Centre for the Department of Orthopedics Club Foot Clinic by providing 300 Dennis brown splints for their congenital talipesequi-varus patients and providing Deniss Brown Splints for CTEV Patient (Clubfoot clinic).

11. Blood Transfusion Services Program

Safe blood is a crucial and irreplaceable component in the medical management of many diseases. In Karachi, because of the massive influx of patients from interior Sindh and other rural countryside, the demand of safe blood for transfusion could not be met with only replacement donors. Blood shortage in Pakistan is documented to be about 40% and this problem is further accelerated by inappropriate use of blood and its products.

Dow University of Health Sciences has taken the initiative towards provision of safe blood products to the needy patients. The overall project objective is to contribute to lowering hemorrhage mortality and to reduce the risk of transfusion transmitted infectious diseases and provision of safe and efficacious blood and blood products. The Voluntary non-remunerated blood donation (VNRBD) is the ideal source of quality blood, which forms less than 15 % of the demand of the blood in Pakistan. Under this initiative, Safe Blood Transfusion Services have been initiated with the strong pillars of voluntary blood donation with considerable community outreach, training of human resource in blood banking and transfusion medicine as per the recent scientific techniques and under the WHO recommended Quality Management principles, developing service delivery in blood banking and transfusion laboratory sciences with continuous education and research in transfusion medicine.

DUHS blood donation services are extremely active under Donor Management Department of the Centre and disseminating the message of Voluntary blood Donation to the population at large. The purpose is:

1. Creation of a culture of voluntary blood donation through communication and education.
2. Build a stable blood donor pool by motivating and recruiting new donors from low-risk populations, and encouraging existing or lapsed donors to become regular donors and to recognize the contribution to society made by blood donors.
3. Provide quality donor care, so that blood donation is not onerous
4. Provide quality assured blood products to all the needy patients
5. And create a sustainable foundation of advanced WHO recommended blood banking in Pakistan.

12. Ojha Institute of Chest Diseases (OICD) & Chest Disease Clinics

OICD was established in the early forties, as a TB sanatorium and now recognized as a center of excellence for Tuberculosis by the World Health Organization (WHO). The services provided here are free of cost and normally such type of ICU services costs around Rs. 20,000 - Rs. 50,000 / day in private hospitals.

The facilities provided to patients include high quality diet, recreation environment with TV, cable etc. and vocational training and support in the form of training for candle making and stitching etc. The Dow University takes the responsibility to sell their products for them.

Four out-patient clinics of OICD in the periphery of the city are also functioning, these are chest clinics of Iqbal Yad, Nazimabad, Lyari and Malir, Each clinic has a well-organized DOT (Directly Observed Treatment), where these patients with TB are provided medicines and health education. Daily about 600 patients visit these TB clinics for DOTS treatment and follow up.

TB HOSPITAL of 250 beds provides all possible facilities to indoor and outdoor patients for diagnosis and treatment of tuberculosis.

MULTI DRUG RESISTANT (MDR) TB is a great problem. In Pakistan about 15,000-20,000 tuberculosis patients presently suffering from Multi-Drug Resistant (MDR TB), each patient requires approx 500,000 Rs. for management including costly medicines and other logistics but at OICD their treatment is free.

15.2 Counseling for Stress Reduction

- **For Students:**

Dow University of Health Sciences, Karachi, has taken the initiative to council the University students for their stress reduction by facilitating or providing financial assistance through various Institutions/Organizations. There are various organizations which are not in connection with the University, in such organizations University still facilitates students as a forwarding authority like others. Currently University signed MOU with various philanthropists, to facilitate students as well as channelize system. Meanwhile, University forwarded applications to the following Institutions with respective assistance/facility;

S #	INSTITUTION/ORGANIZATION	TYPE OF ASSISTANCE
1	Ihsan Trust	Qarz-E-Hasna
2	Professional Education Foundation	Qarz-E-Hasna / Zakat
3	Abdullah T Mohammed Wehwaria&FarhatAleem Scholarship	Scholarship
4	University Of Karachi Alumni Association	Scholarship
5	Endowment Fund Scholarship	Scholarship
6	Fauji Foundation	Stipend
7	Staff Welfare Organization	Stipend

8	Federal Employees Benevolent and Group Insurance Funds	Stipend
9	NBP Student Loan Scheme	Loan

Dow University of Health Sciences, Karachi, establish University Advancement Cell and Financial Aid Office for the financial facilitation/assistance to the students. The University is engaged in the process of increasing the number of funding organization / philanthropist and sign MOU with them. The University future planning is to enhance duration of refunding amount of scholarship and develop a new fee structure with emphasis on minimizing the burden of scholarship awardee, to increase promotional activities through workshops, seminars, social media etc. and to arrange Symposium of different funding agencies with students, so that they may explain their program to students directly.

(Prostheses) Artificial Limbs and Braces/Supports (Orthoses)

Department of Prosthetics & orthotics at IPM&R, DUHS is providing (Prostheses) artificial limbs and braces/supports (orthoses) to person with disabilities. Around 975 appliances are delivered free of cost.

- **For DUHS Employees**

Health Insurance Scheme for DUHS employees

Financial responsibilities are considered as the main source of stress. To reduce the financial burden of its employees; DUHS provides medical insurance coverage to its all employees appointed on Regular basis and to /Contractual basis with at least one year service. The insurance coverage is currently provided by Asia Care Health & Life Insurance Co. ltd. The details of this health insurance scheme are discussed here as under:

The Employees & their dependents covered are divided in the following categories:-

BENEFIT STRUCTURES:-

Sr. #	Benefits / Coverage	<u>Categories and Annual Entitlements in Rs.</u>			
		Plan -A B-21 & 22	Plan -B B-19 & 20	Plan-C B-16 to 18	Plan-D B-1 to 15
1	Hospitalization Coverage per Insured per Annum	650,000	500,000	350,000	250,000
2	Daily Room / Bed limit per Insured	Deluxe Room	Private Room	Semi Private Room	General Ward / Room
3	Maternity Limits for Normal Delivery / Forceps	50,000	30,000	25,000	20,000

4	Maternity Limits for C-Section Multiple Births	80,000	45,000	40,000	30,000
5	Out-Patient Reimbursement per Family per Annum	35,000	20,000	15,000	12,000

BREAK UP OF LIVES COVERED:-

STRENGTH	PLAN A	PLAN B	PLAN C	PLAN D	TOTAL
EMPLOYEES	80	380	746	1160	2366
SPOUSES	38	299	517	825	1679
CHILDREN	77	661	845	1986	3569
PARENTS	32	392	1034	1348	2806
TOTAL	227	1732	3142	5319	10420

BENEFITS COVERED UNDER HOSPITALIZATION / IPD

1. Daily Room & Board Charges.
2. Miscellaneous Hospital Services and Supplies. Drugs, Dressings, Prescribed Medicines, Laboratory Examinations, Physiotherapy, intravenous injections & solutions, administration of blood and blood plasma including cost and any other fluids administered during surgery.
3. Emergency Room treatment for Accidental and Non-Accidental emergencies.
4. Doctor's visits. (Consultant, Specialist, etc.)
5. Surgical Operation Charges.
6. Local Ambulance Charges.
7. Pre-Post Hospitalization cover including Diagnostic Tests, Consultation Charges & prescribed Medicines within 30 days prior to or after Hospitalization.
8. ICU and Operation Theatre Charges.
9. Specialized Investigations & Day Care Surgeries. Dialysis, MRI, CT Scan, Thallium Scan, Angiography, `Cataract, Endoscopy, Echo, Treatment for Fractures, Lacerated wounds, Emergency Dental Treatment due to accidental injuries, Day Care surgical Charges including medicines and investigations.
10. Psychiatric Treatments.
11. Congenital Birth Defects.
12. Interferoherapy of Hepatitis 'B' and 'C'.
13. Maternity related complications.
14. Radiotherapy and Chemotherapy.

BENEFITS COVERED UNDER MATERNITY:-

1. Daily Room & Board Charges / Labor Rom Charges.
2. Ante-Natal Care such as Ultrasound scans, Lab Tests and examinations.
3. Hospital Charges & Obstetricians Fee for Childbirth.
4. Midwife Charges if delivery takes place at home.
5. Operation Theatre /Physician's /Surgeon's Charges.
6. Prescribed Medical Supplies & Services during Hospitalization.
7. Anesthesia Charges.
8. Blood Transfusion including Cost of Blood.
9. ICU Charges.
10. Baby Nursing Care while the Mother is confined to the Hospital.
11. Circumcision Charges of Newborn Baby Boys.
12. Post- natal Care immediately following childbirth such as Stitches, Follow up Visits & Prescribed Medicines.
13. Secondary Conditions brought about by Pregnancy such as Backache, High BP, Vaginal Bleeding, Nausea & Vomiting etc requiring Hospitalization.
14. In the event of D&C, Normal delivery benefits as mentioned in Benefits Schedule.

BENEFITS COVERED UNDER OPD:-

1. Physician / Consultant's fees for consultations.
2. Psychiatrists and Psychologist's Fee for Psychiatric Treatment.
3. Prescribed Drugs and Dressings.
4. Pathology, Radiology and Diagnostic Tests, X-rays & Ultrasounds.
5. Vaccinations.
6. Out-Patient Surgical Operations.
7. Wellness Mammogram, Pap smear, Prostate Cancer Screening or Colon Cancer Screening.
8. Dental Treatment including Extractions Teeth, Root Canaling or Caping or Similar Treatment.
9. Accident Related Dental Treatment.
10. Costs for Treatment by Therapists and Complementary Medicine Practitioners.
11. Declared / Undeclared Pre-Existing Conditions.
12. Coverage / Treatment from any Hospital / Clinic of the Patient's Choice.

- **For TB Patients:**

It is very difficult for TB patients to do their normal jobs because of their health condition and the precautionary measures to safe other people from getting the disease. Since the treatment of Tuberculosis requires a longer period of time, so such patients who have financial responsibilities of their family, may undergo financial and mental stress. To resolve this problem some vocational training programs have specially been designed and introduced to engage regular TB patients, while undergoing treatment for at least 9 months, so as to engage them mentally and simultaneously help them to earn daily-living.