



MINIMUM HEALTH SERVICES DELIVERY PACKAGE FOR SECONDARY CARE HOSPITALS (MHSDP)

GOVERNMENT OF KHYBER PAKHTUNKHWA
HEALTH DEPARTMENT

November, 2019

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Acronyms

BHUs	Basic Health Units
BPHS	Basic Package of Health Services
CMWs	Community Midwives
DHIS	District Health Information System
DHQH	District Headquarter Hospital
EPHS	Essential Package of Health Services
HSD	Health Service Delivery
IDPs	Internally Displaced Persons
LHWs	Lady Health Workers
MCHCs	Maternal and Child Health Centres
MHSDP-SC	Minimum Health Service Delivery Secondary Care
PSPU	Policy and Strategic Planning Unit
RHCs	Rural Health Centres
THQH	Tehsil Headquarter Hospital

Background

1 Current status of health and Health Services Delivery in Khyber Pakhtunkhwa

Pakistan is the sixth most populous country in the world, with a population of around 207 million¹. The population of Khyber Pakhtunkhwa has increased from 17.7million in 1998 to 40.53 million (Settled districts and Merged districts) in 2017of which a vast majority (81.2%) lives in rural areas². Khyber Pakhtunkhwa has 35 districts (28 settled and 7 merged districts), with a total area of 101,741 km² and constitute 17% of the total population of Pakistan. In addition, it is estimated that there are more than 1.8 million Afghan refugees living in the province. The average household size in Khyber Pakhtunkhwa is 7.2 people, second highest in Pakistan after Baluchistan (7.90 people)³. High population growth rate, Afghan refugees, Internally Displaced Persons (IDPs) and volatile security situation are some of the key challenges that the government of Khyber Pakhtunkhwa is facing.

Despite the above mentioned challenges faced by the province, health indicators of the province has shown significant improvement. Khyber Pakhtunkhwa has the lowest infant and under 5 mortality (53 & 64 per 1000 live births, respectively) compared to other provinces in Pakistan (Figure 11).

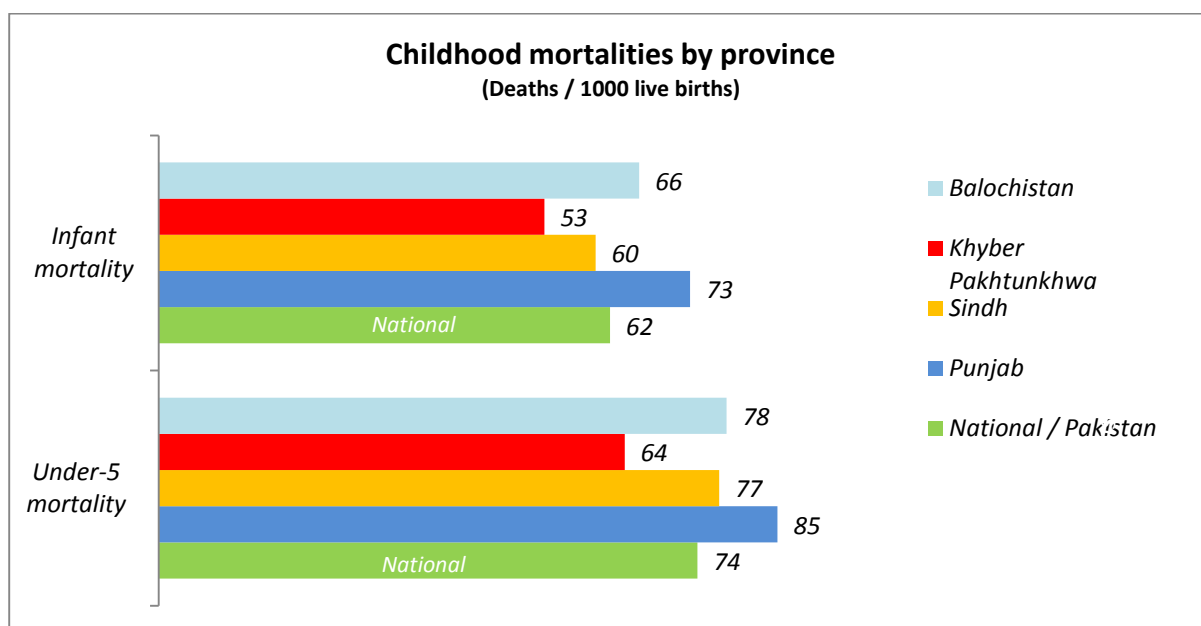


Figure 1: Provincial comparison of Infant and Under 5 mortality rates (Source: PDHS 2017-18)

¹National Institute of Population Studies. Accessed from <http://www.nips.org.pk/Home.htm>,

²Bureau of Statistics, Khyber Pakhtunkhwa. Retrieved from http://Khyber Pakhtunkhwabos.gov.pk/prd_images/1399372174.pdf

³Household integrated economic survey (HIES), 2013-14. Retrieved from <http://www.pbs.gov.pk/content/household-integrated-economic-survey-hies-2013-14>

Overall, the Infant Mortality and Under-5 Mortality show a declining trend in the country when compared across the four surveys (PDHS) conducted since 1990s to date (Figure 02).

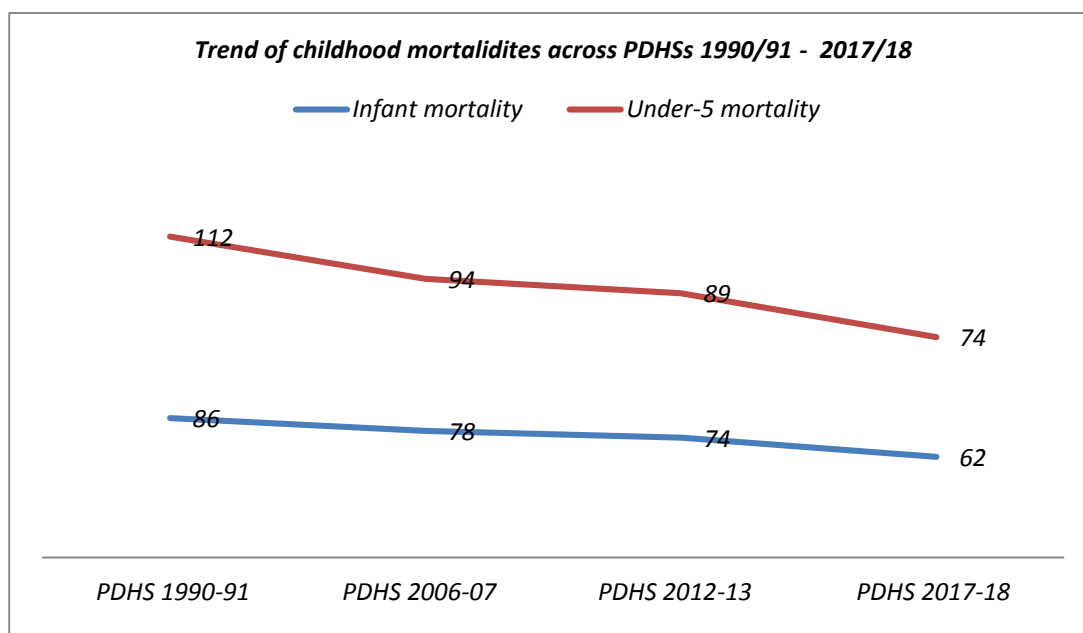


Figure 2: Trend of childhood mortalities across the PDHS in Pakistan (PDHS 1990/91 -2017/18).

With regards to access to health services, 80% of the women in Khyber Pakhtunkhwa had an antenatal check up from a skilled provider. Other provinces fared well in this regard, except Baluchistan where 56% of the women had their antenatal check-up from a skilled health care provider. Similarly around three fifth of the deliveries (62%) in Khyber Pakhtunkhwa are being conducted at health facilities and 67% of births were attended by skilled health care provider in Khyber Pakhtunkhwa.(Figure 3).

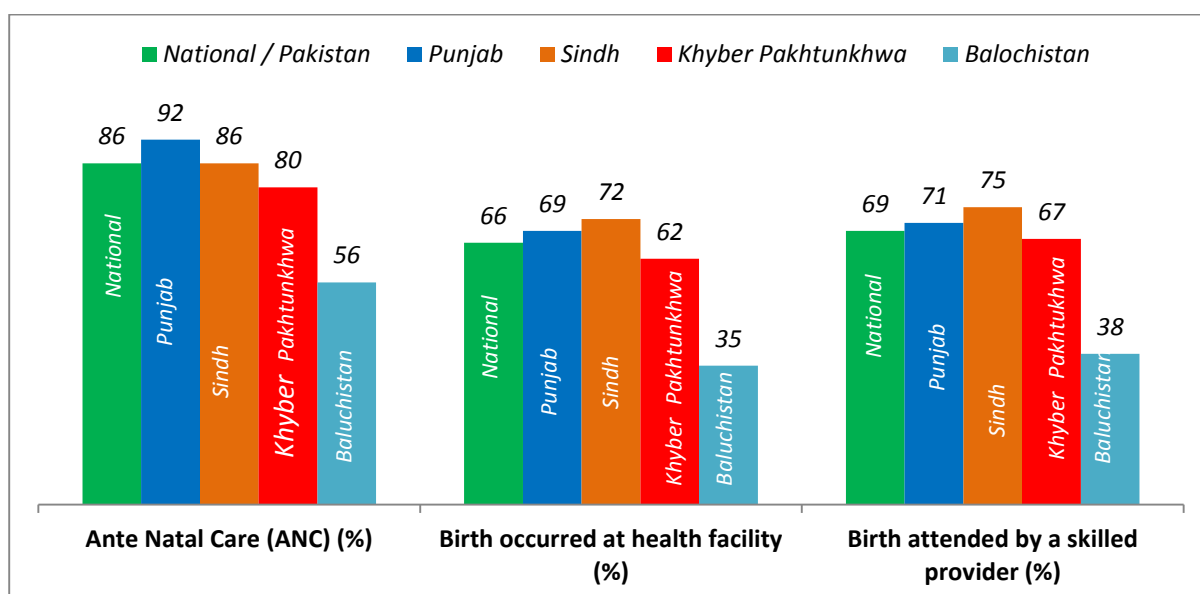


Figure 3: Percentage of women receiving antenatal care from a skilled provider, place of birth and skilled birth attendance (Source: PDHS 2017-18)

The public sector health service delivery in Khyber Pakhtunkhwa is through a three-tiered system involving primary, secondary and tertiary health care. The primary health care primarily focusses on the provision of preventive and promotive health care while the secondary and tertiary health care primarily provides curative health services. The health facilities operating in the province are provided in the Table 1.

Table 1: Health Facilities by types in Khyber Pakhtunkhwa

S.No	Type	Number
1.	Tertiary Hospitals/Medical Teaching Institutes (MTIs)	9
2.	Category A Hospitals	7
3.	Category B Hospitals	13
4.	Category C Hospitals	26
5.	Category D Hospitals	63
6.	Rural Health Centers	111
7.	Basic Health Units	769
8.	Civil Dispensaries	437

Source; DHIS Health Department Khyber Pakhtunkhwa Dec, 2018

2 Categorisation of Secondary Care Hospitals in Khyber Pakhtunkhwa

The secondary level of care were previously named as District Head Quarter (DHQ) and THQ hospitals but the level of services to be provided by the hospitals varied from hospital to hospital. To ensure the access and equity of services the department conducted the exercise of standardization in year 2002 wherein all the hospitals were categorized into Category A, B ,C, D.based on the population of the district and the number of beds of each type of hospital so that a ratio of 1 bed to 2500 population is achieved. The notification defined the specialities which are to be provided in each category as well as staffing for each category. It was also agreed that the upgradation of infrastructure as well as equipment will be done through ADP. The process of upgradation of infrastructure of hospital is being conducted since 2002 through the ADP and number of the hospitals has been standardized. However, the services are not optimally provided because of the nonavailability of sufficient staff. Secondly since the services in each speciality were not clearly defined so the uniformity of services and needs could not be ensured.

Table 2: Speciality wise status across categories of SC-Hospitals in KP (2002)

		CATEG ORY A	CATEGORY B	CATEGORY C	CATEGORY D
SPECIALTIES	SURGERY				
	MEDICINE				
	GYNAE/OBS				
	PAEDIATRICS				

	CATEGORY A	CATEGORY B	CATEGORY C	CATEGORY D
EYE				
ENT				
ORTHOPAEDICS				
ANESTHESIA				
RADIOLOGY				
PATHOLOGY				
CARDIOLOGY				
PSYCHIATRY				
CHEST/TB				
DIALYSIS UNIT				
DERMATOLOGY				
DENTISTRY UNIT				
PAEDS SURGERY				
NEUROSURGERY				
SPECIALIZED SERVICES				
Casualty				
Labor Room				
Dentistry Unit				
Blood Bank				
Operation Theator				
ICU/CCU				
Dialysis Unit				
Nursery Paeds/ICU				
Phsyiotherapy				

The number of Category A, B, C and D hospitals across districts in the province of Khyber Pakhtunkhwa are provided in the table below

Table 3: District Wise Approved Categorization of Hospitals

S.No	District	Category A MTIs	Category A Non MTIs	Category B	Category C	Category D
1	Abbottabad	1	0	1	0	3
2	Bannu	1	0	0	0	2
3	Battagram	0	0	0	1	1
4	Buner	0	0	0	0	1
5	Charsadda	0	1	1	2	1
6	Chitral	0	0	1	0	2
7	D.I.Khan	1	0	0	0	4
8	Dir Lower	0	1	0	2	4
9	Dir Upper	0	0	1	0	3

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10	Hangu	0	0	0	1	2
11	Haripur	0	0	1	1	3
12	Karak	0	0	1	2	3
13	Kohat	0	1	0	1	2
14	Kohistan	0	0	0	0	0
15	Lakki Marwat	0	0	1	2	2
16	Malakand	0	0	1	1	3
17	Mansehra	0	1	0	1	4
18	Mardan	1	1	0	1	4
19	Nowshera	1	0	2	0	5
20	Peshawar	4	0	1	5	5
21	Shangla	0	0	1	1	1
22	Swabi	0	1	1	2	2
23	Swat	0	1	0	2	5
24	Tank	0	0	0	1	1
25	Tor Ghar	0	0	0	0	0
Total		9	7	13	26	63

Source; DHIS Health Department Khyber Pakhtunkhwa , December 2018

3 Rationale for revision of Categorization and Development of MHSDP for Secondary Health Care

The Government of Khyber Pakhtunkhwa developed secondary level MHSDP to promote standardization and delivery of equitable health services, by defining the minimum package of health services for secondary health care levels, which includes the categorized services i.e. A, B, C and D. It can also serve as a management tool to guide resource allocation, which responds to local priorities and needs.

As regards various other services which are part and parcel of MHSDP will be mainly dependent on the human and other resources allocations, based on the standards already defined. Thus, all of them have been combined rather than duplicating it again and again for each of the services. It should also be noted that the MHSDP will be a living document and should be improved after undertaking a formal assessment of the progress. In addition, the optimal functioning of each of the categories of hospitals can be ensured by developing and implementing a practically applicable referral system.

SECONDARY HEALTHCARE DELIVERY PACKAGE

Clinical and Specialized Services:

Category A:

Category-A hospital has 350 inpatient beds with 21 specialities and is intended to serve a population of around one million people. It has both in-patient and outpatient services, in

addition to emergency, diagnostic and other day care facilities. The clinical specialities that are recommended to be available at a category A hospital include Surgery, Medicine, Gynae/Obs, Paediatrics, Eye, ENT, Orthopaedics, Cardiology, Psychiatry, Pulmonology, Gastroenterology, Anesthesia, Pathology, Radiology, Paediatric Surgery, Urology, Paeds Surgery, Dentistry, Neurosurgery, Dermatology, Trauma, Forensic, Intensive Care Unit and a Paeds Nursery/ICU. The Hospital in addition to the above will also be providing additional specialized services which includes Dialysis, Dentistry, Physiotherapy, ICU, CCU, blood bank, delivery and pharmacy services etc. The table below provide the services that are to be provided by the Category-A hospitals based on the available clinical specialities and support services.

Table 4: MHS DP-SC FOR CATEGORY A HOSPITALS

S.No	Services	Department	Remarks
	Clinical Services		
1.	General Medical (Outpatients, In-patient, Emergency)		
	Infectious Diseases, Allergy and Immunology, Endocrinology, Diabetes and Metabolism, Hematology, Oncology, Rheumatology, , Diabetes mellitus & other endocrine associated conditions,	Medical Department	
4.1	GI disorders:		
	Amoebiasis, Gastroenteritis, Diarrhea(chronic), Gastritis, Irritable bowel syndrome, Peptic ulcer disease, Helminthic infection, GI tract bleeding, Liver cirrhosis & other liver conditions (abscess, cyst, etc.),	Gastroenterology Department	
2.	Respiratory Problems		
	Upper and Lower Respiratory Tract infections, Pneumonia, Chronic Obstructive Pulmonary Disease (COPD), Tuberculosis, Asthma, Allergies, Chronic Bronchitis, Emphysema, Acute Bronchitis, Cystic Fibrosis	Pulmonology Department	
3.	Renal disorders		
	Acute glomerulonephritis, Acute renal failure, Hypo/hyperkalemia, Nephrotic syndrome, Chronic renal failure,	Urology Department	
4.	General Paediatric (Outpatients, In-patient, Emergency)		
	Infectious diseases in children, Neonatal care, Neonatal resuscitation; ENC. Full supportive care for Preterm baby , management of complication of newborn, Management of neonatal jaundice and infections, , Birth injuries, Incubation, Infants of diabetic mothers, Asthma (chronic) Diarrhea (chronic), Failure to thrive Growth retardation, Malnutrition, Congenital anomalies. Well-baby clinic to be established in the Paediatric OPD.	Pediatrics Department	
5.	General Cardiology (Outpatients, In-patient, Emergency)		
	Congenital heart disease, Deep-vein thrombosis, Heart failure, Hypertension, Pulmonary oedema, Rheumatic heart disease, Myocardial infarction, Ischemic heart disease	Cardiology Department	
6.	General Dermatology (Outpatients, In-patient)		

Table 4: MHSDP-SC FOR CATEGORY A HOSPITALS

S.No	Services	Department	Remarks
	Common dermatological problems such as eczema, rosacea, seborrheic dermatitis, contact dermatitis, keratosis pilaris, psoriasis, vitiligo, impetigo, warts, pemphigoid, pruritic urticarial papules and plaques, dermatitis.	Dermatology Department	
	Skin Cancer		Stablize and Refer
7.	General Psychiatry (Outpatients, In-patient, Emergency)		
	Acute confusion (Acute psychosis), Depression; Anxiety and stress-related disorders; Sleep disorders; Mania, Schizophrenia, Suicidal ideation, Substance abuse and dependency, Post-traumatic stress problems; IQ/Personality assessment, Psycho-social services	Psychiatry Department	
8.	Neurology:	Neurology Department	
	Management of CVA, Multiple sclerosis, convulsive disorders, epilepsy, parkinsonism, peripheral neuropathy etc		
9.	General surgery (Outpatients, In-patient, Emergency)		
	Elective Surgery		
	Repair of perforated peptic ulcer, typhoid ileal perforation, Appendicectomy, bowel obstruction, colostomy, gall bladder disease, hernia, hydrocelectomy, relief of urinary obstruction, catheterization of suprapubic cystostomy, Thyroidectomy, Mastectomy, Biliary tract operations, Haemorrhoidectomy, Mesh repair of inguinal /Ventral Hernias/ Incisional Hernia, Open Cholecystectomy, Ureterolithotomy, Vesicolithotomy,	Surgical Department	
10.	A&E Services		
	All medical emergencies including animal/snake bite, Pneumothorax and hemothorax	Accident and Emergency Department	
	Abdominal trauma (minor), Acute appendicitis, Perforated peptic ulcer, Intestinal obstruction, Diverticulitis, Inflammatory bowel disease, Mesenteric adenitis, Cholecystitis, Cholangitis, Cystitis, Urinary Tract Infection, Ureteric colic, Acute urinary retention, Peritonitis, Cricothyroidotomy, Soft Tissue Injuries, Tendon injuries, Abdominal trauma (major), Splenic rupture, Retroperitoneal haemorrhage, Shock/Septicaemia, Management of Burns,		
	Advanced acute abdominal conditions like Vascular, Pancreatic, Urological and requiring sub-specialised supervision		Stabilize and refer.
	Major disaster plan TRIAGE and assessment of trauma patients along with stabilization of the patient with referral to the sub-specialty concerned (if required),	Accident and Emergency Department	
11.	General Ophthalmology (Outpatients, In-patient, Emergency)		
	Emergencies: Trauma (except intraocular foreign body and orbital fracture);	Eye Department	
	Common eye conditions; Cataract, Glaucoma, Refraction, Diabetic eye complications		
12.	General ENT (Outpatients, In-patient, Emergency)		

Table 4: MHSDP-SC FOR CATEGORY A HOSPITALS

S.No	Services	Department	Remarks
	Epistaxis, Upper respiratory tract infections, Granulomatous conditions of nose & PNS, Nasal polyp, Septal surgeries, Nasal & facial trauma, Smell disorders, Obstructive sleep apnoea, Deep neck abscesses, Thyroid masses, Acute management of laryngo-tracheal & neck trauma, Tracheostomy, Dysphagia, Otitis Externa, Wax in ear, Balance disorders, Otosclerosis, Otolological trauma, Mastoiditis, Deaf and Dumb child Diagnostic nasendoscopy, Stridor & airway obstruction with facility for rigid bronchoscopy	ENT Department	
	Head & Neck benign & malignant tumours– primary & metastatic		Screen and Refer
13.	General Orthopaedic (Outpatients, In-patient, Emergency)		
	Closed fracture with or without dislocation of all joints and bones, Volkmann's ischemia and compartment syndrome, Soft tissue injuries and crush injuries, Skin graft and tendon injuries, Acute osteomyelitis, Debridement of osteomyelitis, drainage of septic osteoarthritis, Pyogenic septic arthritis, Bone Cyst, Carpal tunnel lesion, Hand flexors and extensors injuries, Amputation (open amputation), Menopausal osteoporosis, Open Reduction Internal Fixation (ORIF) small bones of hand & foot,	Orthopaedic Department	
14.	General Gynae/Obs (Outpatients, In-patient, Emergency)		
	Antenatal care		
	Management of Anemia , Antepartum Haemorrhage, Abortion, Malnutrition, Malaria, UTI & STI, Rhesus (Rh) incompatibility, Management of pre-eclampsia, Management of, Ectopic pregnancy		
	Natal Care		
	Normal delivery, assisted delivery, Management of complicated labour, management of Shock , Management of prolapsed cord, Management of shoulder dystocia, Manage prolonged and obstructed labour, Caesarean section, Retained placenta, Management of delivery in high risk women. induction of labour, Eclampsia.	Obstetrics and Gynaecology Department	
	Postnatal care		
	Management of PPH/shock, Management of puerperal sepsis		
	Gynaecological care:		
	Manual vacuum aspiration, D & C , Hysterectomy for uterine rupture or intractable postpartum haemorrhage, Uterus fibromyoma, Infertility, Ovarian cyst and adnexal masses (simple), Menstrual disturbances, Pelvic inflammatory disease (PID), Abscesses, Prolapse, Complications of puerperium, Deep vein thrombosis (DVT), management of abortion, Detection and treatment of reproductive and sexual tract infections, management of precancerous lesions.	Obstetrics and Gynaecology Department	
	Family Planning:		
	Provision of oral pills , condoms, injections , Implants,		

Table 4: MHSDP-SC FOR CATEGORY A HOSPITALS

S.No	Services	Department	Remarks
	Tubal ligation, Complications of contraceptives		
15.	Paediatric Surgery:	Paediatric Surgery Department	
	Diseases, Trauma and Malformation of Children (cleft lip and palate, repair of anorectal malformations) , Neonatal Surgeries, Surgeries related to paediatric urology, oncology etc.		
	Neuro surgery		
	Shunt of hydrocephalus, Head injury, spinal injury, peripheral neuropathy, pain management. Pediatric neurosurgery.		
16.	General Dental services (Outpatients, In-patient, Emergency)		
	Crowning/ Dentures/Pulpitis, Periodontitis, Pericoronitis, Gingivitis, Cellulitis (oral), Alveolitis (dry socket), Acute necrotizing ulcerative gingivitis, Abscess (periapical), RCT	Dentistry Department	
17.	Laboratory (Outpatients, In-patient, Emergency)		
	FBC, ESR, LFTs, Blood urea and electrolytes; CSF/pleural fluid/ascitic fluid/ pericardial aspirate microscopy; Biochemistry, gram's and ZN stain; HBsAg, Anti-HCV; HIV; Toxoplasma/brucella antibodies; Serum amylase, CPK, Blood glucose; ABGs; Culture and sensitivity testing; Screening of donor, blood grouping and cross match; Storage (Blood bank services)	Pathology Unit/Department	
18.	Radiology (Outpatients, In-patient, Emergency)		
	Intervention Radiology, MRI ,Ultrasound(3D) Chest/orbit/Abdomen/ Pelvis; Dopplers , CT brain/Chest/Abdomen/ Pelvis/Spine; Barium swallow; Intravenous Urography (IVU)	Radiology Unit/Department	
19.	Anaesthesia services:		
	General, epidural, spinal Anaesthesia . Intensive care and perfusion services	Anesthesia Department	
20.	Medicolegal services and Toxicology		
	Routine medico-legal, Specialized medico-legal including re-examination,	Forensic Department	
21.	Pharmacy (Outpatients, In-patient, Emergency)		
	Support prescription of drugs; Manage main drug store (Inventory/stock, forecasting etc); Drug utilization evaluation; Pharmacovigilance; Drug therapeutic goods information and poison control center	Pharmacy Unit	
22.	Physiotherapy services		
	Frozen shoulder; Backache therapy; Post-fracture therapy; Therapy of joints; Short wave diathermy; Physiotherapy for chest; Mobilization (postoperative and post stroke)	Physiotherapy Unit	
23.	IT and Hospital Management Information System		
	Central Patient registration, Human Resource, Payroll, General Ledger, Medical Records, Radiology, Pathology, Procurement and inventory Management, Pharmacy, Admission and Discharge, Nursing Management, Operation Theatre, Corporate Billing,	Administration Department	

Table 4: MHSDP-SC FOR CATEGORY A HOSPITALS

S.No	Services	Department	Remarks
	Maintenance Mangement etc, Maintenance of computers; Closed Circuit TV; Central speaker announcement; Health educational corner at OPDs		
24.	Infection prevention & control, safe environment, hygiene and safe waste disposal:		
	Ensure aseptic sterilized diagnostic & therapeutic procedures; Notify ORs and house staff of MRSA/VRSA and other nosocomial infection when it occurs; Segregation of sharp and non-sharp medical waste and local or contractual arrangement for its safe disposal as per guidelines.	Administration Department	
25.	Emergency Preparedness and Disaster Management Services: Plan available to respond to the emergency/ disaster, Buffer supplies to address emergencies	Administration Department	
26.	Ambulance Service:	Administration Department	06 ambulances with 24/7 service availability

Category “B”

Table 5: MHSDP-SC FOR CATEGORY-B HOSPITALS

S.No	Services	Department	Remarks
	Clinical Services		
1.	General Medical (Outpatients, In-patient, Emergency)		
	Infectious Diseases, Allergy and Immunology, Endocrinology, Diabetes and Metabolism, Hematology, Oncology, Rheumatology, , Diabetes mellitus & other endocrine associated conditions, coma, management of CVA, Multiple sclerosis, convulsive disorder, epilepsy, parkinsonism, peripheral neuropathies etc.	Medical Department	
4.2	GI disorders:		
	Amoebiasis, Gastroenteritis, Diarrhea(chronic), Gastritis, Irritable bowel syndrome, Peptic ulcer disease, Helminthic infection, GI tract bleeding, Liver cirrhosis & other liver conditions (abscess, cyst, etc.),	Gastroenterology Department	
2.	Respiratory Problems		
	Upper and Lower Respiratory Tract infections, Pneumonia, Chronic Obstructive Pulmonary Disease (COPD), Tuberculosis, Asthma, Allergies, Chronic Bronchitis, Emphysema, Acute Bronchitis, Cystic Fibrosis	Pulmonology Department	
3.	Renal disorders		
	Acute glomerulonephritis, Acute renal failure, Hypo/hyperkalemia, Nephrotic syndrome, Chronic renal failure,	Urology Department	
4.	General Paediatric (Outpatients, In-patient, Emergency)		
	Infectious diseases in children, Neonatal care, Neonatal resuscitation; ENC. Full supportive care for Preterm baby , management of complication of newborn, Management of neonatal jaundice and infections, , Birth injuries, Incubation, Asthma (chronic) Diarrhea (chronic), Failure to thrive Growth retardation, Malnutrition, Congenital anomalies. Well-baby clinic to be established in the Paediatric OPD.	Pediatrics Department	
5.	General Cardiology (Outpatients, In-patient, Emergency)		
	Congenital heart disease, Deep-vein thrombosis, Heart failure, Hypertension, Pulmonary oedema, Rheumatic heart disease, Myocardial infarction, Ischemic heart disease	Cardiology Department	
6.	General Dermatology (Outpatients, In-patient)		
	Common dermatological problems such as eczema, rosacea, seborrheic dermatitis, contact dermatitis, keratosis pilaris, psoriasis, vitiligo, impetigo, warts, pemphigoid, pruritic urticarial papules and plaques, dermatitis.	Dermatology Department	
	Skin Cancer		Stablize and Refer
7.	General Psychiatry (Outpatients, In-patient, Emergency)		
	Acute confusion (Acute psychosis), Depression; Anxiety and stress-related disorders; Sleep disorders; Mania,	Psychiatry Department	

Table 5: MHSDP-SC FOR CATEGORY-B HOSPITALS

S.No	Services	Department	Remarks
	Schizophrenia, Suicidal ideation, Substance abuse and dependency, Post-traumatic stress problems; IQ/Personality assessment, Psycho-social services		
8.	General surgery (Outpatients, In-patient, Emergency)		
	Elective Surgery		
	Repair of perforated peptic ulcer, typhoid ileal perforation, Appendicectomy, bowel obstruction, colostomy, gall bladder disease, hernia, hydrocelectomy, relief of urinary obstruction, catheterization of suprapubic cystostomy, Thyroidectomy, Mastectomy, Biliary tract operations, Haemorrhoidectomy, Mesh repair of inguinal /Ventral Hernias/ Incisional Hernia, Open Cholecystectomy, Ureterolithotomy, Vesicolithotomy,	Surgical Department	
9.	A&E Services		
	All medical emergencies including animal/snake bite, Pneumothorax and hemothorax		
	Abdominal trauma (minor), Acute appendicitis, Perforated peptic ulcer, Intestinal obstruction, Diverticulitis, Inflammatory bowel disease, Mesenteric adenitis, Cholecystitis, Cholangitis, Cystitis, Urinary Tract Infection, Ureteric colic, Acute urinary retention, Peritonitis, Cricothyroidotomy, Soft Tissue Injuries, Tendon injuries, Abdominal trauma (major), Splenic rupture, Retroperitoneal haemorrhage, Shock/Septicaemia, Management of Burns,	Accident and Emergency Department	
	Advanced acute abdominal conditions like Vascular, Pancreatic, Urological and requiring sub-specialised supervision		Stabilize and refer.
	Major disaster plan TRIAGE and assessment of trauma patients along with stabilization of the patient with referral to the sub-specialty concerned (if required),	Accident and Emergency Department	
10.	General Ophthalmology (Outpatients, In-patient, Emergency)		
	Emergencies: Trauma (except intraocular foreign body and orbital fracture);		
	Common eye conditions; Cataract, Glaucoma, Refraction, Diabetic eye complications	Eye Department	
11.	General ENT (Outpatients, In-patient, Emergency)		
	Epistaxis, Upper respiratory tract infections, Granulomatous conditions of nose & PNS, Nasal polyp, Septal surgeries, Nasal & facial trauma, Smell disorders, Obstructive sleep apnoea, Deep neck abscesses, Thyroid masses, Acute management of laryngo-tracheal & neck trauma, Tracheostomy, Dysphagia, Otitis Externa, Wax in ear, Balance disorders, Otosclerosis, Otological trauma, Mastoiditis, Deaf and Dumb child Diagnostic nasendoscopy, Stridor & airway obstruction with facility for rigid bronchoscopy	ENT Department	
	Head & Neck benign & malignant tumours– primary & metastatic		Screen and Refer
12.	General Orthopaedic (Outpatients, In-patient, Emergency)		
	Closed fracture with or without dislocation of all joints and bones, Volkmann's ischemia and compartment	Orthopaedic Department	

Table 5: MHSDP-SC FOR CATEGORY-B HOSPITALS

S.No	Services	Department	Remarks
	syndrome, Soft tissue injuries and crush injuries, Skin graft and tendon injuries, Acute osteomyelitis, Debridement of osteomyelitis, drainage of septic osteoarthritis, Pyogenic septic arthritis, Bone Cyst, Carpal tunnel lesion, Hand flexors and extensors injuries, Amputation (open amputation), Menopausal osteoporosis, Open Reduction Internal Fixation (ORIF) small bones of hand & foot,		
13.	General Gynae/Obs (Outpatients, In-patient, Emergency)		
	Antenatal care		
	Management of Anemia , Antepartum Haemorrhage, Abortion, Malnutrition, Malaria, UTI & STI, Rhesus (Rh) incompatibility, Management of pre-eclampsia, Management of Ectopic pregnancy		
	Natal Care		
	Normal delivery, assisted delivery, Management of complicated labour, management of Shock , Management of prolapsed cord, Management of shoulder dystocia, Manage prolonged and obstructed labour, Caesarean section, Retained placenta, Management of delivery in high risk women. induction of labour, Eclampsia.	Obstetrics and Gynaecology Department	
	Postnatal care		
	Management of PPH/shock, Management of puerperal sepsis		
	Gynaecological care:		
	Manual vacuum aspiration, D & C , Hystrectomy for uterine rupture or intractable postpartum haemorrhage, Uterus fibromyoma, Infertility, Ovarian cyst and adnexal masses (simple), Menstrual disturbances, Pelvic inflammatory disease (PID), Abscesses, Prolapse, Complications of puerperium, Deep vein thrombosis (DVT), management of abortion, Detection and treatment of reproductive and sexual tract infections, management of precancerous lesions.	Obstetrics and Gynaecology Department	
	Family Planning:		
	Provision of oral pills , condoms, injections , Implants, Tubal ligation, Complications of contraceptives		
14.	General Dental services (Outpatients, In-patient, Emergency)		
	Crowning/ Dentures/Pulpitis, Periodontitis, Pericoronitis, Gingivitis, Cellulitis (oral), Alveolitis (dry socket), Acute necrotizing ulcerative gingivitis, Abscess (periapical), RCT	Dentistry Department	
15.	Laboratory (Outpatients, In-patient, Emergency)		
	FBC, ESR, LFTs, Blood urea and electrolytes; CSF/pleural fluid/ascitic fluid/ pericardial aspirate microscopy; Biochemistry, gram's and ZN stain; HBsAg, Anti-HCV; HIV; Toxoplasma/brucella antibodies; Serum amylase, CPK, Blood glucose; ABGs; Culture and sensitivity testing; Screening of donor, blood grouping and cross match; Storage (Blood bank services)	Pathology Unit/Department	
16.	Radiology (Outpatients, In-patient, Emergency)		

Table 5: MHSDP-SC FOR CATEGORY-B HOSPITALS

S.No	Services	Department	Remarks
	Intervention Radiology, MRI ,Ultrasound(3D) Chest/orbit/Abdomen/ Pelvis; Dopplers , CT brain/Chest/Abdomen/ Pelvis/Spine; Barium swallow; Intravenous Urography (IVU)	Radiology Unit/Department	
17.	Anaesthesia services:		
	General, epidural, spinal Anaesthesia . Intensive care and perfusion services	Anesthesia Department	
18.	Medicolegal services and Toxicology		
	Routine medico-legal,	Forensic Department	
19.	Pharmacy (Outpatients, In-patient, Emergency)		
	Support prescription of drugs; Manage main drug store (Inventory/stock, forecasting etc); Drug utilization evaluation; Pharmacovigilance; Drug therapeutic goods information and poison control center	Pharmacy Unit	
20.	Physiotherapy services		
	Frozen shoulder; Backache therapy; Post-fracture therapy; Therapy of joints; Short wave diathermy; Physiotherapy for chest; Mobilization (postoperative and post stroke)	Physiotherapy Unit	
21.	IT and Hospital Management Information System		
	Central patient registration, Human Resource, Payroll, General Ledger, Medical Records,Radiology, Pathology, Procurement and inventory Management, Pharmacy, Admission and Discharge, Nursing Management, Operation Theatre, Corporate Billing, Maintenance Management etc. Maintenance of computers; Closed Circuit TV; Central speaker announcement; Health educational corner at OPDs	Administration Department	
22.	Infection prevention & control, safe environment, hygiene and safe waste disposal:		
	Ensure aseptic sterilized diagnostic & therapeutic procedures; Notify ORs and house staff of MRSA/VRSA and other nosocomial infection when it occurs; Segregation of sharp and non-sharp medical waste and local or contractual arrangement for its safe disposal as per guidelines.	Administration Department	
23.	Emergency Preparedness and Disaster Management Services: Plan available to respond to the emergency/ disaster, Buffer supplies to address emergencies	Administration Department	
24.	Ambulance Service:	Administration Department	04 ambulance s with 24/7 service availability

Category “C”

Table 6: MHSDP-SC FOR CATEGORY-C HOSPITALS

S.No	Services	Department	Remarks
	Clinical Services		
1.	General Medical (Outpatients, In-patient, Emergency)		
	Infectious Diseases , Ac and Chronic diarrhea, IBS, Peptic Ulcer, Liver disorders, COPDs, Pneumonia, , UTIs , STIs, renal failure, Tuberculosis, Allergy and Immunology, Endocrinology, Diabetes and Metabolism, Hematology, Oncology, Rheumatology, Thyroid dysfunctions, Diabetes mellitus & other endocrine associated conditions,	Medical Department	
	Myocardial infarction, Ischemic heart disease, skin cancer or any other patient needing specialized care , stroke , coma, convulsive disorders		Stabilize and refer
2.	General Pediatric (Outpatients, In-patient, Emergency)		
	Infectious diseases , Neonatal care, Neonatal resuscitation; ENC. Management of neonatal jaundice and infections, Phototherapy, Birth injuries, Asthma (chronic) Diarrhea (chronic), Failure to thrive, Growth retardation, Malnutrition. Well-baby clinic to be established in the pediatric OPD.	Pediatrics Department	
3.	General Psychiatry (Outpatients, In-patient, Emergency)		
	Acute confusion (Acute psychosis), Depression; Anxiety and stress-related disorders; Sleep disorders; Mania, Schizophrenia, Suicidal ideation, Substance abuse and dependency, Post-traumatic stress problems; IQ/Personality assessment. Psycho-social services	Psychiatry Department	
4.	General surgery (Outpatients, In-patient, Emergency)		
	Biliary tract operations, Proctological operations (perianal abscess), Hernioraphy, prolapse, Superficial abscesses, Cysts, Cavity abscesses, Circumcision, Vasectomy, DJ Stent Removal, Lord's Dilatation, T. Stich, Polypectomy, Excision of Fibro adenoma Breast, Appendicectomy, Haemorrhoidectomy, Hydrocele surgery, Undescended Testes (UDT), Perianal Abscess/ Fistula (Low), Peri Anal Fistula High/complex, Mesh repair of inguinal /Ventral Hernias/ Incisional Hernia, Excision of pilonidal Sinus.	Surgical Department	
5.	A&E Services		
	All medical emergencies including animal/snake bite		
	Abdominal trauma (minor), Acute appendicitis, Diverticulitis, Inflammatory bowel disease, Cholecystitis, Cholangitis, Cystitis, Urinary Tract Infection, Ureteric colic, Acute urinary retention, Acute abdomen, Cricothyroidotomy, Soft Tissue Injuries, Tendon injuries, burns,Closed Fracture with Dislocation, initial management of open fracture.	Accident and Emergency Department	
	Advanced acute abdominal conditions like Vascular, Pancreatic, Urological and requiring sub-specialised supervision, Abdominal trauma (major), Splenic rupture, Retroperitoneal haemorrhage, Shock/Septicaemia, intestinal obstruction, Head injury and spinal injury		Stabilize and refer.
	Major disaster plan TRIAGE and assessment of trauma patients along with stabilization of the patient with referral to the sub-specialty concerned (if required),	Accident and Emergency Department	

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6.	General Ophthalmology (Outpatients, In-patient, Emergency)		
	Emergencies: Trauma (except intraocular foreign body and orbital fracture);	Eye Department	Referral in case of complicated trauma
	Common eye conditions; Cataract, Glaucoma, Refraction, Diabetic eye complications		
7.	General ENT (Outpatients, In-patient, Emergency)		
	Epistaxis, Upper respiratory tract infections, Rhinitis, Acute & Chronic sinusitis, Granulomatous conditions of nose & PNS, Nasal polyp, Septal surgeries, Nasal & facial trauma, Smell disorders, Obstructive sleep apnoea, Pharyngeal infections, Adenoids & Tonsils & its surgeries, Laryngeal, infections-paediatrics & adults, Voice disorders, Deep neck abscesses, Thyroid masses, Acute management of laryngo-tracheal & neck trauma, Tracheostomy, Dysphagia, Otitis Externa, Wax in ear, Acute otitis media; Chronic otitis media, Balance disorders, Common complications of otitis media, Otitis media with effusion, Diagnostic nasendoscopy, Stridor & airway obstruction with facility for rigid bronchoscopy	ENT Department	
	Head & Neck benign & malignant tumours– primary & metastatic		Screen and Refer
	Mastoiditis, Deaf and Dumb child, Otosclerosis, Otological trauma,		
8.	General Orthopaedic (Outpatients, In-patient, Emergency)		
	Closed fracture with or without dislocation of all joints and bones, Soft tissue injuries and crush injuries, Gout arthritis, Rheumatoid arthritis, Bone Cyst, Carpal tunnel lesion, Hand flexors and extensors injuries, Manipulation Under Anesthesia (MUA).	Orthopaedic Department	
9.	General Gynae/Obs (Outpatients, In-patient, Emergency)		
	Antenatal care		
	Management of Anemia , Antepartum Haemorrhage, Abortion, Malnutrition, Malaria, UTI & STI, Rhesus (Rh) incompatibility, Management of pre-eclampsia, Management of, Ectopic pregnancy	Obstetrics and Gynaecology Department	
	Natal Care		
	Normal delivery, assisted delivery, Management of complicated labour, Manage prolonged and obstructed labour, Caesarean section, Retained placenta.		
	Postnatal care		
	Management of PPH/shock, Management of puerperal sepsis (simple).		
	Gynaecological care:		
	Uterus fibromyoma, Hysterectomy, Infertility, Ovarian cyst and adnexal masses (simple), Menstrual disturbances, Pelvic inflammatory disease (PID), Abscesses, Prolapse and trans-vaginal operations, Complications of puerperium, Deep vein thrombosis (DVT), management of abortion,	Obstetrics and Gynaecology Department	
	Family Planning:		
	Provision of oral pills , condoms, injections , Implants, Tubal ligation, Complications of contraceptives		
10.	General Dental services (Outpatients, In-patient, Emergency)		

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	Crowning/ Dentures/ Pulpitis, Periodontitis, Pericoronitis, Gingivitis, Cellulitis (oral), Alveolitis (dry socket), Acute necrotizing ulcerative gingivitis, Abscess (periapical), RCT	Dentistry Department	
	Specialized Services		
11.	Laboratory (Outpatients, In-patient, Emergency)		
	FBC, ESR, LFTs, Blood urea and electrolytes; CSF/pleural fluid/ascitic fluid/ pericardial aspirate microscopy; Biochemistry, gram's and ZN stain; HBsAg, Anti-HCV; HIV; Toxoplasma/brucella antibodies; Serum amylase, CPK, Blood glucose; ABGs; Culture and sensitivity testing; Screening of donor, blood grouping and cross match; Storage (Blood bank services)	Pathology Unit/Department	
12.	Radiology (Outpatients, In-patient, Emergency)		
	X-ray Chest/abdomen (erect & Supine)/spine/hands/pelvis/joints/ Sinuses; X-ray for fracture; X-ray for age estimation; Ultrasound	Radiology Unit/Department	
13.	Anaesthesia services:		
	General anaesthesia, Local anaesthesia, Spinal anaesthesia, Epidural anaesthesia	Anesthesia Department	Stabilize and Refer
14.	Mortuary (Medicolegal)		
	Routine medico-legal,	Forensic Department	
15.	Pharmacy (Outpatients, In-patient, Emergency)		
	Support prescription of drugs; Manage main drug store (Inventory/stock, forecasting etc); Drug utilization evaluation; Pharmacovigilance; Drug therapeutic goods information and poison control center	Pharmacy Unit/Department	
16.	Physiotherapy services		
	Post-fracture therapy; Therapy of joints; Short wave diathermy; Physiotherapy for chest; Mobilization (postoperative and post stroke)	Physiotherapy Unit/Department	
17.	IT and Hospital Management Information System		
	Maintenance of computers; Closed Circuit TV; Central speaker announcement; Health educational corner at OPDs	Administration Department	
18.	Infection prevention & control, safe environment, hygiene and safe waste disposal:		
	Ensure aseptic sterilized diagnostic & therapeutic procedures; Notify ORs and house staff of MRSA/VRSA and other nosocomial infection when it occurs; Segregation of sharp and non-sharp medical waste and local or contractual arrangement for its safe disposal	Administration Department	
19.	Emergency Preparedness and Disaster Management Services: Plan available to respond to the emergency/ disaster, Buffer supplies to address emergencies	Administration Department	
20.	Ambulance Service:	Administration Department	Minimum 03 ambulances with 24/7 service availability

Category “D”

Table 7: MHSDP-SC FOR CATEGORY D HOSPITALS

S.No	Services	Department	Remarks
	Clinical Services		
1.	General Medical (Outpatients, In-patient, Emergency)		
	Infectious Diseases,Gastroenteritis, Diarrhea(chronic), Gastritis, Irritable bowel syndrome, Peptic ulcer disease, Helminthic infection,liver disorders, Allergy and Immunology, Endocrinology, Diabetes and Metabolism, Hematology, Oncology, Rheumatology, Thyroid dysfunctions, Diabetes mellitus & other endocrine associated conditions, Herpes Zoster, Hepatosplenomegaly, Stroke, Coma, pneumonia, respiratory infections , COPD, UTI, STIs, Nephrotic and nephritic disorders , hypertension, CCF, RHD. Basic dermatological therapeutic services, basic management of Psychiatric disorders.	Medical Department	
	Psychosocial services.		
	Myocardial infarction, Ischemic heart disease		Stabilize and refer
2.	General Pediatric (Outpatients, In-patient, Emergency)		
	All uncomplicated bacterial, viral, fungal and protozoal infections; Neonatal care, Neonatal resuscitation; ENC. Management of neonatal jaundice and infections, Phototherapy, Birth injuries, Incubation, Infants of diabetic mothers, Asthma (chronic)Diarrhea (chronic), Failure to thrive, Growth retardation, Malnutrition—severe or moderate, acute/chronic,micronutrient deficiency (Vitamin A/C/D deficiencies, anemia, iodine deficiency), Manage Neonatal complications, Congenital anomalies, Bilirubin encephalopathy (kernicterus), Thalassemia etc. Well-baby clinic to be established in the pediatric OPD.	Pediatrics Department	
3.	General surgery (Outpatients, In-patient, Emergency)		
	Biliary tract operations, Proctological operations (perianal abscess), Hernioraphy, Superficial abscesses, Cysts, Cavity abscesses, Circumcision, Vasectomy, Venous cut down, Excision of sebaceous cyst, Wedge resection of IGTN, Excision of Lipoma, Lymph node Biopsy, Skin lesion Biopsy, Cauterization of viral warts, Examination Under Anesthesia (EUA), Excision of Fibro adenoma Breast, I/D of Breast Abscess, I/D & D/D under G/A, Feeding Open Appendicectomy, Haemorrhoidectomy, Lateral Internal Sphincterotomy, Herniotomy, Hydrocele surgery, Varicocele surgery, Undescended Testes (UDT), Simple Mastectomy, Wide Local Excision, Varicose Veins Surgery, Perianal Abscess/ Fistula (Low), Peri Anal Fistula High/complex, Mesh repair of inguinal /Ventral Hernias/ Incisional Hernia, Open Cholecystectomy,Excision of pilonidal Sinus, closed fracture without dislocation.	Surgical Department	
4.	A&E Services		
	All medical emergencies including animal/snake bite	Accident and Emergency Department	
	Abdominal trauma (minor), Acute appendicitis, Intestinal obstruction, Diverticulitis, Inflammatory bowel disease, Mesenteric adenitis, Cholecystitis, Cholangitis, Cystitis, Urinary		

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	Tract Infection, Ureteric colic, Acute urinary retention, Peritonitis.		
	Advanced acute abdominal conditions like Vascular, Pancreatic, Urological and requiring sub-specialised supervision Abdominal trauma (major), Splenic rupture, Retroperitoneal haemorrhage, Shock/Septicaemia, Closed Fracture with Dislocation, open fracture, burns, head injury, spinal injury.		Stabilize and refer.
	Pneumothorax and hemothorax – chest intubation with observation		
	Major disaster plan TRIAGE and assessment of trauma patients along with stabilization of the patient with referral to the sub-specialty concerned (if required),	Accident and Emergency Department	
5.	General Gynae/Obs (Outpatients, In-patient, Emergency)		
	Antenatal care		
	Anemia, Antepartum Haemorrhage, Abortion, Rhesus (Rh) incompatibility, Management of pre-eclampsia, Management of, Ectopic pregnancy	Obstetrics and Gynaecology Department	
	Natal Care		
	Normal delivery, assisted delivery, Management of complicated labour, Management of prolapsed cord, Management of shoulder dystocia, Manage prolonged and obstructed labour, Caesarean section, Retained placenta.		
	Postnatal care		
	Management of PPH/shock, Management of puerperal sepsis (simple)		
	Gynaecological care:		
	Uterus fibromyoma, Hysterectomy, Infertility, Ovarian cyst and adnexal masses (simple), Menstrual disturbances, Pelvic inflammatory disease (PID), Abscesses, Prolapse and trans-vaginal operations, Complications of puerperium, Deep vein thrombosis (DVT), management of abortion,	Obstetrics and Gynaecology Department	
	Family Planning:		
	Provision of oral pills, condoms, injections, Implants, Tubal ligation, Complications of contraceptives		
6.	General Dental services (Outpatients, In-patient, Emergency)		
	Crowning/ Dentures/Pulpitis, Periodontitis, Pericoronitis, Gingivitis, Cellulitis (oral), Alveolitis (dry socket), Acute necrotizing ulcerative gingivitis, Abscess (periapical), RCT	Dentistry Department	
	Specialized Services		
7.	Laboratory (Outpatients, In-patient, Emergency)		
	FBC, ESR, LFTs, Blood urea and electrolytes; CSF/pleural fluid/ascitic fluid/ pericardial aspirate microscopy; Biochemistry, gram's and ZN stain; HBsAg, Anti-HCV; HIV; Toxoplasma/brucella antibodies; Serum amylase, CPK, Blood glucose; ABGs; Culture and sensitivity testing; Screening of donor, blood grouping and cross match; Storage (Blood bank services)	Pathology Unit/Department	
8.	Radiology (Outpatients, In-patient, Emergency)		
	X-ray Chest/abdomen (erect & Supine)/spine/hands/pelvis/joints/ Sinuses; X-ray for fracture;	Radiology Unit/Department	

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	X-ray for age estimation; Ultrasound Chest/orbit/Abdomen/Pelvis,	nt	
9.	Anaesthesia services:		
	General anaesthesia, Local anaesthesia, Spinal anaesthesia, Epidural anaesthesia	Anesthesia Department	Stabilize and Refer
10.	Mortuary (Medicolegal)		
	Routine medico-legal.	Forensic Department	
11.	Pharmacy (Outpatients, In-patient, Emergency)		
	Support prescription of drugs; Manage main drug store (Inventory/stock, forecasting etc); Drug utilization evaluation; Pharmacovigilance; Drug therapeutic goods information and poison control center	Pharmacy Unit/Department	
12.	Physiotherapy services		
	Frozen shoulder; Backache therapy; Post-fracture therapy; Therapy of joints; Short wave diathermy; Physiotherapy for chest; Mobilization (postoperative and post stroke)	Physiotherapy Unit/Department	
13.	IT and Hospital Management Information System		
	Maintenance of computers; Closed Circuit TV; Central speaker announcement; Health educational corner at OPDs	Administration Department	
14.	Infection prevention & control, safe environment, hygiene and safe waste disposal:		Incinerator should be available at the Facility
	Ensure aseptic sterilized diagnostic & therapeutic procedures; Notify ORs and house staff of MRSA/VRSA and other nosocomial infection when it occurs; Segregation of sharp and non-sharp medical waste and local or contractual arrangement for its safe disposal	Administration Department	
15.	Emergency Preparedness and Disaster Management Services: Plan available to respond to the emergency/disaster, Buffer supplies to address emergencies	Administration Department	
16.	Ambulance Service:	Administration Department	Minimum 02 ambulances with 24/7 service availability

Level-II Trauma Centers at District level Hospitals

All District Headquarter Hospitals would have a Level-II Trauma Center with the required HR, equipments, medicines and supplies as per the standards at **Annex- 4**.

A Level II trauma center provides immediate, lifesaving care for severe trauma patients. Emergency physicians, surgeons, orthopedic surgeons and Anesthetists are in-house and available to the trauma patients immediately on arrival. It would also have on-call facility for neurosurgeons, pediatricians. If neurosurgeons are not available, general surgeons trained in neurosurgery for a period of 6 months in eminent institutions would be made available

24/7. The center should be equipped with emergency department, intensive care unit, blood bank, rehabilitation services, broad range of comprehensive diagnostic capabilities, and supportive services. The existing hospitals at district headquarters level would be identified and upgraded as Level II Trauma Center.

Preventive and primary health care services for all categories of secondary care hospitals

The role of preventive and promotive care at the secondary level care facilities cannot be underscored. The secondary health care facilities are being utilized for not only basic primary and preventive care but also to provide outreach care and link with various primary care programmes. Based on the recommendations of the preventive care sub-committee, following are proposed for all categories of secondary care hospitals

- There should be a Preventive Care Unit within the hospital which should provide training/capacity building of the hospital staff on preventive care.
- The OPDs should have a prevention room that caters for the preventive health care services.
- The OPDs should have standardized preventive care videos displayed in local language.
- The secondary care hospitals should be linked/connected through web portals to have access to standard preventive care messages within and across districts.

The key preventive health care services for the prevailing healthproblems, their prevention and controlthat should be available across all categories of secondary care hospitals are provided below.The proposed Preventive Care Unit in the hospital should serve as the focal point for promotion of the preventive health care services at the hospital and provide training/capacity building of the hospital staff on preventive care.

Table 6: Preventive Health Care Services at Secondary Level Hospitals

Activities / measures to be taken
Health Education to seek regular antenatal care and delivery by SBA and postnatal care. <ol style="list-style-type: none">1. Counselling on family planning methods2. Awareness about breast examination for early detection of breast cancers.3. Immunization of pregnant ladies.
<ol style="list-style-type: none">4. Promote exclusive breastfeeding and appropriate weaning practice.5. Management of parasitic infections .6. VIt A supplementation.7. Routine immunization
Health education on prevention and control of communicable diseases such as TB, Malaria, hepatitis and HIV / AIDs. <ol style="list-style-type: none">1. Timely reporting of notifiable diseases.2. Hazards of tobacco3. Importance of physical activity4. Control of Diabetes etc.5. Weight control.6. Importance of balanced diet.7. Importance of Hygiene

All the relevant clinical specialties should provide health education and screening services for

Activities / measures
to be taken

population over the age of 60 with a focus on following geriatric problems

1. Cataract & Visual impairment
2. Arthritis & locomotion disorder
3. Cerebrovascular disease & Hypertension
4. Neurological problems
5. Respiratory problems including Chronic bronchitis
6. GIT problems
7. Psychiatric problems
8. Loss of Hearing

Physical Infrastructure guidelines for all secondary care hospitals

The importance of an adequate infrastructure for effective and quality health service delivery cannot be underscored. Adequate infrastructure not only promotes the quality of the services provided but also helps in better and facilitated access of the patients to the health facilities. The following guidelines are provided with regards to infrastructure requirements for the secondary care hospitals based on the recommendations/standards of the World Health Organisation (WHO) for secondary care hospitals⁴. It is well understood that it might not be possible to implement all the proposed standards/guidelines by the secondary care hospitals which are already established for practical reasons. However, all the secondary care hospitals should try to implement the proposed standards to the best possible extent. It is proposed that the secondary care hospitals that will be established in future or are in pipeline should consider these standards. In addition to that, quality of care management standards as already produced for the services and infrastructure by the Department of Health, Khyber Pakhtunkhwa should also be followed.

4 Factors to be considered in locating a district hospital

Following factors should be considered while identifying a location for a district hospital⁴

- (1) It should be within 15-30 min travelling time for the catchment area population and must have metal access road. In a district with good roads and adequate means of transport, this would mean a service zone with a radius of about 25 km.
- (2) It should be grouped with other institutional facilities, such as educational (school), tribal (cultural) and commercial (market) centres.
- (3) It should be free from dangers of flooding; it must not, therefore, be sited at the lowest point of the district.
- (4) It should be in an area free of pollution of any kind, including air, noise, water and land pollution.
- (5) It must be serviced by public utilities: water, sewage and storm-water disposal, electricity, gas and telephone. In areas where such utilities are not available, substitutes must be found, such as a deep well for water, generators for electricity and radio communication for telephone.

⁴District Health Facilities, Guidelines for Development and Operations, WHO Regional Publications, Western Pacific Series No.22

5 Size of the Site

The site must be large enough for all the planned functional requirements to be met and for any expansion envisioned within the coming ten years. Recommended standards vary from 1.25 to 4 ha (25 to 79 Kanals) per 100 beds; the following minimum requirements have been proposed:

- 25-bed-capacity - 2 ha/40 Kanals (800 m²/1.6 Kanals per bed)
- 100-bed capacity - 4 ha/79 Kanals (400 m²/0.79 Kanal per bed)
- 200-bed capacity - 7 ha/138 Kanals (350 m²/0.69 Kanals per bed)
- 300-bed capacity - 10 ha/198 Kanals (333 m²/0.65 per bed)

These areas are for the hospital buildings only, excluding the area needed for staff housing. For smaller hospitals, single-storey construction generally results in effective use of the building, less reliance on expensive mechanical services and lower running and maintenance costs. Thus, hospitals up to 150 beds should be single-storey constructions (with a foundation to support six stories for future needs) unless other parameters dictate that they be multi-storeyed.

6 Topography

Topography is a determinant of the distribution of form and space. A flat terrain is the easiest and least expensive to build on. A rolling or sloping terrain is more difficult and more expensive to build on, but the solutions can be interesting and innovative; by using the natural slope of the ground, the drainage and sewage disposal systems can be designed so as to result in lower construction and maintenance costs.

7 Departmental Planning and Design

The different departments of the hospital should be grouped according to zone, as follows (Figure 4)

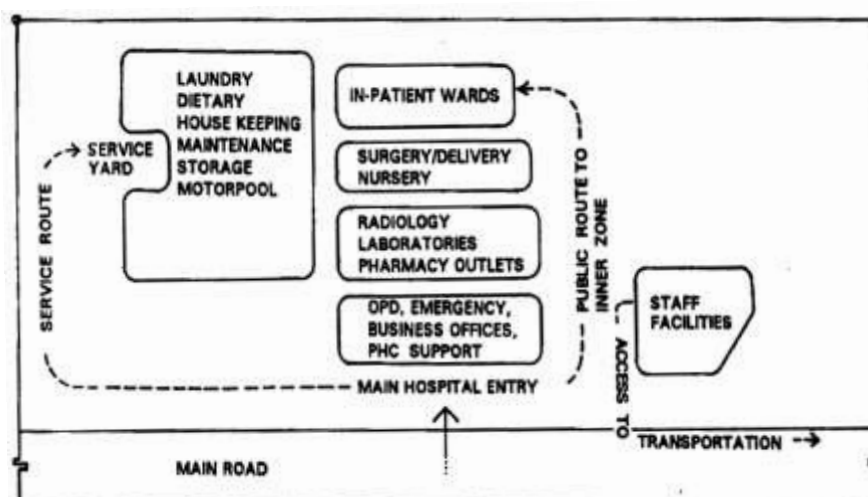


Figure 4: Zoning of the district hospital departments

(1) Outermost zone, which is the most community oriented

Primary health care support areas including family planning clinic

Out-patient department; consists of reception and waiting areas, consultation rooms, examination rooms, treatment rooms, and staff and supply areas.

Emergency department; This fast-paced department requires a large area that is flexible and can be converted into private areas when necessary, usually by the use of curtains on tracks around delineated spaces. It is vital that the provisions for movement within the emergency department allow for fluidity, with rapid access to the operating, X-ray and other departments. Because of the nature of emergencies, it is recommended that if resources are available, beds be clustered and dedicated to specific types of emergency cases. Accident and trauma, fracture and orthopaedic, obstetrics and gynaecology, and paediatrics cases require different ministrations and emergency procedures.

Administration; the administrative department is orientated to the public but is at the same time private. Areas for business, accounting, auditing, cashiers and records, which have a functional relationship with the public, must be located near the entrance of the hospital.

Offices for hospital management, however, can be located in more private areas.

Admitting office, reception

(2) Second zone, which receives workload from (1)

Radiology and imaging department; with X-ray, Ultrasound and CT scan facilities (in a Category A hospital). The diagnostic imaging area should be on the ground floor of the hospital, with easy, covered access for wheel-chairs, patient trolleys and beds. Its location close to the emergency section of the out-patient department is helpful, but easy access for all patients should be the first consideration. A separate building is not necessary. The X-ray department should consist of three rooms; (i) the X-ray room (ii) the dark-room; and (iii) office and storage space. The ultrasound room should contain a patient couch, firm but comfortable, a chair and at least 1 m² for the equipment. The lighting must be dim-bright, light makes it difficult to examine a patient properly-but the room must not be very dark. Handwashing facilities should be located either in the room or close by. There must be a toilet close to the ultrasound room.

Laboratories; The laboratory must be located and designed so as to:

- provide suitable, direct access for patients
- allow reception of deliveries of chemicals
- allow for disposal of laboratory materials and specimens.

The basic utilities that are to be provided in the laboratory are water supply, sanitary drains and drain vents, electricity, compressed air, distilled water, carbon dioxide, steam and gas. Others may be necessary depending on the types of tests to be performed. A method must be designed for identifying the different pipes in the laboratory; the following colour code may be used:

- hot water orange
- cold water blue
- drain brown
- steam gray
- compressed air white

Blood bank;To have blood donation and transfusion services it is important to have screening carried out for anaemia and infectious agents. There should also be facility for adequate storage of the donated blood after screening.

Pharmacy;The pharmacy must be located so that it is:

- accessible to the out-patient department,
- accessible to the central delivery yard.

(3) Middle zone between outer and inner zones

Operating department; the number of operating theatres required is obviously related to the number of hospital beds. As a general rule, one operating theatre is required for every 50 general inpatient beds and for every 25 surgical beds. The preferred location is on the same floor as the surgical wards, which may be the ground floor. It should be connected to the surgical ward by the simplest possible route, It should also:

- be easily accessible from the accident and emergency department;
- be easily accessible for the delivery suite;
- adjoin the intensive care unit;
- adjoin the central sterile supply department;
- be located in a cul-de-sac, so that entry and exit can be controlled;
- there should be no through-traffic

The overriding principle is that the centre of the theatre suite should be the cleanest area, the requirement for cleanliness decreasing towards the perimeter of the department i.e. the concept of progressive asepticism.

The OT department should provide following rooms/areas (Figure 5)

Transfer area

This area should be large enough to allow for the transfer of a patient from a bed to a trolley. A line should be clearly marked in red on the floor, beyond which no person from outside the operating department should be permitted to set foot without obtaining authority and putting on protective clothing.

Holding bay

This space is required when the corridor system is used and should be located to allow supervision of patients waiting to go into the theatre. One bed per two theatres should be foreseen.

Staff changing rooms

Access to staff changing rooms should be made from the entry side of the transfer area. At both the transfer area and the theatre side of the changing rooms, space must be provided for the storage, putting on and removal of theatre shoes.

Operating theatres

Each theatre should be no less than 6 x 6 m (36 m²) in area and should have access from the 1 anaesthetic room, scrub-up room and supply room. Separate exit doors should be provided.

Scrub-up room

Scrub-up facilities may be shared by two theatres. A minimum of three scrub up places is required for one theatre, but five places are adequate for two theatres. A clear area within the scrub-up room, at least 2.1 x 2.1 m, must be provided for gowning and for trolley or shelf space for gowns and masks.

Sub-clean-up

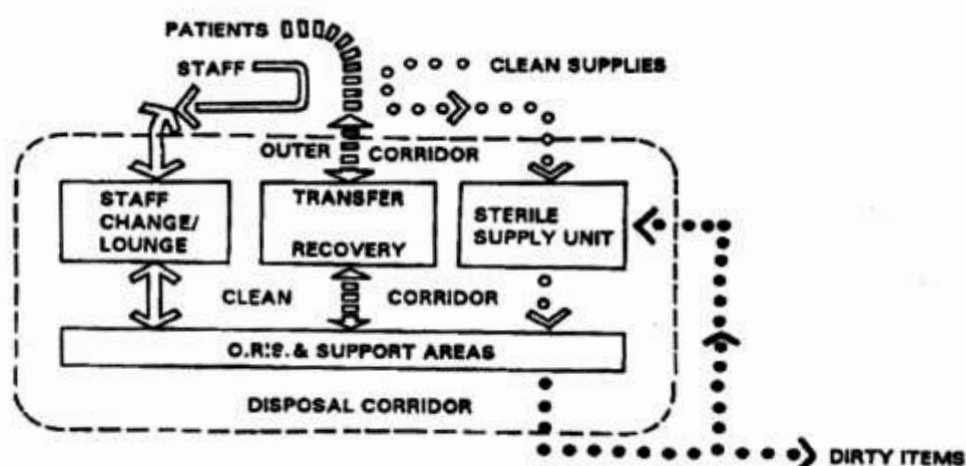
In suites of four or more operating theatres, a small utility area is required for each pair of operating theatres, for the disposal of liquid wastes, for rinsing dropped instruments and to hold rubbish, linen and tissue temporarily until they are removed to the main clean-up room.

Sub-sterilizing

An area for sterilizing dropped instruments should be provided to serve two theatres.

Recovery room

The recovery room should be located on the hospital corridor near the entrance to the operating department. The number of patients to be held, until they come out of anaesthesia, depends on the theatre throughput; two beds per theatre is usually satisfactory. In hospitals where there is an intensive care unit, additional room and facilities will be needed.



Figure

5: Traffic flow in operating department

Intensive Care Unit: The intensive care unit is for critically ill patients who need constant medical attention and highly specialized equipment, to control bleeding, to support breathing, to control toxemia and to prevent shock. They come either from the recovery room of the operating theatre, from wards or from the admitting section of the hospital. This unit requires many engineering services, in the form of controlled environment, medical gases, compressed air and power sources. As these requirements are very similar to those in the operating department, it is advisable to locate the intensive care unit adjacent to the recovery room of the operating department. The number of beds in this unit should correspond to approximately 1-2% of the total beds in the hospital.

Obstetrics and Gynaecology department: Proximity to the operating department is desirable, as transfer of delivery patients may be necessary. The Obstetrics and Gynaecology department is a useful one for primary health care activities. Education and training materials

on maternal and child health and on family planning can be effectively transmitted to receptive fathers in the waiting room. An area should be provided for this purpose.

Paediatrics Unit/Nursery: the nursery should be located adjacent to the delivery department to ensure protected transport of newborns. Areas must be provided for cribs for both well and ill babies and for support services that include formula and preparation rooms.

(4) Inner zone, in the interior but with direct access for the public

Inpatient wards: the wards in a hospital are usually classified according to specialties: medicine, paediatrics, obstetrics-gynaecology and surgery, which are the basic services offered by a district hospital. There are no radical differences between the requirements of medical and surgical wards and only minor differences between those of the other specialties.

(5) Service zone, disposed around a service yard

Laundry and housekeeping: (a) The housekeeper's office should be on the lowest floor, adjacent to the central linen room.

(b) The central linen room supplies linen for the whole hospital. It must have shelves and spaces for sewing, mending and marking new linen. If laundry is to be handled in the hospital, the central linen room must be adjacent to the "clean" end of the laundry room.

(c) The soiled linen area is for sorting and checking all soiled laundry from the hospital. It must be next to the "dirty" end of the laundry area and provided with sorting bins.

(d) Laundry can either be done in-house or contracted to an outside enterprise. If it is to be done in-house, proper washing and drying equipment must be installed. If it is to be contracted out, areas must be provided for receiving clean and dispatching dirty linen and for sorting.

The facilities must thus include:

- a soiled linen room;
- a clean linen and mending room;
- a laundry-cart storage room;
- a laundry processing room, with equipment sufficient to take care of 7 days' linen;
- janitor's closet, with storage space for housekeeping supplies and equipment and a service sink;
- storage space for laundry supplies.

The last three are not needed if laundry is to be contracted out.

Storage: The standard for central storage space is 2 m² per bed; in smaller hospitals, this value is usually increased.

The following compartments must be provided in the hospital storage area:

- pharmacy storeroom,

- furniture room,
- anaesthesia storeroom,
- records storage and
- central storeroom.

The risks of fire and explosion in a medical supplies storeroom and storage of dangerous substances such as nitric and picric acids and inflammable materials such as alcohol, oxygen and other gas cylinders merit special attention.

For smooth, rapid flow of materials both to and from the central store, sufficient space and ramps should be provided for handling, unpacking, loading, unloading and inspection. In a hospital planned with a functional central supply and delivery system, many of the traditional ancillary rooms could be eliminated from some departments and be replaced by systems of lifts, with sufficient parking space in the wards for trolleys.

Maintenance and engineering:(a) *Boiler room:* The boiler plant must be designed by a qualified engineer to ensure the safety of patients and staff.

(b) *Fuel storage:* The space will vary according to the fuel used.

(c) *Groundkeeper's tool room:* Space must be provided for working and for the storage of equipment and tools for the staff in charge of landscaping and general upkeep of the garden and grounds.

(d) *Garage:* The garage is best located in a shed or building separated from the hospital itself. If the hospital is to maintain 24-hour ambulance service, additional facilities must be provided for drivers' sleeping quarters.

(e) *Maintenance workshop:* A carefully planned and organized maintenance programme for general repair of medical and nonmedical equipment is necessary for ensuring reliable hospital service. A mechanical workshop with an electric shop, well equipped with tools, equipment and supplies, is conducive to preventive maintenance and is most important in emergencies. Failure of lights or essential equipment in an operating theatre, such as respirators, can have serious consequences. Adequate space for equipment like lathes, welding materials and wood- and metal-working machines should be provided, and there should be storage space for damaged material, such as stretchers, beds, wheelchairs, portable machines and food trolleys. As most repair work is done outside of normal working hours, space should be provided for workers, maintenance staff, supervisory personnel and biomedical engineers.

Mortuary: the mortuary should be in a special service yard, with a discreet entrance; it should be away from the out-patient department, ward block and nursery.

Staff facilities/Residential block: The residential block for the doctors, paramedics and support staff should be located on the periphery near roads and public transport: staff dormitories, quarters or housing.

8 Bed Strength and Specialities across Category A, B, C and D secondary care hospitals

The secondary levels of care as provided in Khyber Pakhtunkhwa has been categorized in to Category A, B, C, and D hospitals according to the bed size, the catchment population. All the four categories of hospitals have both in-patient and outpatient services, in addition to

emergency, diagnostic and other day care facilities. Category “A” secondary care hospital has the highest number of specialties and the number of inpatient beds. The number of specialties and the inpatient beds decreases across category “A” to category “D” hospitals⁵. The bed strength and the available specialities by the four hospital categories are provided in the Table 7.

Table 7: Summary of the Criterion for Categorisation of Secondary Care Hospitals

	CATEGORY A	CATEGORY B	CATEGORY C	CATEGORY D	
INPATIENT BEDS	SURGERY	40 beds	30 beds	20 beds	8 beds
	MEDICINE	40 beds	30 beds	20 beds	8 beds
	GYNAE/OBS	40 beds	20 beds	15 beds	10 beds
	PAEDIATRICS	40 beds	20 beds	10 beds	10 beds
	EYE	30 beds	20 beds	10 beds	0
	ENT	30 beds	20 beds	10 beds	0
	ORTHOPAEDICS	20 beds	10 beds	10 beds	0
	CARDIOLOGY	15 beds	10 beds	0	0
	PSYCHIATRY	15 beds	10 beds	0	0
	CHEST/TB	10 beds	10 beds	0	0
	DIALYSIS UNIT	6 U	4 U	0	0
	DENTISTRY UNIT	6 U	4 U	2 U	1 U
	PAEDS SURGERY	10 beds	0	0	0
	NEUROSURGERY	10 beds	0	0	0
	DERMATOLOGY	10 beds	0	0	0
	ACCIDENT AND EMERGENCY (Casualty)	10 beds	10 beds	5 beds	4 beds
	LABOR ROOM	10 beds	5 beds	5 beds	2
	ICU/CCU	10 beds	10 beds	5 beds	0
	NURSERY PEADS/ICU	10 beds	5 beds	0	0
	TOTAL BEDS	350 Beds + 6 Dialysis Units + 6 Dentistry Units	210 Beds + 6 Dialysis Units + 6 Dentistry Units	110 Beds + 2 Dentistry Units	42 Beds + 1 Dentistry Unit

Financial Resources Required

In order to estimate the overall cost implications of implementing the MHSDP-SC at Category A, B, C, and D Secondary Care Hospitals, a financial assessment has been done based on the standards agreed in the MHSDP-SC, see “Costing of Secondary Health Care Package in Khyber Pakhtunkhwa.

Appendices;

Annex.1 HumanResource Requirements for Category A, B, C and D Hospitals

REVISED STAFFING STANDARDS FOR HOSPITALS					
S.No.	Staff Category	Category A Recommended	Category B Recommended	Category C Recommended	Category D Recommended
MANAGEMENT STAFF					
1	Medical Superintendent	1	1	1	1
2	Deputy Medical Superintendent	3	3	2	2
Total		4	4	3	3
SPECIALIST					
1	Physician	2	2	1	1
2	Surgeon	2	2	1	1
3	Gynaecologist	2	2	1	1
4	Paediatrician	2	2	1	1
5	Anesthetist	8	6	4	1
6	Ophthalmologist	2	2	1	0
7	ENT Specialist	2	2	1	0
8	Pathologist	1	1	1	0
9	Radiologist	2	2	2	1
10	Orthopedic Surgeon	2	2	1	0
11	Trauma Surgeon	1	0	0	0
12	Forensic Expert	1	0	0	0
13	Neurosurgeon	1	0	0	0
14	Psychiatrist	2	1	1	0
15	Pulmonologist	1	1	0	0
16	Dermatologist	2	1	0	0
17	Gastroenterologist	1	1	0	0
18	Urologist	1	1	0	0
19	Pediatrics Surgeon	1	0	0	0
20	Dental Specialist	1	0	0	0
21	Cardiologist	2	1	0	0
22	Neurologist	1	0		
Total		40	29	15	6
MEDICAL STAFF					

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1	General Cadre Medical Officers	128 with at least 4 WMOs. (4 Chief Medical officers , 25 principal medical officer, 46 senior medical officers, 53 medical officers	79 with at least 4 WMOs. (2 Chief Medical officers , 15 principal medical officer, 29 senior medical officers, 33 medical officers	44 with atleast 4 WMOs. (2 Chief Medical officers , 8 principal medical officer, 16 senior medical officers, 18 medical officers	16 with atleast 3 WMOs. (3 principal medical officer, 6 senior medical officers, 7 medical officers
2	Dental surgeons	6	6	2	1
Total		134	85	46	17
NURSING STAFF					
1	Charge Nurse	4 nurses/10 beds for general beds , 1 nurse per 2 beds /shift for special beds, 2 nurses per 1 bed for critical beds Beds (275 + 55 + 26) 110+82+156= 348	General beds 175, special beds 30, critical beds 19. 52+45+114= 211	General beds 95, special beds 5, critical beds 5. 38+30+8=76	16
2	Head Nurse	35	21	8	2
3	Nursing Superintendent	2	1	1	0
4	Deputy Chief Nursing Superintendent	1	1	0	0
5	Chief Nursing Superintendent	1	0	0	0
Total		387	234	85	18
NON- MEDICAL STAFF					
1	Clinical Psychologist	1	1	1	0
2	Pharmacist	7	4	2	1
3	Speech Therapist	1	0	0	0
4	Physiotherapist	6	4	2	2
6	Nutritionist	2	1	0	0
7	Health education officer	1	1	0	0
8	Epidemiologist	1	0	0	0
Total		19	11	5	3
PARAMEDICAL STAFF					
1	Clinical Technician (radiology)	13	9	6	4
2	Clinical Technician (Dentistry)	8	6	2	1
3	Clinical Technician	20	13	7	4

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	(pathology)				
4	Clinical Technician (pathology) for Blood Transfusion Services	7	4	3	2
5	Clinical Technician (ophthalmology)	5	3	2	1
6	Clinical Technician (optometrist)	2	1		
7	Clinical Technician (Cardiology)	12 with at least 20 % female staff.	8 with at least 20 % female staff.	7 with at least 20 % female staff.	4 with at least 20 % female staff.
8	Clinical Technician (Surgical)	44	34	16	8
9	Clinical Technician (Anaesthesia)	22	17	8	4
10	Clinical Technician (Pharmacy)	7	5	2	1
11	Multipurpose Technician	7	6	4	3
12	Clinical Technician (MCH)	13	11	8	5
13	Physiotherapy Technician	7	5	2	2
14	Clinical technician (Dialysis)	13	13		
15	Technologist		3	1	
16	Clinical technician Pulmonology	4	4		
	Clinical technician Gastroentrolgoy	4	4		
	SeniorTechnologist	1	1		
	clinical technician (Neurology)	6			
Total		195	103	68	39
ADMINISTRATIVE AND SUPPORT STAFF					
1	Biomedical Engineer	1			
2	Biomedical Technician	1	1		
4	Account Officer	1	1		
5	Head Clerk	1	1		
6	IT Manager	1	1	1	1
7	Accountant	1	1	1	1
8	Statistical Officer	1	1	1	
9	Social Welfare Officer	1	1	1	
10	Store Keeper	3	3	3	1
11	Computer Operator	47	32	17	10
12	Naib Qasid	8	6	4	3
13	Senior Clerk	1	1	1	1
14	Driver	3 per ambulance and 1 per	3 per ambulance and 1 per	3 per ambulance and 1 per	3 per ambulance and 1 per

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		office vehicle	office vehicle	office vehicle	office vehicle
15	Junior Clerk	1	1	1	1
16	Personal Assistant	1	1	1	
17	Security Guard	40	20	16	12
18	Telephone Operator	6	4	3	2
19	Gardner	10	6	4	2
20	Cleaners/Sweeper	55	31	29	9
21	Dhobi	8	6	4	2
22	Tube Well Operator	3	3	3	3
23	Ward Orderly	150 (30% Female)	110 (30% female)	50 (30 % female)	30 (30% Female)
24	Plumber	3	2	1	1
25	Electrician	3	2	1	1
26	Carpenter	1	1	1	
27	Tailor Master	1	1	1	1
Total		352	137	139	81
Grand Total		1131	603	361	167

(* Exclusive of Drivers, which are subject to the number of ambulances and official vehicles)

Annex.2. Equipment requirements for Category A, B, C and D Secondary Care Hospitals

S.NO	Infrastructure and equipment	CAT-A	CAT-B	CAT-C	CAT-D	Remarks
	Out-Patient facilities					
1.	General provisions (for all OPDs)					
	Consultation room, Waiting area Token system, Health education corners in all OPDs with posters. TV and DVD player in OPDs for showing health education related programmes in local languages; Stretcher/wheel chair ramp	Yes	Yes	Yes	Yes	
	Furniture:					
	Examination couch, Screen, Chair for the consultant, 3 Chairs for the patient and attendant	Yes	Yes	Yes	Yes	Items to be available in each OPD room
	Equipment:					
	Stethoscope, BP apparatus stand type, Tendon hammer, Measuring tape, Torch, Cotton wool, Spatula, Tuning fork 128 cycles/second, weighing machine, ophthalmoscope, X-ray illuminator double table type	Yes	Yes	Yes	Yes	items to be available in each OPD room
	Defibrillator with ECG monitor	Yes	Yes	Yes	Yes	One in OPD block

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S.NO	Infrastructure and equipment	CAT-A	CAT-B	CAT-C	CAT-D	Remarks
	Resuscitation Unit	Yes	Yes	Yes	Yes	3 for CAT A, 2 for CAT B, 1 each for CAT C and CAT D Outpatient Department
	Oxygen cylinder with trolley stand, Oxygen flow meter without humidifier, Oxygen masks all sizes	Yes	Yes	Yes	Yes	
	Electric water cooler with filter	Yes	Yes	Yes	Yes	
	Portable emergency light with battery backup	Yes	Yes	Yes	Yes	One for each OPD room
	Wheel chair	Yes	Yes	Yes	Yes	20 for CAT A, 15 for CAT B, 10 for CAT C and 6 for CAT D hospital OPD
	Stretcher	Yes	Yes	Yes	Yes	10 for CAT A, 6 for CAT B, 4 for CAT C and 2 for CAT D hospital OPD
	Box for proper disposal of sharps,	Yes	Yes	Yes	Yes	Quantities as per need
	Desktop computer with printer and UPS	Yes	Yes	Yes	Yes	One for every speciality and atleast for OPD registration point .
	Specialty dependent additional equipment					
2.	Cardiology:					
	ECG machine	Yes	Yes	Yes	Yes	One in the whole Outpatient Department
	Echocardiography +/- ETT	Yes	Yes	No	No	One in the whole Outpatient Department
3.	General Medical: Pulmonary function unit,	Yes	Yes	Yes	No	One in the whole Outpatient Department
4.	Paediatric:					
	Paediatric stethoscope, Paediatric weighing machine, BP Apparatus with small	Yes	Yes	Yes	Yes	One of each items

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S.NO	Infrastructure and equipment	CAT-A	CAT-B	CAT-C	CAT-D	Remarks
	cuff, Nebulizer					to be available in each Paediatric OPD room
5.	Dermatology:					
	Magnifying glass, Woods lamp, Glass slides	Yes	Yes	No	No	One for each Dermatology OPD room
6.	Psychiatry:					
	EEG machine, personality disorder examination - full version with interpretation,	Yes	Yes	No	No	One of each item for each Psychiatry OPD room
7.	General Surgery					
	Proctoscope, Foley's Catheter with bag, kidney tray along with a set of dissecting forceps artery clips and needle holders	Yes	Yes	Yes	Yes	One of each item for each Psychiatry OPD room
8.	Ophthalmology					
	Refraction System					
	Autorefractometer with K-reading, Retinoscope, Ophthalmoscope, Refraction box, Vision drum, UPS	Yes	Yes	Yes	No	One of each item for each Eye OPD room
	Consultant OPD					
	Slit lamp, Applanation, Tonometer, A-B scan, YAG-Laser, Argon laser, Torches	Yes	Yes	Yes	No	One of each item for each Consultant Ophthalmologist OPD room
9.	ENT					
	ENT examination unit/ENT mirror and light source, Rechargeable autoscope, Tuning forks 512 cycles/second, Audiometer	Yes	Yes	Yes	No	One of each item for each ENT OPD room
10.	Gynae/Obs;					
	Antenatal clinic	Yes	Yes	Yes	Yes	
	Gynae examination kit, Fetoscope/sonic aid, Kit for insertion/removal of IUCD, Ultrasound	Yes	Yes	Yes	Yes	One of each items in each Gynae OPD room
11.	Orthopaedic:					
	POP cutter, Cotton roll, Crepe bandage, Local anesthetic,	Yes	Yes	Yes	No	Items to be available in

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S.NO	Infrastructure and equipment	CAT-A	CAT-B	CAT-C	CAT-D	Remarks
	Injectable analgesic					each Orthopaedic OPD room as per requirement
12.	Dental					
	Complete dental unit with X-Ray with accessories, Instruments Sets, Root Canal Instruments, Instrument tray/kidney tray Bowls	Yes	Yes	Yes	Yes	
	In-patient facilities					
13.	General provision (for all wards)					
	Infrastructure					
	Ward, Consultant office with bath room, Doctors duty room with bath room, Doctors changing room, Nurses changing room with bath room, Bath Rooms for patients (one bath room/6 patients), Neonatal Cots	Yes	Yes	Yes	Yes	To be available in each inpatient ward
	High Dependency Beds Beds for thalassemia patients	Yes	Yes	No	No	4 High Dependency Beds /ward 1 thalassemia bed per twenty inpatient beds
	Equipment					
	Stethoscope, BP apparatus stand type, Tendon hammer, Measuring tap, Torch, Cotton wool, Spatula Tuning fork 128 cycles/second, weighing machine, examination gloves, ophthalmoscope, Portable Defibrillator with ECG monitor, Resuscitation unit, Ambu bag, Endotracheal tubes various sizes, Nursing station, ECG monitored beds, Pulse oxymeter, Glucometer, Nasogastric tubes, Foleys/Celestic urinary catheter, I.V cannula various sizes, Central line, Drip stands, Instrument tray/Kidney tray/Bowls, Laryngoscope adult straight & curved, Oxygen cylinder with trolley stand, Oxygen flow meter with humidifier, Oxygen flow meter without humidifier, Oxygen masks all sizes, SS urinal/bed pans, Electric water cooler with filter, Heavy duty suction machine, Light duty nebulizer, Light duty suction units, Refrigerator 12 cf., Spirometer, X-ray illuminator double wall type, Sterilizing drums, Meigle forceps, Portable emergency light with battery backup, General Surgery Dressing Instruments Sets, Desktop computer with printer, UPS	Yes	Yes	Yes	Yes	Each item should be available in each inpatient ward in quantities ascertained by ward size/need
	Specialty dependent additional equipment					

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S.NO	Infrastructure and equipment	CAT-A	CAT-B	CAT-C	CAT-D	Remarks
14.	Medicine and Allied ward					
	Chest drain with under water seal, Three way pleural tape needle, Ascitic tap needle, Pleural/liver biopsy needle, Bone marrow aspiration needle,	Yes	Yes	Yes	Yes	All items to be available in Medicine and Allied ward in quantities ascertained by need
	ECG machine (for all in-patients in the facility)	Yes	Yes	Yes	Yes	One in each Medicine and Allied ward
15.	Surgery and Allied ward					
	Dressing kit, Drains Different Types, Foley's Catheter, Drainage Bags, Airways, Chest Drains, Blood Transfusion sets, Gloves, proctoscopes, Naso-Gastric Tubes,	Yes	Yes	Yes	Yes	All items to be available in Surgery and Allied ward in quantities ascertained by need
16.	Orthopaedic ward					
	Fracture bed with frame beam and pulley,	Yes	Yes	Yes	No	
	POP cutter,	Yes	Yes	Yes	Yes	Though there is no Orthopaedic ward in CAT D hospital, POP cutter should be available in Surgical ward
17.	ENT ward					
	Rechargeable Autoscope self-illuminating, ENT dressing, Nasal polypus complete set, Head light electric, Diagnostic Set ENT, Tracheotomy set, Minor procedure room: Light source, items for nasal packing/ ear packing and foreign body ear/nose.	Yes	Yes	Yes	No	All items to be available in ENT ward in quantities ascertained by need
18.	EYE ward					
	Direct Ophthalmoscope & retinoscope with charger, Refraction box, Boiler, Eye dressing instruments, Torches, Vision drum, Perkin tonometer, Desktop computer with UPS for data entry, Laptop & overhead projector	Yes	Yes	Yes	No	All items to be available in ENT ward in quantities ascertained by need

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S.NO	Infrastructure and equipment	CAT-A	CAT-B	CAT-C	CAT-D	Remarks
19.	Mother and Child ward					
	Ultrasound, Butterfly various sizes Paediatric urinary catheters, Intensive baby incubator, Oxygen tent paediatric, , BP Apparatus with small cuff, Phototherapy machine, Stethoscope paediatrics, Infant Warmer, Gynae Table, Stethoscopes foetal (aluminium), Gynae examination kit, Female metal catheter F201, F 203, F204, F28, Ultrasound machine, Nebulizers, Suction Machines- Neonatal, Pediatric; Ophthalmoscope; Neonatal/Pediatric Laryngoscopes with straight and Curved blades; Different sizes endotracheal tubes (premature, term, neonatal, Child), Auroscopes					
	Paediatric resuscitation unit	Yes	Yes	No	No	
	Incubators	Yes	Yes	No	No	
	Oxygen Concentrators	Yes	Yes	No	No	
	Cardiac Monitors/DC Cardioversion,	Yes	Yes	No	No	
	Infusion pumps	Yes	Yes	No	No	
20.	Psychiatry ward					
	Wechsler intelligence test with key adult/Children, Progressive matrices with key, Wilconsin cord sorting test with key, International personality disorder examination - full version with interpretation	Yes	Yes	No	No	
21.	CCU/ICU	Yes	Yes	Yes	No	
	10% of total bed strength of the facility with monitors	Yes	Yes	Yes	No	
	Ventilator	Yes	Yes	No	No	3 for CAT A, 2 for CAT B hospital
	Temporary Pace Maker	Yes	Yes	No	No	4 for CAT A and 2 for CAT B hospital
22.	Operation Rooms (ORs)					
	Infrastructure					
	Anaesthetist office with bath room, Anaesthesia technicians changing room with bath room, Nursing staff changing room with bath room, Pre-med room, central Sterilization room (for the whole hospital), Scrub room, Recovery room, Patient pre-operative, waiting room	Yes	Yes	Yes	Yes	
	Operation Rooms with H-VEC facility	Yes	Yes	Yes	Yes	4 for CAT A, 3 for CAT B, 2 for CAT C and 1 for CAT D hospital
	Operation Rooms (ORs) Equipment					

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S.NO	Infrastructure and equipment	CAT-A	CAT-B	CAT-C	CAT-D	Remarks
	General Provision					
	Stethoscope, Stethoscope Paediatric, BP Apparatus mercury stand type, Instrument tray/Kidney tray/Bowls, Laryngoscope adult straight & curved, Laryngoscope paediatric straight & curved, Meigle forceps, Diathermy with appliances, Catheter, Miscellaneous instruments sets, Nitrous oxide cylinder, Oxygen cylinder with trolley stand, Oxygen flow meter with humidifier, Oxygen flow meter without humidifier, Oxygen masks all sizes, SS Basin with stand, SS Urinals/Bed pans, Sterilizing drums, Tracheotomy set, Wt. machine adult, Wt. machine children, X-ray illuminator double wall type, Anaesthesia machine, Automatic operation table, Defibrillator on trolley, Electric water cooler, Heavy duty suction machine, Infusion pumps, Light duty nebulizer, Mobile OT light with battery, Operation table hydraulic semiautomatic, OT ceiling light LED type with satellite and backup power supply, Pulse oximeter, Refrigerator 12 cb. Ft., Resuscitation unit, FineDiathermy, NIBP (Non Invasive Monitors Devices)	Yes	Yes	Yes	Yes	Each item should be available in each OR in quantities ascertained by OR size/need
	Mobile x-ray 30	Yes	Yes	Yes	No	
	Craniotomy set with pneumatic drill with air	Yes	Yes	No	No	
	Sterilization room:					
	Autoclave vertical automatic, Autoclave horizontal Hot air oven	Yes	Yes	Yes	Yes	
	Specialty dependent ORs equipment					
23.	General Surgery					
	General Surgery Set, Vascular Repair Set, Proctoscope electric (set), Sigmoidoscope (fibroptic), Paediatric surgery minor, Paediatric surgery major, General surgery sets major, General surgery sets minor	Yes	Yes	Yes	Yes	
24.	Eye					
	Operation Theatre					
	Binocular loup(2.5 x), Operating microscope, Phacoemulsifier, Bipolar cautery, Autoclave, Hot air oven, Boiler, OT tables-2, Cataract sets-4, DCR sets-2, Glaucoma sets-2, Squint sets-2, Entropion/ectropion sets-2, Chalasion sets-2, Instrument trolleys- 6, drums-4, Cheital forceps with container-2, Desktop computer with UPS for data entry	Yes	Yes	Yes	No	
25.	ENT					
	Binocular Operating microscope, loops, Head light, ENT surgery instruments major	Yes	Yes	Yes	No	
26.	Gynae					
	Gynaecology Sets, Delivery set normal,	Yes	Yes	Yes	Yes	

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S.NO	Infrastructure and equipment	CAT-A	CAT-B	CAT-C	CAT-D	Remarks
	Obstructed labour set, Obstetric surgery set minor, Obstetric surgery set major, E&C set					
27.	Orthopaedic					
	Orthopaedic Sets, Set for plating, Orthopaedic surgery set, Orthopaedic Operation Table with Traction, Bone drill, 3.5 mm Ortho Set, 4.5 mm Ortho Set, DHS Set, Vascular Repair Set, Pneumatic Tourniquets,	Yes	Yes	Yes	No	
28.	Labor room					
	Infrastructure					
	Doctors duty room with bath room, Doctors changing room, Nurses changing room with bath room, rooms for patient with a bath room and Delivery tables, Baby warmer, Wheel chair, Stretcher	Yes	Yes	Yes	No	
	Intensive Baby Incubator	Yes	Yes	No	No	
	Equipment					
	Nitrous oxide Cylinder, Nitrous oxide cylinder flow meter, Stethoscope, BP apparatus stand type, Measuring tap, Torch, Cotton wool, weighing machine, examination gloves, Portable Defibrillator with ECG monitor, Resuscitation unit, Ambu bag, Endotracheal tubes various sizes, Nursing station, Pulse oxymeter, Glucometer, Foleys urinary catheter, I.V cannula various sizes, Drip stands Instrument tray/Kidney tray/Bowls, Oxygen cylinder with trolley stand, Oxygen flow meter with humidifier, Oxygen flow meter without humidifier, Oxygen masks all sizes, Electric water cooler with filter, Heavy duty suction machine, Light duty nebuliser, Light duty suction units, Refrigerator 12 cf. ft., X-ray illuminator double wall type, Sterilizing drums, Meigle forceps, Portable emergency light with battery backup, Delivery set normal, Obstructed labour set, Mobile OT Light, Vacuum Extractor, CTG Machine, Sonic/Doppler Sonic aid, DNC Set, Infant Trolley with Warmer, Infant Sucker Machine, Female metal catheter F201, F203, F204, F28, Stethoscopes foetal (aluminium), Hysteroscope	Yes	Yes	No	No	
29.	A&E					
	Infrastructure					
	Doctor duty room with bath room, Nursing dressing room with a bath room, Patients waiting area, Patient short term stay area, Day care facility (monitored care for upto 12 hours by house staff), Minor procedure room	Yes	Yes	Yes	Yes	
	Equipment					
	<i>Emergency assessment:</i>					
	Stethoscope, BP apparatus stand type,	Yes	Yes	Yes	Yes	

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S.NO	Infrastructure and equipment	CAT-A	CAT-B	CAT-C	CAT-D	Remarks
	Tendon hammer, Measuring tap, Torch, Cotton wool, Spatula, Tuning fork 128 cycles/second, weighing machine, examination gloves, ophthalmoscope, Portable Defibrillator with ECG monitor, Resuscitation unit, Ambu bag, Endotracheal tubes various sizes, Nursing station, Pulse oxymeter, Glucometer, Nasogastric tubes, Foleys/Celestic urinary catheter, I.V cannula various sizes, Central line, Drip stands, Instrument tray/Kidney tray/Bowls, Laryngoscope adult straight & curved, Oxygen cylinder with trolley stand, Oxygen flowmeter with humidifier, Oxygen flow meter without humidifier, Oxygen masks all sizes, SS urinal/bed pans, Heavy duty suction machine, Light duty nebuliser, Light duty suction units, Refrigerator 12 cf. ft., Spirometer, ray illuminator double wall type, X-ray illuminator double table type, Sterilizing drums, Meigle forceps, Instrument tray/Kidney tray/Bowls, Portable emergency light with battery backup, General Surgery Dressing Instruments Sets, Electric water cooler with filter, Glucometer, Oxygen tent, TV 28 Inch, Nitrous oxide cylinder 240 cft., Nitrous oxide cylinder flow meter, Desktop computer with UPS and printer					
	ECG monitored beds	Yes	Yes	Yes	Yes	4 for CAT A, 2 for CAT B, 1 each for CAT C and CAT D hospital
	X-Ray Unit 500-MA with accessories (mobile),	Yes	Yes	Yes	No	
	<i>Emergency OR/Minor procedure room:</i>					
	Autoclave horizontal, ECG machine, Diathermy, Mobile OT light, Operation table hydraulic, OT ceiling light with satellite	Yes	Yes	Yes	Yes	
	Cardiac monitor with defibrillator on trolley	Yes	Yes	Yes	No	
30.	Support Services					
	Electric Water Cooler, Stretchers, wheel chairs	Yes	Yes	Yes	Yes	
31.	Laboratory					
	Refrigerator 12 cb. Ft., Spectrophotometer with U/V, LPG cylinder with burner, Microscope binocular electric, Urine analyser, Haematology Lab. Analyser (Large), Fed 20 for ESR, Finn Pipette-(Jouster) 05-----100mq/L, Finn Pipette-(Jouster) 100-----1000mq/L, Finn Pipette-(Jouster) 0.05-----20mq/L, Haemoglobin meter (sahli), Urinometer with glass cylinder for specific gravity, Sprit lamp, Haemocytometer (complete), Aseptic hood, Autoclave vertical automatic, Automatic lab, Pipettes set, Blood analyser,	Yes	Yes	Yes	Yes	

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S.NO	Infrastructure and equipment	CAT-A	CAT-B	CAT-C	CAT-D	Remarks
	Blood bank refrigerator, Blood gas analyser, Centrifuge machine, Blood Chemistry Analyser, Lab. Incubator, Lab. Weight Machine/Digital Scale, Glucometer, Hot Air Oven, Desktop computer with UPS and printer					
32.	Radiology					
	CT scan	Yes	No	No	No	
	Colour doppler/Ultrasound Machine,	Yes	Yes	No	No	
	Radiation densitometer,X-Ray Cassettes all sizes, Lead gowns, Gloves, Goggles, Shield set,Hangers x-ray, Ultrasound Machine with double probe (vaginal and abdominal), X-Ray Illuminator double wall type, X-Ray Illuminator double table type, Desktop computer with UPS and printer	Yes	Yes	Yes	Yes	
33.	Pharmacy					
	Maintenance of stock and inventory, Drugs mentioned in formulary, Refrigerator 12 cb. Ft,Desktop computer with UPS and printer	Yes	Yes	Yes	Yes	
34.	IT Services Computerization of hospital services, Computers and networking items	Yes	Yes	Yes	Yes	
35.	Safe Waste disposal Collection and segregation at the facility	Yes	Yes	Yes	Yes	Transportation and disposal at incinerator at CAT A hospital
36.	Mortuary Electric skull cutter, Mortuary table, Name plates, Mortuary instruments sets	Yes	No	No	No	
37.	Laundry Washer, dryer	Yes	Yes	Yes	Yes	
38.	Canteen Food available for patients, personnel and attendants	Yes	Yes	Yes	Yes	
39.	Administration Block					
	Infrastructure					
	Office Medical Superintendent, Office for DMSs , Chief Nursing Nuperidendant, Deputy Nursing superintendent, Office Superintendent with Sr and Jr clerk, IT office,All offices including A&E, consultant offices and ORs, connected through internal telephone from internal exchange	Yes	Yes	Yes	Yes	
	Equipment					
	Computer Desktop with UPS and Printer, Scanner, Sound system with speakers to cover all essential areas for internal announcement, DVD Player connected to TV in OPD, A&E, wards and ORs for patient education on common illnesses with emphasis on primary and secondary prevention,Close Circuit TV	Yes	Yes	Yes	Yes	

S.NO	Infrastructure and equipment	CAT-A	CAT-B	CAT-C	CAT-D	Remarks
	System, Laptop, Multimedia with overhead project & screen, Electric Water Cooler with filter, Refrigerator 12 cu ft, TV LCD 46 inches, Photocopier					
40.	Sets of basic gardening equipment	Yes	Yes	Yes	Yes	To be available in quantities as per need
41.	Fire extinguishers	Yes	Yes	Yes	Yes	To be available in quantities as per need
42.	Stretcher trolley	Yes	Yes	Yes	Yes	To be available in quantities as per need
43.	Wheel chairs	Yes	Yes	Yes	Yes	To be available in quantities as per need

Annex.3. Medicines & Supplies

Medicines and supplies will be procured as per the approved MCC list. MCC list is being updated each year based on its approved formulary by the Medicines Coordination Cell (MCC) at DGHS office KP and the same will be utilized in the MHSDPs accordingly.

Annex.4. Equipments and HR for Level -II Trauma Centers

4.1. Equipment needed all over the Trauma Medical Emergency Department

S.No	Equipments	QTY
1	Computer system	
2	Internet capabilities	
3	Patient tracking system	
4	Radio or other device for communication with ambulances	
5	Patient registration system/Information services	
6	Intradepartmental staff communication system-pagers, mobile phones	
7	ED charting system for physician, nursing, and attending physician documentation equipment	
8	Reference materials including toxicology resource information	
9	Personal protective equipment-gloves, eye goggles, face mask, gowns, head and foot covers	
10	Linen (pillows, towels, wash cloths, gowns, blankets)	
11	Patient belongings or clothing bag	
12	Security needs –including restraints and wand-type or free standing metal detectors as indicated	
13	Equipment for adequate housekeeping	
14	Central Heating/Cooling system	
15	Medical Waste Incinerator	

4.2. Equipment for Triage Room- Level –II Trauma Center

S.No	Equipment	QTY
1	Examination Trolleys (along the wall)	2
2	Wall Mounted Sphygmomanometer/Otoscope/Ophthalmoscope	2
3	Source of overhead light	1
4	Side table with drawer and Chair	1
5	Computer with Internet access	1
6	Cupboards for Utility provisions	
7	Sink for Hand washing	1
8	Biohazard-disposal receptacles, including for sharps	1
9	Garbage receptacles for non-contaminated materials	1
10	Notice Board 2"x 2"	1
11	Mobile Vitals Monitor	2
12	Thermometers	6
13	Stamps for different colour tagging	

4.3. Resuscitation Room Equipment 58"x40", accommodating 12 beds- Level –II
Trauma Center

S.No	Equipment	QTY
1	Adult "code blue cart" (Resus Cart) to include appropriate medication charts	02
2	Pediatric "code blue cart" (Resus Cart) to include appropriate medication charts	02
2	Capability for direct communication, Tonnoy system	01
3a	Radiography equipment (Portable Xrays)	02
3b	Radiography equipment 6 fixed beam xray electrode	06
4	Radiographic view boxes and hot light	01
5	Trolley beds	12
6	Partition between 12 bays containing mirrored drawers for equipment storage	
7	Cupboards with locks and keys for medicine storage	01
8	Fridge for medicine storage	02
9	Ultrasound with 3 probes (Including Phased array/ curvilinear/vascular probes)	02
10	Mobile trolleys for Phlebotomy	04
11	Computers with internet access	06
12	Printers	02
13	Mobile crash/code blue bag	03
14	Wall-mounted or portable otoscope/ophthalmoscope	12
15	Wall-mounted suction capability, including both tracheal cannulas and larger cannulas	12
16	Wall-mounted oxygen supplies and equipment, including nasal cannulas, face masks, and venturi masks	12
17	Adequate sinks for hand-washing, including dispensers for germicidal soap and paper towels	02
18	Adequate lighting, including procedure lights as indicated	6-12
19	Biohazard-disposal receptacles, including for sharps	12
20	Garbage receptacles for non-contaminated materials	12
21	Wall Mounted Sphygmomanometer/stethoscope	
22	Wall Mounted Vital Monitors with Each Bed	12
23	Mobile Vital Monitors	02

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24	12-Lead ECG machine	04
25	Central Island for computers and seating for doctors	
26	Seating for attendants/relatives	12
27	State of the art ventilator machines	06
28	Warming/cooling blanket	
29	Catheter Trolley	03
	Notice Board 4"x4"	01
30	Airways needs	
A	Bag-valve-mask respirator (adult, pediatric, and infant)	
B	Cricothyroidotomy instruments and supplies	
C	Endotracheal tubes, size 2.5 to 8.5 mm	
D	Fiberoptic laryngoscope	
E	Laryngoscopes, straight and curved blades and stylets	
F	Laryngoscopic mirror and supplies	
G	Laryngeal Mask Airway (LMA)	
H	Oral and nasal airways	
I	Tracheostomy instrument and supplies	
31	Breathing	
A	BiPAP Ventilation System	6
B	Closed-chest drainage device	
C	Chest tube instruments and supplies	
D	Emergency thoracotomy instruments and supplies	
E	End-tidal CO2 monitor	
F	Nebulizer	
G	Peak flow meter	
H	Pulse oximetry	
I	Volume cycle ventilator	
32	Circulation	
A	Automatic physiological monitor, noninvasive	
B	Blood/fluid infusion pumps and tubing	
C	Blood/fluid warmers	
D	Cardiac compression board	
F	Central venous catheter setups/kits	
G	Central venous pressure monitoring equipment	
H	Cutdown instruments and supplies	
I	Intraosseous needles	
J	IV catheters, sets, tubing, poles	
K	Monitor/defibrillator with pediatric paddles, internal paddles, appropriate pads and other supplies	4
L	Pericardiocentesis instruments	
M	Temporary external pacemaker	
N	Transvenous and/or transthoracic pacemaker setup and Supplies	
33	Blood Gas Analyzer	1

4.4. Equipment for Intensive Care Unit (ICU)- Level –II Trauma Center

S.No	Equipment	QTY
1	Adult "code blue cart" (Resus Cart) to include appropriate medication charts	04
2	Pediatric "code blue cart" (Resus Cart) to include appropriate medication charts	04
2	Capability for direct communication, Tonnoy system	01
3a	Radiography equipment (Portable Xrays)	03
3b	Radiography equipment 6 fixed beam xray electrode	10

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4	Radiographic view boxes and hot light	02
5	Electric Beds	16
6	Partition between 16 bays containing mirrored drawers for equipment storage	
7	Cupboards with locks and keys for medicine storage	04
8	Fridge for medicine storage	04
9	Ultrasound with 3 probes (Including Phased array/ curvilinear/vascular probes)	02
10	Mobile trolleys for Phlebotomy	06
11	Computers with internet access	08
12	Printers	02
13	Mobile crash/code blue bag	03
14	Wall-mounted or portable otoscope/ophthalmoscope	16
15	Wall-mounted suction capability, including both tracheal cannulas and larger cannulas	16
16	Wall-mounted oxygen supplies and equipment, including nasal cannulas, face masks, and venturi masks	16
17	Adequate sinks for hand-washing, including dispensers for germicidal soap and paper towels	16
18	Adequate lighting, including procedure lights as indicated	6-12
19	Biohazard-disposal receptacles, including for sharps	16
20	Garbage receptacles for non-contaminated materials	16
21	Wall Mounted Sphygmomanometer/stethoscope	16
22	Wall Mounted Vital Monitors with Each Bed	16
23	Mobile Vital Monitors	04
24	12-Lead ECG machine	04
25	Central Island for computers and seating for doctors	
26	Seating for attendants/relatives	16
27	State of the art ventilator machines	18
28	Warming/cooling blanket	
29	Catheter Trolley	03
	Notice Board 4"x4"	02
30	Airways needs	
A	Bag-valve-mask respirator (adult, pediatric, and infant)	
B	Cricothyroidotomy instruments and supplies	
C	Endotracheal tubes, size 2.5 to 8.5 mm	
D	Fiberoptic laryngoscope	
E	Laryngoscopes, straight and curved blades and stylets	
F	Laryngoscopic mirror and supplies	
G	Laryngeal Mask Airway (LMA)	
H	Oral and nasal airways	
I	Tracheostomy instrument and supplies	
31	Breathing	
A	BiPAP Ventilation System	
B	Closed-chest drainage device	
C	Chest tube instruments and supplies	
D	Emergency thoracotomy instruments and supplies	
E	End-tidal CO2 monitor	
F	Nebulizer	
G	Peak flow meter	
H	Pulse oximetry	
I	Volume cycle ventilator	
32	Circulation	
A	Automatic physiological monitor, noninvasive	
B	Blood/fluid infusion pumps and tubing	

C	Blood/fluid warmers	
D	Cardiac compression board	
F	Central venous catheter setups/kits	
G	Central venous pressure monitoring equipment	
H	Cutdown instruments and supplies	
I	Intraosseous needles	
J	IV catheters, sets, tubing, poles	
K	Monitor/defibrillator with pediatric paddles, internal paddles, appropriate pads and other supplies	
L	Pericardiocentesis instruments	
M	Temporary external pacemaker	
N	Transvenous and/or transthoracic pacemaker setup and Supplies	
33	Dust Bins	
34	Infusion/Syringe Pumps	
35	Blood Gas Analyzer	1

4.5. Equipment for Wards accommodating 16 beds at Level –II Trauma Center

S.No	Equipment	QTY
1	Examination tables or stretchers appropriate to the area	08
2	Beds with air mattress with side and meal table	16
3	Stretcher with capability for changes in position, attached IV poles, and a holder for portable oxygen tank should be used	32
4	Step stool	06
5	Chair/stool for emergency staff	
6	Seating for family members or visitors	32
7	Adequate lighting, including procedure lights as indicated	
8	Cabinets	04
9	Adequate sinks for hand-washing, including dispensers for germicidal soap and paper towels	8-16
10	Wall-mounted oxygen supplies and equipment, including nasal cannulas, face masks, and venturi masks	32
11	Wall-mounted suction capability, including both tracheal cannulas and larger cannulas	32
12	Wall-mounted or portable otoscope/ophthalmoscope	32
13	Sphygmomanometer/stethoscope	
14	Oral and nasal airways	
15	Televisions	04
16	Biohazard-disposal receptacles, including for sharps	32
17	Garbage receptacles for non-contaminated materials	32
18	Monitor/defibrillator with pediatric paddles, internal paddles, appropriate pads and other supplies	04
19	Dust Bins	
20	Crash Cart Trolleys	
21	Dressing Trolley	
22	Laryngoscope	
23	General Purpose Trolley	
24	Patient Record Trolley	
25	Medicine Refrigerator	
26	Medicine Cupboard	
27	Wheel Chair	
28	Nursing Station computer System	
29	Air Cleaner and disinfectors	

4.6. Minor OT Equipment – Level –II Trauma Center

S.No	Equipment	QTY
1	OT Tables	04
2	Surgical Instruments (Forceps, Scissors, Speculum, Needle Holders, Cannulas and Handpieces, Spatulas)	
3	Emergency obstetric instruments and supplies	
4	Blood salvage/autotransfusion device	
5	Hypothermia thermometer	
6	Infant warming equipment	
7	Pneumatic antishock garment, as indicated	
8	Spine stabilization equipment to include cervical collars, short and long boards	
9	Warming/cooling blanket	
10	Cast cutter	
11	Cast and splint application supplies and equipment	
12	Cast spreader	
13	Crutches	
14	Extremity-splinting devices including traction splinting and fixation pins/wires and corresponding instruments and supplies	
15	Halo traction or Gardner-Wells/Trippe-Wells traction	
16	Radiograph view and hot light	
17	Suture instrument and supplies	
18	Traction equipment, including hanging weights and finger traps	
19	Ophthalmic tonometry device (applanation, Schiötz, or other	
20	Ear irrigation and cerumen removal equipment	
21	Epistaxis instrument and supplies, including balloon posterior packs	
22	Frazier suction tips	
23	Headlight	
24	Laryngoscopic mirror	
25	Plastic suture instruments and supplies	
26	Fetal Doppler and ultrasound equipment	
27	Obstetrics/Gynecology examination light	
28	Vaginal specula in pediatric through adult sizes	
29	Suture material	
30	Nitrous Oxide equipment	

4.7. OT Equipment- at Level II Trauma Center

S.No	Equipment	QTY
1	Modular Design Construction for ORs in Glass/SS complete with Laminar Air Flow System Exhaust Systems Electrically Operated Sliding Doors Surgeons Control Panel Networking Capabilities RGB Lights Seam Less Poly Vinyl Stateic Discharge Floors Pass Through Cabinet Storage Cabinets Anaesthesia Pendants Surgeon Pendants OR Lights Double Doom 160,000/160,000 LED type Ceiling Mounted X-Ray Illuminator Tripple OR Table	04
2	Semi Laminar Air Flow System with	

	Exhaust Systems RGB Lights Seam Less Poly Vinyl Stateic Discharge Floors Storage Cabinets Anaesthesia Pendants Surgeon Pendants OR Lights Single Doom 160,000 LED type X-Ray Illuminator Tripple OR Table	
3	Anaesthesia Work Ststions	
4	Electrosurgical Units 300 Watts	
5	Suction Units	
6	Mayo Stand	
7	Instrument Tables	
8	Dressing Tables	
9	General Purpose Tables	
10	Instruments General Surgery	
11	nstruments Plastic Surgery	
12	Kick Buckets	
13	Dressing Drums	
14	Kidney Bowls Set	
15	POC Ultrasound	
16	Syringe Pumps	
17	Infusion Pumps	
18	High Flow Infusion Pump	
19	Blood Warmer	

4.8. Equipment for Laundry at Level –II Trauma Center

S.No	Equipment	QTY
1	Barrier Washers with capacity 35-40 KGs	
2	Drying Tumbler	
3	Large Bed Iron	
4	Utiliy Press	
5	Sewing Machine	
6	Weighing Scale	
7	Packing and Sorting Tables	
8	Soiled Linen Trolleys	
9	Clean Linen Trolleys	
10	Small Air Compressor	
11	Steam Boiler 1000 Lits	

4.9. Equipment for Medical Gas Pipline at Level II Trauma Center

S.No	Equipment	QTY
1	Bed Head Units with Outlets and Electrical Connections For Wards	
2	Bed Head Units with Outlets and Electrical Connections For ICU	
3	Medical Air Compressor Duplex	
4	Vacuum Plant Duplex	
5	Oxygen Manifold 2X10	
6	Nitrus Oxide Manifold 2X5	
7	Antonox Manifold 2X5	
8	Emergency Connections Oxygen	
9	Emergency Connections Nitrus Oxide	

10	Copper Pipes Lot	
11	Oxygen Cylinders 20 Large	
12	Nitrus Oxide Cylinders 10 Large Size	
13	AGSS System	
14	Oxygen Flow Meters	
15	Vacuum Regulators	
16	Area Zone Valve Box with Integrated Alarms	

4.10. Equipment for Radiology at Level II Trauma Center

S.No	Equipment	QTY
1	CT scan	
2	Accessories	
3	Automatic film processor	
4	Xray Machine Fix	
5	Xray Machine Mobile	
6	DR system	
7	Xray Illuminators	
8	Lead Aprons with Hangers Lot	
9	USG Machine Fix	
10	USG Machine Mobile	
11	Doppler USG	
12	Surgical C-Arm	

4.11. Equipment for Blood Bank and Pathology at Level II Trauma Center

S.No	Equipment	QTY
1	Automatic Pipetter of different sizes	
2	Blood Bag Shaker	
3	Blood Bank Accessories	
4	Blood Bank Refrigerator	
5	Blood Gas Analyzer	
6	Blood Mixer	
7	Centrifuge Machine	
8	Chemistry Analyzer	
9	Coagulometer	
10	Elisa System	
11	Glass ware	
12	glucometer Hand held	
13	Hematology Analyzer	
14	Hot Air Ovan	
15	Hot Plate with Magnetic Stiror	
16	Incubator normal Temperature	
17	Microscope lad	
18	Plasma Freezer	
19	Platlet Shaker	
20	Platlet Storage Cabinet	
21	Refrigerator	
22	Semi Automatic Chemistry Analyzer	
23	Slide view box	
24	Slide viewer	
25	Special Chemistry Analyzer	
26	Test Tube Racks/Stand	
27	Tube Sealer	

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28	Urine Analyzer, fully automated	
29	Vortex Mixer	
30	Water Bath	

4.12. HR required for a Level-II Trauma Center

S.No	Name of Post	BPS	Required Qualification	Required Experience	Quantity
1	Director ED	19	FRCEM, MS A&E, FCPS (Emergency Medicine)/MRCEM Or other relevant fellowship or Equivalent as per PM&DC Criteria	07 year working Experience in Emergency Department	01
2	Medical Officer	17	MBBS from PM&DC Registered Hospital	2 years Post house job experience in Emergency Department	26
3	Medico-legal Officer (MLO)	18	MBBS from PM&DC Registered Hospital	5 years post house job + 1 year experience as MLO	04
4	Charge Nurses	14	Diploma in Nursing / as per PNC criteria	4 years post qualification experience in a tertiary care hospital	48
5	Technicians: Anesthesia-4 Surgical-10 Pharmacy-4 X-ray/Radiol-4 CT/MRI-8 Lab/Blood Bank-11 Biomedical-4 AC-4				49
6	Radiologist				04
7	Pharmacist		Doctor of Pharmacy from HEC Recognized university	2 year Post qualification experience as Pharmacist	04
8	Paramedics				08
9	Lab/OT Attendant		Metric	3 year experience in Lab/OT	08
10	Finance Officer	17	MBA (Finance)/ M.Com from a HEC recognized University	Have two year experience as Finance Cashier or Finance Supervisor in reputed hospital	01
11	Data Officer + accountant		B.Com from a HEC Recognized University	2 year experience as Finance cashier	02
12	Computer Operator/ Ward Clerks		Bachelor in computer Science	2 year working experience as computer operator	22

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13	Telephone Operator		Electrical Diploma	3 years as Telephone operator	04
14	Security Supervisor		Retired JCO from Armed Forces		01
15	Security Guard		Middle Pass/ Physically Fit		28
16	Work Supervisor		B.Tech (Civil)	3 year experience in a tertiary care hospital	01
17	Office Supertendant				01
18	Peon-2 Ward Ardali-16 Khala-8				26
19	Porter		Middle Pass/ Physically Fit		05
20	Sweeper		Middle Pass/ Physically Fit		22
21	Electrician		Electrical Diploma	3 year as Electrician	04
22	Plumber		Sanitary Diploma	1 year as Plumber	04
23	Biomedical Engineer				01
24	PA to Director		BA/ 14 Year of education	3 year Experience in Hospital	01
25	Laundry Manager			3 Year Experience in Hospital	01
26	Washman/Cleaner			2 Year Experience in Hospital	04
27	Tailor				01
28	Statistic Officer		MS (Biostatistics and Epidemiology)	3 Year Experience in Hospital	01
29	Bed Management Officer		Masters	3 Years Experience in Hospital	04