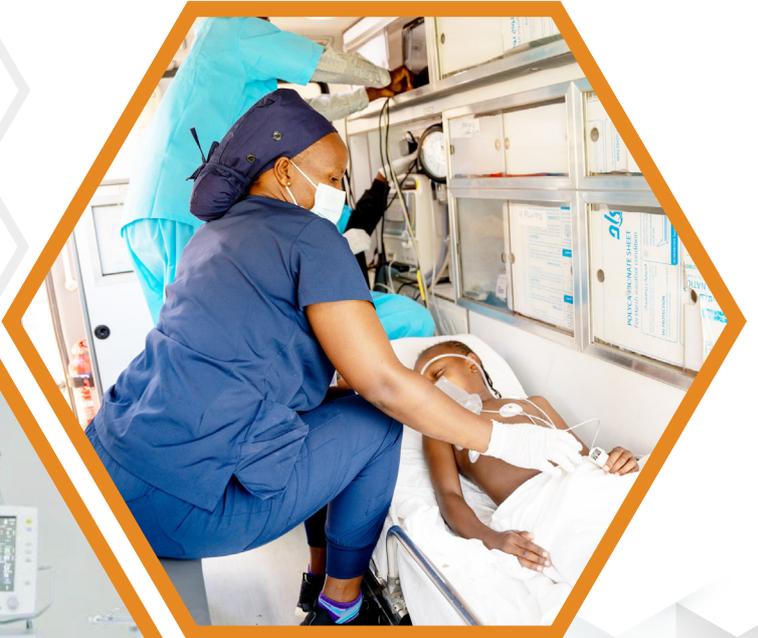




REPUBLIC OF KENYA

MINISTRY OF HEALTH

# GUIDELINES FOR ESTABLISHING PAEDIATRIC HEALTH CARE SERVICES



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## List of Abbreviations

<b>ABG</b>	Arterial Blood Gas
<b>AEDs</b>	Automated External defibrillators
<b>AEFI</b>	Adverse Events Following Immunization
<b>AKI</b>	Acute Kidney Injury
<b>AHRQ</b>	Agency for Healthcare Research and Quality
<b>APLS</b>	Advanced Paediatric Life Support
<b>APRV</b>	Airway Pressure Release Ventilation
<b>BPP</b>	Basic Paediatric Protocol
<b>BCMA</b>	Barcode Medication Administration
<b>BIPAP</b>	Bilevel Positive Airway Pressure
<b>BLS</b>	Basic Life Support
<b>BMI</b>	Body Mass Index
<b>BNP</b>	B-Natriuretic Peptide
<b>BP</b>	Blood Pressure
<b>BScN</b>	Bachelor of science In nursing
<b>BVM</b>	Bag-Valve-Mask
<b>CBC</b>	Complete Blood Count
<b>CCTV</b>	Closed-circuit Television
<b>CPAP</b>	Continuous Positive Airway Pressure
<b>CRP</b>	C-Reactive Protein
<b>CRRT</b>	Continuous Renal Replacement Therapy
<b>CT scan</b>	Computed Tomography scan
<b>CVP</b>	Central Venous Pressure
<b>CVC</b>	Central venous Catheters
<b>DHS</b>	Demographic and Health Surveys
<b>ECG</b>	Echocardiography
<b>ECMO</b>	Extracorporeal Membrane Oxygenation
<b>EEG</b>	Electroencephalogram
<b>EHR</b>	Electronic health records
<b>EMG</b>	Electromyography
<b>ENT</b>	Ear, Nose, and Throat
<b>EPALS</b>	European Paediatric Life Support
<b>ETAT</b>	Emergency Treatment and Triage
<b>ETCO<sub>2</sub></b>	End-tidal Carbon dioxide
<b>F75</b>	Formula 75
<b>F100</b>	Formula 100
<b>G4, G6, G8, G10</b>	Gauge sizes (for needles or tubes, e.g., nasogastric tubes)
<b>GBS</b>	Guillain Barre Syndrome
<b>GBV</b>	Gender Based Violence
<b>GXM</b>	Group & Cross Match
<b>Hb</b>	Hemoglobin
<b>PHDU</b>	Paediatric High Dependency Unit
<b>HEPA</b>	High-Efficiency Particulate Air (filter)
<b>HFNC</b>	High Flow Nasal Cannula

<b>HFOV</b>	High-Frequency Oscillatory Ventilation
<b>HIV</b>	Human Immunodeficiency Virus
<b>HIT</b>	Health Information Technology
<b>HMIS</b>	Health Medical Information System
<b>HTS</b>	HIV Testing Services
<b>HPT</b>	Health Products and Technologies
<b>HRH</b>	Human Resource for Health
<b>ICP</b>	Intracranial Pressure
<b>IEC</b>	Information, Education, and Communication
<b>IIPS</b>	International Institute for Population Sciences
<b>IMCI</b>	Integrated Management of Childhood Illness
<b>IMNCI</b>	Integrated Management of Neonatal and Childhood Illness
<b>IPC</b>	Infection Prevention and Control
<b>IV</b>	Intravenous
<b>KDHS</b>	Kenya Demographic and Health Survey
<b>KMPDC</b>	Kenya Medical Practitioners and Dentists Council
<b>LMA</b>	Laryngeal Mask Airway
<b>MDRO</b>	Multidrug-Resistant Organisms
<b>MOH</b>	Ministry of Health
<b>MRI</b>	Magnetic Resonance Imaging
<b>MUAC</b>	Mid-Upper Arm Circumference
<b>MScN</b>	Master of Science In Nursing
<b>NAVA</b>	Neurally adjusted Ventilatory assist
<b>N/A</b>	Not Applicable
<b>N95</b>	Respirator mask type (filters 95% of airborne particles)
<b>NPA</b>	Nasopharyngeal Airway
<b>NIPPV</b>	Non-Invasive Positive Pressure Ventilation
<b>NIRS</b>	Near Infrared Spectroscopy
<b>NIV</b>	Non-invasive Ventilation
<b>OGT</b>	Orogastric Tube
<b>OPA</b>	Oropharyngeal Airway
<b>OPD</b>	Outpatient Department
<b>ORS</b>	Oral Rehydration Salts
<b>ORT</b>	Oral Rehydration Therapy
<b>PACS</b>	Picture Archiving and Communication System
<b>PALS</b>	Paediatric Advanced Life Support
<b>PCCU</b>	Paediatric Critical Care Unit
<b>PCT</b>	Procalcitonin
<b>PICC</b>	Peripherally Inserted Central Catheter
<b>PICU</b>	Paediatric Intensive Care Unit
<b>PID</b>	Paediatric Inpatient Department
<b>PMTCT</b>	Prevention of Mother-to-Child Transmission
<b>PCNs</b>	Primary care networks
<b>PEWS</b>	Paediatric Early Warning System
<b>PWD</b>	People With Disabilities
<b>PHC</b>	Primary Health Centre
<b>PICU</b>	Paediatric Intensive Care Unit
<b>POCT</b>	Point of Care Test
<b>POCUS</b>	Point of Care Ultrasound

<b>POD</b>	Paediatric Outpatient Department
<b>PT</b>	Prothrombin time
<b>RBS</b>	Random Blood Glucose
<b>RCA</b>	Root Cause Analysis
<b>RCO</b>	Registered Clinical Officer
<b>RDT</b>	Rapid Diagnostic Test
<b>RN</b>	Registered Nurse
<b>RUTF</b>	Ready-to-use therapeutic Food
<b>SDI</b>	Service Delivery Indicators
<b>SDG</b>	Sustainable Development Goals
<b>SLED</b>	Sustained Low-Efficiency Dialysis
<b>SpO2</b>	Peripheral Oxygen Saturation
<b>TB</b>	Tuberculosis
<b>TEE</b>	Tracheoesophageal Echocardiography
<b>U/E/Cr</b>	Urea, Electrolytes and Creatinine
<b>UPS</b>	Uninterruptible Power Supply
<b>WHO</b>	World Health Organisation

## Definition of Terms

Term	Definition
<b>Paediatric</b>	From birth to 19 years
<b>Infant</b>	A child aged less than 12 Months
<b>Younger child</b>	A child aged less than 5 Years
<b>Older child</b>	A child within the age of 5 up to 10 years
<b>Adolescent</b>	A child aged 10 -19 years
<b>Paediatric care</b>	Relating to the care of children
<b>Health sector service delivery levels (KEPH 2024)</b>	
<b>Level 1: Community Health Unit</b>	This level focuses on community-based healthcare services. It includes disease prevention, health education, promotion and referral.
<b>Level 2: Dispensary</b>	Level 2 facilities are designed to provide basic healthcare services to the local population, acting as patients' first point of contact.
<b>Level 3: Health centre</b>	Level 3 facilities Offer outpatient services, maternity care, basic laboratory services, and some inpatient care for uncomplicated conditions.
<b>Level 4: Subcounty Hospital/Primary referral facilities</b>	Level 4 facilities provide inpatient and outpatient services, including surgery, specialised clinics, laboratory, radiology, and emergency care.
<b>Level 5: County Hospital /Secondary Referral Facility</b>	Level 5 facilities are specialized hospitals that provide high-level care and advanced medical treatments. They serve as referral centers for Level 4 facilities.
<b>Level 6: National Hospital/ Tertiary Referral Facility</b>	Level 6 represents Kenya's highest level of healthcare, providing comprehensive, specialized, subspecialized, advanced and highly specialised medical care. they serve as referal centers for level 5 facilities.
<b>Critically ill child</b>	This a child requiring, or potentially requiring, Paediatric critical care, whether medically, surgically or trauma-related
<b>Paediatric Critical Care</b>	Describes the care of children who need an enhanced level of observation, monitoring, or intervention that cannot be safely delivered in general wards.
<b>Paediatric Critical Care Unit (PCCU)</b>	A discrete area within a ward or hospital where Paediatric critical care is delivered. Levels of PCCU include;
<b>Basic PCCU</b>	A discrete area where Paediatric critical care is delivered. This unit is also called the acute room.
<b>Intermediate PCCU</b>	A discrete area where Paediatric critical care is delivered. This unit is also called the High Dependency Unit.
<b>Advanced PCCU</b>	A unit delivering care. This unit is also called the Paediatric Intensive
<b>Qualified Health Provider</b>	A healthcare professional who is qualified by education, training, licensure/ regulation (when applicable, who performs a professional service within his/ her scope of practice
<b>Holding room</b>	A secure room set aside within the Paediatric unit for temporarily holding the bodies of babies awaiting collection for the morgue
<b>Emergency Care</b>	Immediate interventions for life-threatening Paediatric conditions: Provide triage within 10 minutes, stabilization (e.g., oxygen, IV fluids) within 30 minutes, and resuscitation if needed. Assess via time logs (e.g., triage-to-treatment time) and survival rates (target: >90% for stabilized cases).
<b>Specialized Clinics</b>	Outpatient services for chronic or complex Paediatric conditions: Operate clinics (e.g., cardiology, oncology) weekly with specialists, using diagnostic tools like ECGs or lab tests. Measure by appointment fulfillment rates (target: >95%) and patient follow-up adherence (>80%).

**Child life specialist**

A Child Life (Play) Therapist is a trained professional who uses play as a therapeutic tool to help children cope with stress, trauma, illness, or challenging

**Shared Resource/ Services**

A collective pool of skilled personnel utilized across the healthcare facilities, to enhance health outcomes.(Requires Coordination)

## Foreword

The health and well-being of children and adolescents are central to the sustainable development of any nation. In Kenya, while notable progress has been made in improving child health, significant challenges such as limited specialized paediatric services, inadequate infrastructure and disparities in care persist. According to the Kenya Demographic and Health Survey (KDHS) 2022, the country continues to face a high under-five mortality rate, with 41 deaths per 1,000 live births. A large proportion of these deaths result from preventable and treatable conditions such as pneumonia, diarrhoeal diseases, malaria and malnutrition. These illnesses often require timely and advanced clinical interventions, yet many children lack access to the level of care they need.

At the same time, older children and adolescents (ages 5–19) remain a largely underserved population in the paediatric continuum. While the health needs of children under five are increasingly documented, there is a notable lack of data and targeted services for older children and adolescents, despite the fact that they experience unique developmental and health-related challenges.

The Norms and Standards for Establishing Paediatric Health Care Services have been developed in direct response to these challenges. They provide a structured, evidence-based framework to guide the establishment and strengthening of paediatric care across all levels of the health system. By defining the minimum requirements for infrastructure, equipment, staffing, clinical services, and referral pathways, these standards aim to address existing disparities, ensure consistency in care delivery, and improve health outcomes for all children and adolescents in Kenya.

Ensuring equitable access to high-quality paediatric care is essential for reducing child morbidity and mortality and achieving better health outcomes. Developed through a collaborative, evidence-based process, these guidelines aim to strengthen service delivery, promote patient safety, and guarantee that every child—regardless of geographic location—receives timely, appropriate, and high-quality care. Through their implementation, these norms and standards will not only support the delivery of high-quality, timely, and equitable paediatric care but also serve as a foundation for long-term health system resilience and progress toward national child health goals.

It is my hope that all stakeholders, from healthcare professionals to government agencies and development partners, will embrace and apply these standards to ensure that every child in Kenya has access to the care they deserve.



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# CHAPTER 1: **Introduction**

## Introduction

According to the Kenya Demographic and Health Survey (KDHS) 2022, the country has made commendable progress in reducing child mortality. The under-five mortality rate declined from 52 deaths per 1,000 live births in 2014 to 41 deaths per 1,000 in 2022. Similarly, infant mortality fell from 39 to 32 deaths per 1,000 live births over the same period. Despite these gains, Kenya remains off track to meet Sustainable Development Goal (SDG) 3.2, which aims to reduce under-five mortality to fewer than 25 deaths per 1,000 live births by 2030. To achieve the SDG target for under-five mortality by 2030, Kenya must accelerate its current rate of decline by 3 to 5 times. (United Nations Inter-Agency Group for Child Mortality Estimation: levels and trends in child mortality 2024).

In Kenya, the leading causes of under-five mortality (excluding neonatal conditions such as prematurity) are pneumonia, diarrhea, malaria, and malnutrition. These causes are consistent with global trends and continue to account for a significant share of post-neonatal child deaths both nationally and worldwide (United Nations Inter-Agency Group for Child Mortality Estimation: levels and trends in child mortality 2024). These deaths are largely preventable through well-established interventions, including immunization, exclusive breastfeeding, improved nutrition, access to clean water and sanitation, use of insecticide-treated nets and timely access to quality healthcare services for early diagnosis and effective treatment.

Mortality among children under five years of age constitutes a substantial public health burden and has therefore been the focus of extensive policy and programmatic attention. While mortality rates among children and adolescents aged 5–17 years are comparatively lower, deaths in this age group remain significant and warrants Standards, Policies, and interventions to address them. The Global Burden of Disease (2019) study estimated mortality rates at 2.4 per 1,000 for ages 5–9, 1.8 for ages 10–14, and 3.7 for adolescents aged 15–19. While risks decline after early childhood, adolescence introduces new vulnerabilities. Among school-aged children (5–14), leading causes of death include malaria, HIV/AIDS, and respiratory infections, with a rising burden of non-communicable diseases and injuries. In adolescents (15–19), mortality is driven by road traffic injuries, violence, maternal conditions, and HIV/AIDS. Despite progress in reducing under-five deaths, older children and adolescents remain under-prioritized in research and programmatic interventions, even though their health is closely linked to social determinants like education, nutrition, and access to adolescent-friendly care.

While significant progress has been made in expanding paediatric services and reducing child mortality, Kenya's healthcare system still faces considerable challenges. Inadequate staffing, resource limitations, and infrastructure deficiencies continue to affect care delivery. Moreover, children aged more than 1 Month to 18 years make up a significant portion of the population. Yet, their specific healthcare needs are often overlooked, leading to a "one-size-fits-all" approach that does not fully address the varying physiological and developmental requirements of different age groups—infants, children, and adolescents.

In response to these challenges, the Ministry of Health has developed the National Norms and Standards for Establishing Paediatric Health Care Services. These standards outline the minimum requirements for paediatric services at different health system levels and cover critical aspects such as services offered, infrastructure, equipment, supplies, human resources for health, infection control, referral processes, and clinical guidelines and data tools to monitor and evaluate paediatric care.

The effective integration of paediatric services across the different levels of care in the Kenyan health system based on the functional capacity of the health facilities, is essential for improving child health outcomes. The paediatric health care services that should be offered at the various Kenya Essential Package for Health (KEPH) levels is summarized in table 1.

Lower-level facilities that lack specialized paediatric services require robust referral systems to ensure the timely transfer of critically ill children to higher-level centres with comprehensive care capabilities. Effective integration of these systems reduces treatment delays and improves overall patient outcomes

Implementing these norms and standards will improve the organisation and delivery of paediatric services across the continuum of care—from preventive outpatient services to advanced critical care. Ultimately, adherence to these standards will help Kenya build a resilient healthcare system capable of addressing the unique health needs of the paediatric population, bringing the country closer to achieving its child health goals.

Table 1: Minimum Required Paediatric Health Care Services Across Healthcare Facility Levels in Kenya.

Level of Care	Outpatient Services	Inpatient Services	Acute Room (Basic PCC)	High Dependency Unit (intermediate PCC)	Paediatric Intensive Care Unit (advanced PCC)
Level 2 (Dispensaries)	Yes	No	No	No	No
Level 3 (Health Centers)	Yes	Yes*	No	No	No
Level 4 (Sub county Hospitals)	Yes	Yes	Yes	Yes	No
Level 5 (County Hospitals)	Yes	Yes	Yes	Yes	Yes
Level 6 (Tertiary National Referral Hospitals)	Yes	Yes	Yes	Yes	Yes

Key: **“Yes”** indicates the service is a minimum requirement; **“No”** indicates it is not required; **“Yes\* ”** indicates limited inpatient capacity for uncomplicated conditions as a minimum standard. **PCC** = Paediatric Critical Care. **Basic PCCU** refers to an acute room, **Level 2 intermediate PCC** refers to a high dependency unit (PHDU), and **advanced PCCU** refers to a paediatric intensive care unit (PICU)

*Note;* Data sourced from the Kenya Essential Package for Health (KEPH), document. Critical care levels are minimum standards from official guidelines. AAP = American Academy of Paediatrics; SCCM = Society of Critical Care Medicine; KNBS = Kenya National Bureau of Statistics; PICU = Paediatric Intensive Care Unit. All sources accessed as of September 01, 2025.

# CHAPTER 2:

## **General Guidelines and Standards for Paediatric Healthcare Services, Facility Design, Health Products and Technologies and Human Resources for Health**

# General Guidelines and Standards for Paediatric Healthcare Services, Facility Design, Health Products and Technologies and Human Resources for Health

This chapter outlines the General guidelines and standards in Paediatric healthcare facility design and the selection of health products and technologies. It explores best practices in creating child-centered environments, ensuring accessibility, maintaining infection, prevention & control, and integrating modern medical technologies to enhance Paediatric care delivery.

## 2.1 General Standards for Paediatric Healthcare Services Across All Levels of Care

Paediatric healthcare services shall be delivered in a structured, equitable, and child-centered manner across all levels of care, from community and primary health facilities to tertiary referral and critical care institutions. The following overarching standards apply universally to ensure quality, safety, and consistency of services:

### 2.1.1 Continuum of Care:

All facilities shall provide services that align with their designated level of care, ensuring seamless referral systems, linkages, and coordination between community, primary, secondary, and tertiary services.

### 2.1.2 Child-Centered Service Delivery:

Care must be tailored to the physiological, developmental, and psychosocial needs of children and adolescents, guaranteeing child-friendly environments, privacy, and family involvement in care.

### 2.1.3 Minimum Package of Services:

At every level, facilities shall meet defined minimum service requirements, including preventive, promotive, curative, rehabilitative, palliative, and emergency care for children.

### 2.1.4 Quality and Safety Standards:

All paediatric healthcare delivery shall prioritize patient safety, infection prevention and control, evidence-based practices, and adherence to clinical guidelines and protocols.

### 2.1.5 Infrastructure and Equipment:

Facilities must maintain appropriate infrastructure, medical equipment, health products, and technologies that meet national and international paediatric standards, adjusted to the level of service provision.

### 2.1.6 Human Resources for Health:

Paediatric services shall be delivered by qualified, licensed, and adequately trained multidisciplinary teams. Staffing ratios and competencies shall align with national HRH norms to guarantee safe and effective care.

### 2.1.7 Equity and Access:

Paediatric care shall be accessible to all children, including vulnerable populations, regardless of geographic location, socioeconomic status, or disability, with deliberate measures to bridge urban-rural disparities.

### 2.1.8 Monitoring and Evaluation:

Facilities shall collect, manage, and utilize health data to inform decision-making, track outcomes, and ensure accountability for paediatric service delivery.

### 2.1.9 Training and Research Services:

All paediatric facilities shall provide opportunities for clinical training, internships, and paramedic education, while actively engaging in health research to inform policy, improve practice, and strengthen the evidence base for paediatric care.

## 2.2 General Standards for Design and Layout of a Paediatric Healthcare Facility

Children receiving care in healthcare facilities shall be treated in dedicated paediatric areas, separate from general adult wards. This ensures a child-friendly, safe, and developmentally appropriate environment that meets their unique medical and emotional needs. The following general specifications shall guide the design and layout of paediatric healthcare facilities at all levels of care:

### 2.2.1 Colors and Aesthetics

- Utilize warm, inviting, and cheerful colors such as soft blues, greens, yellows, and pastels to create a child-friendly atmosphere.
- Implement theme-based designs (e.g., nature, underwater, space, cartoons) to reduce anxiety and enhance engagement.
- Incorporate wall art, murals, and interactive or educational visuals to provide distraction and comfort.
- Apply matte or low-sheen, non-reflective finishes to minimize glare and overstimulation.

### 2.2.2 Accessibility and Safety

- Ensure full accessibility for children with disabilities and wheelchair users with ramps, wide corridors ( $\geq 1.5\text{m}$ ), and doorways ( $\geq 1.2\text{m}$ ).
- Install child-friendly handwashing stations at heights of 50–75 cm.
- Use anti-slip flooring and rounded edges on furniture and walls to minimize falls and injuries.
- Position childproof electrical outlets at least 1.2m above floor level.
- Provide clearly marked emergency exits and install appropriate security systems.

### 2.2.3 Flooring

- Use seamless, non-slip, and easy-to-clean flooring materials such as vinyl, linoleum, or rubber.
- Incorporate cushioned flooring in waiting and play areas.
- Install acoustic flooring to minimize noise disturbance.

### 2.2.4 Walls and Finishes

- Apply antibacterial, durable, and stain-resistant paints.
- Use soft, warm colors to reduce anxiety in children.
- Integrate interactive features such as magnetic boards, interactive panels, or child-friendly digital screens.
- Install acoustic wall panels to reduce noise from crying or movement.

### 2.2.5 Ventilation and Aeration

- Maximize natural ventilation through large, screened windows.
- Utilize HVAC systems with HEPA filters in high-dependency or infectious areas.
- Maintain humidity levels at 40–60% to reduce respiratory risks.
- Ensure cross-ventilation by strategically positioning windows and vents.

### 2.2.6 Lighting

- Maximize daylight exposure through windows and skylights.
- Use soft, diffused artificial lighting, avoiding harsh fluorescent lights.
- Provide warm LED lighting and dimmable fixtures in consultation and exam rooms.

### 2.2.7 Waiting Areas and Play Zones

- Provide child-sized, ergonomic furniture and seating.
- Include safe, age-appropriate play equipment, books, and digital interactive tools.
- Designate quiet/sensory-friendly zones for children with autism or sensory sensitivities.
- Ensure parent/caregiver comfort with adequate seating and charging stations.

### 2.2.8 Baby-Friendly Spaces

- Establish private breastfeeding and expressing rooms with suitable furniture and storage.
- Provide areas for diaper changing, with dignity and accessibility for mothers, including staff.

### 2.2.9 Consultation and Examination Rooms

- Allocate a minimum of  $10\text{m}^2$  per consultation room.
- Provide adjustable paediatric examination tables and chairs for different age groups.

- Ensure soundproofing and privacy with partitions or curtains.
- Incorporate ergonomic, age-appropriate seating for children.

### 2.2.10 Infection Prevention and Control

- Install hand hygiene stations at all entry points, waiting areas, and consultation rooms.
- Use touch-free doors, taps, and dispensers where possible.
- Provide designated isolation rooms equipped with negative pressure ventilation.

### 2.2.11 Sanitation Facilities

- Provide separate, child-friendly washrooms, with fixtures appropriate for different age groups (e.g., 20–30 cm height for 3–4 years).
- Ensure PWD accessibility with non-slip flooring and good lighting.
- Segregate washrooms by sex for older children.
- Install functional handwashing stations within 5m of all toilets.

### 2.2.12 Signage and Wayfinding

- Use bold, child-friendly signage with pictograms and multiple languages.
- Apply color-coded zones for easy navigation (e.g., green for check-in, blue for consultation).
- Place signage at child-eye level and consider digital interactive guides.

### 2.2.13 Emergency Preparedness

- Provide dedicated paediatric emergency rooms near consultation areas.
- Install fire safety systems including smoke detectors, sprinklers, and child-friendly evacuation maps.
- Ensure reliable backup power supply (e.g., generators) for uninterrupted services.

## 2.3 Standards for Paediatric Health Products and Technologies

The supply chain of all paediatric health products and technologies (HPTs) shall be maintained to ensure that safe, efficacious, and cost-effective commodities are consistently available at every point of care. A Medicines and Therapeutics Committee shall be established to guarantee commodity security, oversee selection, and promote the rational use of age-appropriate, child-friendly HPTs across all levels of care.

Commodity security is pivotal for the provision of quality healthcare services. To ensure the appropriate selection, procurement, distribution, and rational use of paediatric HPTs, the following resources and frameworks shall govern these processes:

- Kenyan policies and legal frameworks, including the Pharmacy and Poisons Act (CAP 244), Public Finance Act (CAP 412A), Public Procurement and Asset Disposal Act (CAP 412C), and related procurement regulations.
- The Kenya Essential Medicines List (KEML).
- The Kenya Essential Medical Supplies List (KEMSL).
- The Kenya Essential Diagnostics List (KEDL).
- The Kenya National Formulary.
- National guidelines such as the Basic Paediatric Protocol.
- County and hospital formularies.
- Stock control cards, daily activity registers, and consumption data.

The Norms and Standards for Establishing Paediatric Care shall further guide rational use of HPTs at different levels of healthcare, including outpatient, inpatient, and paediatric intensive care units.

### 2.3.1 General Requirements for Paediatric HPTs

Paediatric health products and technologies shall be specifically designed to meet the unique physiological, developmental, and safety needs of children. These standards outline key considerations for the selection, design, and implementation of paediatric-specific HPTs to enhance care quality and improve patient outcomes.

#### 2.3.1.1 Safety

HPTs shall incorporate safety features that minimize risks of harm and promote the well-being of paediatric patients.

**2.3.1.2 Infection Prevention and Control**

- Equipment shall be easy to clean, disinfect, and constructed from materials that can withstand sterilization processes.
- Single-use medical supplies shall be of high quality to maintain hygiene, prevent cross-contamination, and ensure patient safety.

**2.3.1.3 Age-Appropriate Design**

Products shall accommodate children of different ages and developmental stages, considering their anatomy and size.

**2.3.1.4 Accuracy and Reliability**

Devices shall ensure precise and reliable measurements, incorporating calibration and quality control features.

**2.3.1.5 User-Friendliness**

Displays and controls shall be clear, intuitive, and easy for healthcare professionals to operate effectively.

**2.3.1.6 Data Integrity**

Devices shall securely store and transmit data with accuracy, using encryption, backup systems, and audit trails.

**2.3.1.7 Regulatory Compliance**

All products and technologies shall comply with relevant national and international regulatory standards for safety, performance, and quality assurance.

**2.3.1.8 Maintenance, Calibration, and Serviceability**

Where applicable, HPTs shall include clear maintenance requirements, accessible technical support, and servicing schedules to guarantee performance and durability.

**2.4 General Standards for Paediatric Human Resources for Health**

Paediatric healthcare services shall be delivered by licensed multidisciplinary team that is competent, motivated, empathetic, equitably distributed, consistently available. Staff must be adequately trained and supported with continuous professional development to ensure high-quality care.

**2.4.1 Educational, Certification and Regulatory Compliance**

- Healthcare workers providing paediatric services must be licensed and registered with the appropriate regulatory bodies as a mandatory requirement for practice.
- Practitioners must maintain up-to-date practice permits through annual renewals by the relevant authorities.
- Healthcare workers providing paediatric services must hold the minimum required academic qualifications in their respective fields.
- Paediatric clinical team must be trained in Integrated Management of Newborn and Childhood Illnesses (IMNCI), Emergency Triage Assessment and Treatment Plus Admission (ETAT+), and Advanced Paediatric Life Support (APLS/PALS/EPALS) certification is mandatory and must be kept active for all Paediatric professionals.

**2.4.2 Professional Development and Ethics**

- Ongoing professional development is required to ensure staff remain updated with advancements in paediatric care.
- Ethics training and supervision shall be undertaken regularly.

**2.4.3 Scope of Responsibilities**

- Paediatric staff shall be responsible for both clinical and administrative duties, ensuring compliance with quality and safety standards.

**2.4.4 Quality Assurance and Patient Safety**

- Paediatric staff must adhere to national and international best practices in Paediatric healthcare.
- Regular participation in quality assurance programs, including monitoring and evaluation, is mandatory.
- Patient safety and rights must be prioritized and protected at all times.

Chapter 3:

**Standards for Level 2 and 3  
Health Facilities**

## Standards for Level 2 and 3 Health Facilities

### 3.1. Introduction

Level 2 and 3 health facilities are pivotal to Kenya’s health system, offering essential primary healthcare services to the population. Establishing national standards for these health facilities is key to ensuring that minimum requirements regarding infrastructure, staffing, equipment, and service provision are consistently met. These standards ensure that Level 2 and 3 facilities provide equitable, high-quality care, leading to better patient outcomes and efficient referrals when necessary.

This chapter outlines the essential standards for Level 2 and 3 health facilities, which mainly offer paediatric outpatient services. Level 3 health facilities also offer paediatrics inpatient services for uncomplicated conditions.

### 3.2. Standards for Paediatric Outpatient Department Services at Level 2 and Level 3 Health Facilities

Paediatric Outpatient Departments (OPDs) at Level 2 and Level 3 health facilities play a critical role as the first point of contact for children seeking healthcare. This section outlines the minimum standards of services required to ensure safe, effective, and child-friendly care, while promoting early diagnosis, treatment, referral, and continuity of care across the health system Table 2 outlines the services offered at the outpatient department.

Table 2: Services offered in Paediatric Outpatient Department at Level 2 and 3 Health Facility

Service Category	Services Offered
<b>Health promotion and Preventive Services</b>	• Antenatal and post-natal care.
	• Immunization programs.
	• Well-baby clinics.
	• Health education on child; health, Water, sanitation and hygiene (WASH), nutrition, disease prevention. • Breastfeeding and lactation
<b>Curative services</b>	• Triage, consultation, diagnosis, treatment, and integrated case management of uncomplicated illnesses (IMNCI) such as respiratory infections, diarrhoea, skin infections, and fever.
	• Diagnostic services: basic laboratory tests such as malaria testing, haemoglobin estimation, urine analysis, and random blood glucose among others
<b>Emergency services</b>	• Stabilization and referral
<b>Rehabilitative services</b>	• Occupational therapy
<b>Psychosocial Support</b>	• Counselling for children and families with chronic illnesses, disabilities, trauma, and mental health issues.
<b>Referral Services</b>	• Early identification and referral of cases that require advanced diagnostics or specialised care to Level 4 and above.
	• Community facility linkage

### 3.3. Standards for Design and Layout of a Paediatric Outpatient Department in a Level 2 and 3 Health Facilities

The paediatric outpatient should be separate from the adult outpatient department. The design of the Paediatric Outpatient Department (POPD) in Level 2 and 3 facilities ensures a child-friendly, efficient environment that supports quality care, smooth patient flow, and infection control. Key principles include a welcoming atmosphere, streamlined service delivery, and safety for patients and staff.

For detailed architectural layout, refer to [Annex 2](#), which outlines a structured layout that optimizes patient experience and service efficiency while meeting space requirements. Table 3 outlines the design and layout for paediatric outpatient Department in a Level 2 and 3 Healthcare Facility.

Table 3: Design and Layout for Paediatric Outpatient Department in a Level 2 and 3 Health Facility

Unit	Description	Area in Square Feet
<b>Entrance</b>	Main access point leading to Registration and Billing for smooth traffic.	N/A
<b>Waiting Area</b>	Centrally located with ample seating and a child-friendly play section that is well ventilated	150 -250
<b>Registration and Billing</b>	Located near the entrance for efficient patient check-in and billing.	100 -130
<b>Records Room</b>	Proximal to Registration for quick access to patient records.	80 -100
<b>Consultation Rooms (at least 2)</b>	Adjacent to the waiting area for easy access during visits.	130 -160 each
<b>ORT Corner (room)</b>	Close to consultation rooms for immediate care of dehydrated children.	100 - 200
<b>Nutrition/Counselling Room</b>	Conveniently located near consultation rooms for nutritional support.	120 - 150
<b>Immunization room</b>	Space for administering vaccines with proper cold storage and waiting area for post-vaccine observation; child-friendly design	120 -150
<b>Procedure Room</b>	Positioned near Consultation Rooms for minor procedures and treatments.	100 -130
<b>Treatment room</b>	A designated space within a Paediatric health facility equipped for medical procedures, minor treatments, and emergency interventions while ensuring patient comfort and safety.	100 - 130
<b>Isolation</b>	A specialized room designed to prevent the spread of infectious diseases by providing controlled ventilation, protective barriers, and strict infection control measures	100 - 130
<b>Holding Room</b>	A secure room set aside within the paediatric unit for temporarily holding the bodies of babies awaiting collection for the morgue.	130 -160
<b>Laboratory</b>	Near Consultation Rooms for efficient diagnostic testing.	85 -110
<b>Nursing Station</b>	Centrally located for quick coordination of patient care.	65 - 85
<b>Pharmacy</b>	Positioned near the exit for convenient medication dispensing.	100 - 130
<b>Play Area</b>	Adjacent to Waiting Area to keep children engaged while waiting.	100 - 130
<b>Lounge for Healthcare Providers</b>	Staff break area equipped with amenities for comfort.	100 - 130
<b>Baby Changing Area</b>	Located near Patient Washrooms, equipped with necessary facilities.	35 - 50
<b>Staff and Patient Washrooms</b>	Separate facilities with child-friendly fixtures.	50 - 70 each
<b>Storeroom</b>	Close to Treatment Rooms for easy access to supplies.	80 - 100
<b>Sluice Room</b>	Close to Treatment Room for safe disposal of waste materials.	65 - 85

### 3.4 Standards for Paediatric Health Products and Technologies in Outpatient Departments at Level 2 and Level 3 Health Facilities.

This section lists the essential equipment, consumables, and tools/job aids required in various service areas of the Paediatric Outpatient Department to ensure seamless service delivery at Level 2 and 3 facilities. Table 4 presents the minimum standards for health products and technologies required in Paediatric Outpatient Departments at Level 2 and Level 3 health facilities.

Table 4: Standards for Paediatric Health Products and Technologies in Outpatient Departments at Level 2 and Level 3 Health Facilities

Service Area	Equipment	Consumables
<b>Entrance Area</b>	CCTV; Wall clock; Wheelchair; Stretcher; Hand washing point/sanitizer dispenser	Clean Gloves (small, medium, large), Sterile Gloves (Size 6, 6.5, 7, 7.5, 8), Alcohol-based hand rub (sopropyl alcohol 75%-500ml)
<b>Reception/ Registration</b>	Tables; Waiting benches; Computer; Television; Disposal bins; Water dispenser; Hand washing point/sanitiser; Storage, queue management systems	Files; Stationery; appropriate Registers Disposable 3 ply surgical Face masks; Alcohol-based hand rub (sopropyl alcohol 75%-500ml) Blank insurance forms
<b>Play Area</b>	Assortment of age appropriate, child friendly, easy to clean play materials; Storage cabinets; Furniture (table and chairs)	Play materials
<b>Triage Area</b>	Table; Chairs; Paediatric stethoscopes; Vital signs monitor; Digital thermometer; Handheld pulse oximeter with infant and paediatrics probes; BP machines with a range of cuff sizes (newborns, , infants, older children and adolescents); Weighing scales (infant and older children); Stadiometer; Tape measures (MUAC tapes, Breslow tapes); Examination couch; Heating source; Computer; Storage cabinets, Hand washing point	Alcohol-based hand rub (sopropyl alcohol 75%-500ml) Disposable hand towels
<b>Treatment room</b>	Examination couch; Examination lamp; Radiant warmer/room heater; Resuscitation trolley See Annex; Drip stand; Syringe/ infusion pumps; Paediatric stethoscopes; Vital signs monitoring equipment with infant, Paediatric and adolescent accessories Pen torch; Otoscope; Automated external defibrillator; Suction machine; Glucometer; Oxygen source; Portable oxygen cylinder; Nebulizer; Treatment trolley; 4 decontamination buckets; colour coded Bins; Storage cabinets, Hand washing point	Solusets Infusion giving set; Giving set, with burette, 100-150mL; Glucometer strips; Medical gloves; Disposable 3 ply Surgical face masks; IV cannulas(26G, 24G 22G,20G,18G,16G); Syringes (2ml,5ml,10ml,20ml), Hypodermic disposable needle (21G, 23G); Cotton Gauze plain; Adhesive tapes (surgical, porous, 2.5cm x 5m transparent); Crepe bandages (elastic) Disposable aprons; Colour coded Bin liners; Alcohol swabs; IV fluids (Normal saline 0.9%, Ringers Lactate, Dextrose 10% 500ml, Dextrose 50%); Cotton wool; sharps containers Emergency drugs: As per the Kenya Essential Medicines List Essential medicines: As per the Kenya Essential Medicines List
<b>Consultation Room</b>	Clinician's desk and chair; Patient/caregiver seat; Cabinets; Paediatric stethoscopes; Otoscope; Ophthalmoscope; Stadiometer; Weighing scales (infant and older children); Tape measures (MUAC tapes, Breslow tapes); Computer; Examination couch and step; Examination lamp; Examination set; Bins; Storage cabinets, Hand washing point	Medical Stationery, Disposable 3 ply surgical Face masks; Alcohol-based hand rub (sopropyl alcohol 75%-500ml) Clean Gloves (small, medium, large), Sterile Gloves (Size6, 6.5, 7, 7.5, 8)
<b>ORT Corner (Room)</b>	Water dispenser; Measuring cups/jugs; Comfortable chairs/tables; Storage cabinets; Wall clock, Hand washing station, waste bins Safe drinking water	Disposable cups and spoons; ORS sachets; Hand washing soaps; Disposable paper towels; Co-pack (Zinc sulphate 20mg dispersible tablets + ORS, 5-bucket decontamination system, Colour coded bin liners.

Service Area	Equipment	Consumables
<b>Nutrition Room</b>	Furniture (table, chair, stools); Digital weighing scales (infant and older children and Adolescents); Stadiometer; MUAC tapes; Tape measures; Paediatric growth charts; Baby manikins and breast models, anthropometric height and length board, room heaters and warmers.	Assorted nutrition supplements Patient files, Mother child hand book (MOH 216)
<b>Immunization Room</b>	Furniture (table, chair, stools); Digital thermometer; dedicated fridge, freezer, cold box and fridge tag thermometer; Storage cabinets; Baby cots, vaccine carrier, Handwashing station, waste bins	Vaccines as per NVIP schedule; Clean Gloves (small, medium, large); Immunization Syringes (0.05ml, 0.5ml, 2ml, 5ml) Needle, Hypodermic, disposable (21G, 23G) waste bin liners Waste bin liners Cotton wool Patient files, Mother child hand book (MOH 216)
<b>Laboratory</b>	Furniture (table, chair, stools); refrigerator; Microscope; Glucometer  Refer to Kenya Essential diagnostic list	RDT kits; Urinalysis strips; Clean Gloves (small, medium, large); Syringes and Needles (2ml, 5ml, 10ml, 20ml); Needle, Hypodermic, disposable (21G, 23G); Tourniquet; Cotton wool; Spirit swabs; Specimen bottles. Refer to Kenya Essential diagnostic list
<b>Pharmacy</b>	Furniture (table, chair, stools); Fridge; Storage cabinets. Shelves, pallets, disposable cups, Water dispenser, fridge thermometer, pill crusher, measuring cups; pill counter tray/machine	Essential medicines as per KEML; Disposable cups; Clean Gloves (small, medium, large) <b>See annex ..... – on emergency drug list for level 2&amp;3</b>
<b>Physiotherapy Room</b>	Examination couch; Age appropriate play materials	Massage; Clean Gloves (small, medium, large) oil; Hand sanitizer; Disposable paper towels; Alcohol-based hand rub (sopropyl alcohol 75%-500ml)
<b>EHR and Data Management Systems</b>	EHR terminals (installed at registration, nursing stations, and consultation rooms); Secure access systems; Centralized data system	N/A

### 3.5 Standards for Human Resource for Health in a Paediatric Outpatient Department in Level 2 and 3 Health Facilities

Table 5 and 6 outlines the minimum human resource requirements for Paediatric Outpatient Departments at Level 2 and Level 3 health facilities. These standards define the essential staffing categories needed to deliver safe, efficient, and child-centered outpatient care.

Table 5: Minimum Staffing Standards for Paediatric Outpatient Department in a Level 2 and 3 Health Facility

Service Delivery Staff	(Minimum Number per shift)	Remarks
<b>Clinical Officers</b>	1	Shared resource
<b>Kenya Registered Community Health Nurses (RN)</b>	1:30	Shared resource
<b>Laboratory Technician</b>	1	Shared resource
<b>Pharmaceutical Technologist</b>	2	Shared resource
<b>Community Oral Health Officer</b>	1	Shared resource
<b>Nutritionist</b>	1	Shared resource
<b>Physiotherapist</b>	1	Shared resource
<b>Orthopedic Technologist</b>	1	Shared resource
<b>Occupational therapist</b>	1	Shared resource
<b>Health records officer</b>	1	Shared resource
<b>Social worker</b>	1	Shared resource

Service Delivery Staff	(Minimum Number per shift)	Remarks
<b>ICT officers</b>	1	Shared resource
<b>Public Health Officers</b>	1	Shared resource
<b>Community Health Assistant (CHA)</b>	1	Shared resource
<b>Support Staff</b>		
Clerks/Cashier	1	Shared resource
Statistical Clerks	1	Shared resource
Housekeeping	1	Shared resource
Cook	1	Shared resource
Security officer	1	Shared resource

Table 6: Standards for Human resource for health in a Paediatric Outpatient Department in Level 3 Health Facilities

Service Delivery Staff	(Minimum Number per shift)	Remarks
<b>Clinical Officers paediatrics</b>	1	
<b>Paediatrician</b>	1	Outreach/inreach basis
<b>Clinical officer</b>	1	Shared resource
<b>Kenya Registered Community Health Nurse (RN)</b>	1:20	Shared resource
<b>Paediatric Nurse</b>	1	
<b>Laboratory Technician</b>	1	
<b>Pharmaceutical Technologist</b>	2	Shared resource
<b>Pharmacist</b>	1	Shared resource
<b>Community Oral Health Officer</b>	1	Shared resource
<b>Nutritionist</b>	1	Shared resource
<b>Counsellor</b>	1	Shared resource
<b>Physiotherapist</b>	1	Shared resource
<b>Medical officers</b>	1	Shared resource
<b>Orthopedic technologist</b>	1	Shared resource
<b>Occupational therapists</b>	1	Shared resource
<b>Medical engineering technician</b>	1	Shared resource
<b>Health records officers</b>	1	Shared resource
<b>Public Health officer</b>	1	Shared resource
<b>Community Health Assistant (CHA)</b>	1	Shared resource
<b>Social worker</b>	1	Shared resource
<b>Support Staff</b>		
Clerks/Cashier	1	Shared resource
Statistical Clerks	1	Shared resource
Housekeeping	1	Shared resource
Cook	1	Shared resource
Security officer	1	Shared resource

### 3.3 Standards for Paediatric Inpatient Department in a Level 3 Health Facility

The Paediatric In-patient Department (PIPD) at a Level 3 facility provides care for uncomplicated illnesses. This department should have a minimum of 4 inpatient beds.

#### 3.3.1 Standards for Paediatric Inpatient Department Services at Level 3 Health Facilities

Table 7 outlines the minimum service standards for Paediatric Inpatient Departments at Level 3 health facilities, detailing the essential requirements for safe and effective care of children with uncomplicated illnesses.

Table 7: Services offered in a Paediatric Inpatient Department at a Level 3 Health Facility

Service Category	Services Offered
<b>Clinical Care</b>	• Integrated Management of Newborn and Childhood Illnesses
	• Oxygen administration
	• Point of care testing
	• Pain Management
	• Essential Newborn Care
<b>Emergency care</b>	• Stabilization and Monitoring before referral
<b>Nutritional Services</b>	• Nutritional assessment
	• Breastfeeding and lactation support
	• Therapeutic feeding
	• Micronutrients supplementation
<b>Reproductive Health</b>	• Caregiver nutritional planning
	• Appropriate for age
<b>Psychosocial Services</b>	• Counselling and psychosocial support
	• GBV support
	• Mental health support
<b>Nurturing care</b>	• Family-centred care
	• Safety and security
	• Opportunities for early learning
<b>Health Education</b>	• Responsive care giving
<b>Infection Control</b>	• Health education for parents and patients
<b>Diagnostic Services</b>	• Infection prevention and control
	• Extensive laboratory services, Class C as per the Kenya Medical Laboratory Technicians and Technologists Board (KMLTTB) medical laboratory classification schedule.
<b>Referral</b>	• Appropriate Referral and followup
	• Community facility linkages

#### 3.3.2. Standards for Design and Layout of a Paediatric Inpatient Department in a Level 3 Health Facilities

The design and layout for a level 3 inpatient department in Kenya is structured to provide high quality care for uncomplicated paediatric cases ensuring accessibility and efficiency as described in Table 8. Facilities shall ensure linkages with referral systems for cases requiring higher levels of care.

Table 8: Standards for Design and Layout for a Level 3 Inpatient Health Facility

Section	Description	Size square feet
<b>Paediatric Inpatient bed area</b>	Area inside the paediatric inpatient ward that can accommodate atleast 4 beds	100-150
<b>Nursing station</b>	An area inside the inpatient ward where the nurse has visibility of all the beds	100-150
<b>Procedure room</b>	An area for carrying out Paediatrics procedures	120-150
<b>Sluice room</b>	A closed room for cleaning and disinfecting medical items	150-200
<b>Ablution/washroom</b>	Area to wash with toilets that are friendly to the caregivers and children	150-300

### 3.3.3 Standards for Health Products and Technologies in Paediatric Inpatient Departments at Level 3 Health Facilities

Table 9 presents the essential health products and technologies (HPTs) required for Paediatric Inpatient Departments at Level 3 health facilities, organized according to key design and layout areas. These standards ensure that each functional space is adequately equipped to deliver safe, effective, and child-centered inpatient care.

Table 9: Standards for Health Products and Technologies in Paediatric Inpatient Departments at Level 3 Health Facilities

Design/Layout Area	Essential Health Products and Technologies (HPTs)
<b>Admission and Triage Area</b>	<ul style="list-style-type: none"> <li>Thermometer (digital/infrared)</li> <li>Weighing scales (infant and child)</li> <li>Length/height board, MUAC tapes</li> <li>Pulse oximeter with paediatric probes</li> <li>Blood pressure machine with paediatric cuffs</li> </ul>
<b>Inpatient Wards (Minimum 4 Beds)</b>	<ul style="list-style-type: none"> <li>Paediatric beds with side rails</li> <li>Bedside lockers and IV stands</li> <li>Oxygen concentrator or oxygen cylinders with flow meters</li> <li>Suction machine (manual or electric)</li> <li>Nebulizer with paediatric masks</li> <li>Intravenous cannulas, syringes, infusion pumps</li> <li>Feeding cups, nasogastric tubes</li> <li>Resuscitation trolley with bag-valve-mask devices</li> <li>Bedpans, urinals, and child-friendly commodes</li> </ul>
<b>Treatment/Procedure Room</b>	<ul style="list-style-type: none"> <li>Sterile dressing packs and wound care supplies</li> <li>Minor procedure set (for suturing, catheterization, etc.)</li> <li>Suction apparatus</li> <li>Hand hygiene station (with consumables)</li> <li>Autoclave or sterilizer (if procedures are done here)</li> </ul>
<b>Isolation Room</b>	<ul style="list-style-type: none"> <li>Dedicated bed with monitoring equipment</li> <li>Oxygen supply (cylinder or concentrator)</li> <li>Suction machine</li> <li>PPE supplies (gowns, gloves, masks)</li> <li>Waste segregation bins (infectious, sharps, general)</li> </ul>
<b>Nursing Station</b>	<ul style="list-style-type: none"> <li>Patient monitoring charts and registers</li> <li>Glucometer with test strips</li> <li>Communication tools (nurse call system, phone/intercom)</li> <li>Medicine trolley</li> <li>Stock control cards and drug register</li> </ul>
<b>Pharmacy/Drug Storage</b>	<ul style="list-style-type: none"> <li>Essential medicines (paediatric formulations per KEML)</li> <li>Secure lockable cabinets for medicines</li> <li>Cold chain (refrigerator for vaccines/medicines if applicable)</li> <li>ORS, zinc, and Ready-to-Use Therapeutic Food (RUTF)</li> </ul>
<b>Laboratory/Diagnostics Corner</b>	<ul style="list-style-type: none"> <li>Microscope</li> <li>Haemoglobin meter</li> <li>Rapid diagnostic tests (malaria, HIV, syphilis, etc.)</li> <li>Sample collection supplies (tubes, lancets, swabs)</li> </ul>
<b>Nutrition/Baby-Friendly Area</b>	<ul style="list-style-type: none"> <li>Breastfeeding/expressing kits and storage facilities</li> <li>Infant feeding equipment (cups, spoons, bottles if indicated)</li> <li>Growth monitoring charts</li> </ul>
<b>Sanitation/Washroom Blocks</b>	<ul style="list-style-type: none"> <li>Child-friendly toilets and bathing facilities</li> <li>Handwashing stations within 5m of toilets</li> <li>Non-slip flooring and proper lighting</li> </ul>

### 3.3.4 Standards for Human Resources for Health in Paediatric Inpatient Departments at Level 3 Health Facilities

Table 10 outlines the minimum staffing standards for the Paediatric Inpatient Department in a Level 3 Healthcare Facility. The staffing requirements highlight the essential cadres, the minimum number of personnel required per shift, and their respective roles in patient care delivery.

Table 10: Minimum Staffing Standards for Paediatric Inpatient Department in a Level 2 and 3 Health Facility

Service Delivery Staff	Number per shift	Remarks
<b>Clinical Officers</b>	1	Shared resource
<b>Nurse</b>	1:6	
<b>Paediatric Nurses</b>	1:8	
<b>Laboratory Technician</b>	1	Shared resource
<b>Pharmaceutical Technologist</b>	1	Shared resource
<b>Community Oral Health Officer</b>	1	Shared resource
<b>Paediatrician</b>	Consulting	
<b>Nutritionist</b>	1	Shared resource
<b>Counsellor</b>	Consulting	Shared resource
<b>Physiotherapist</b>	1	Shared resource
<b>Medical officers</b>	1	Shared resource
<b>Orthopedic technologist</b>	1	Shared resource
<b>Occupational therapists</b>	1	Shared resource
<b>Medical engineering technician</b>	1	Shared resource
<b>Health records officers</b>	1	Shared resource
Community Health Assistant	1	Shared resource
<b>ICT</b>	1	Shared resource
Clerks/Cashier	1	Shared resource
Statistical Clerks	1	Shared resource
<b>Support Staff</b>		
Housekeeping	1	
Security officer	1	Shared resource
Cook	1	Shared resource
Social worker	1	Shared resource
Auxillary Staff	1	Shared resource
Porter	1	Shared resource

Chapter 4:

# **Standards for Level 4 Health Facilities**

## Standards for Level 4 Health Facilities

### 4.1. Introduction

Level 4 health facilities provide advanced medical services beyond those available at Levels 2 and 3. These facilities, often functioning as sub-county hospitals which are the hubs for the primary care networks. They offer specialized outpatient and inpatient services, including emergency care, surgical procedures and advanced diagnostics.

This chapter outlines the essential infrastructure, staffing, equipment, and service delivery norms and standards necessary for Level 4 facilities to manage more complex health conditions and provide equitable outpatient and inpatient services.

### 4.2. Standards for Paediatric Outpatient Department Services at Level 4 Health Facilities

Table 11 outlines the range of services provided at the Paediatric Outpatient Department in Level 4 Health Facilities. These services are structured to ensure comprehensive, child-centered care, addressing preventive, promotive, curative, emergency, nutritional, psychosocial, and referral needs for paediatric patients.

Table 11: Service offered at Paediatric Outpatient Department in a Level 4 Health Facility

Service Category	Services Offered
<b>Promotive and Preventive Services</b>	• Comprehensive screening and preventive care.
	• Immunization programs.
	• Well-baby clinics.
	• Health education on child health, hygiene, nutrition, breastfeeding & lactation, and disease prevention.
<b>Curative Care</b>	• Triage, consultation, diagnosis, treatment, and management of complex medical conditions.
<b>Emergency/Acute Care</b>	• Emergency care with triage and stabilization.
	• Trauma care for simple injuries.
	• Resuscitation services for life-threatening conditions.
	• Poisoning management with decontamination and treatment.
	• Respiratory support, including non-invasive ventilation.
	• Continuous monitoring and observation of high-risk patients.
	• Point of Care Ultrasound (POCUS)
• Point of Care Laboratory services (HB, RBS)	
<b>Nutritional services</b>	• Nutritional assessment • Growth monitoring and promotion • Nutritional counselling and therapy
<b>Psychosocial Support</b>	• Counselling for children and families with chronic illnesses, disabilities, trauma, and mental health issues.
<b>Diagnostic Services</b>	• Extensive laboratory services, Class D as per the Kenya Medical Laboratory Technicians and Technologists Board (KMLTTB) medical laboratory classification schedule.
	• Advanced imaging services (X-rays, CT scans, Ultrasound)
<b>Referral and followup services</b>	• Referrals to specialized services or inpatient care for complex cases • Specialized clinics • Community facility linkages

### 4.3. Standards for Design and Layout of a Paediatric Outpatient Department in a Level 4 Health Facilities

The design and layout of the Paediatric Outpatient Department in a Level 4 facility must support an efficient, safe, and child-friendly environment, aligning with specialised paediatric care.

Refer to the annexed architectural guidelines (Appendix 4) for detailed architectural design and layout, including room dimensions and zoning. Table 12 summarises the outpatient and emergency departments' key components and layout considerations.

Table 12: Design and Layout for Paediatric Outpatient Department in a Level 4 Health Facility

Section	Description	Size (Sq. Ft.)
Entrance and Reception	<ul style="list-style-type: none"> <li>Main entrance with child-friendly signage and waiting area; separate entrances for patients and staff.</li> </ul>	<ul style="list-style-type: none"> <li>N/A</li> </ul>
Waiting Area	<ul style="list-style-type: none"> <li>Spacious area with child-friendly sitting well ventilated, designated play area</li> </ul>	<ul style="list-style-type: none"> <li>250-300</li> </ul>
Registration and Billing	<ul style="list-style-type: none"> <li>Reception desk with EHR systems and queue management system.</li> </ul>	<ul style="list-style-type: none"> <li>150-200</li> </ul>
Triage Area	<ul style="list-style-type: none"> <li>Located near waiting area for quick assessments; equipped with basic diagnostic tools .</li> </ul>	<ul style="list-style-type: none"> <li>100-130</li> </ul>
Consultation Rooms (4-6)	<ul style="list-style-type: none"> <li>Child-friendly rooms with examination tables, paediatric scales, and seating for caregivers; quiet and private environment for assessments.</li> </ul>	<ul style="list-style-type: none"> <li>130-160 each</li> </ul>
Emergency Room	<ul style="list-style-type: none"> <li>Near triage area for stabilization of critically ill children; equipped with resuscitation equipment and easily accessible emergency drugs.</li> </ul>	<ul style="list-style-type: none"> <li>150-180</li> </ul>
ORT Corner (Room)	<ul style="list-style-type: none"> <li>Dedicated area for oral rehydration therapy; with seats, equipments and supplies, handwashing facilities, accessible from consultation and triage areas.</li> </ul>	<ul style="list-style-type: none"> <li>100-200</li> </ul>
Immunization Room	<ul style="list-style-type: none"> <li>Space for administering vaccines with proper cold storage and waiting area for post-vaccine observation; child-friendly design.</li> </ul>	<ul style="list-style-type: none"> <li>120-150</li> </ul>
Procedure Room	<ul style="list-style-type: none"> <li>Room for minor surgical/medical procedures with examination bed, sink, and hygiene stations.</li> </ul>	<ul style="list-style-type: none"> <li>100-130</li> </ul>
Nutrition/Counselling Room	<ul style="list-style-type: none"> <li>Private space for nutrition counselling and breastfeeding support; equipped with educational materials.</li> </ul>	<ul style="list-style-type: none"> <li>100-130</li> </ul>
Isolation Room	<ul style="list-style-type: none"> <li>For children with contagious diseases, equipped with negative pressure ventilation; located away from general waiting area.</li> </ul>	<ul style="list-style-type: none"> <li>130-160</li> </ul>
Laboratory	<ul style="list-style-type: none"> <li>Near consultation rooms for easy access.</li> </ul>	<ul style="list-style-type: none"> <li>120-150</li> </ul>
Pharmacy (Dedicated for paediatrics)	<ul style="list-style-type: none"> <li>Positioned near exit for easy access to medications; stocked with paediatric medications and supplies; includes awaiting area for caregivers.</li> </ul>	<ul style="list-style-type: none"> <li>150-200</li> </ul>
Nursing Station	<ul style="list-style-type: none"> <li>Centrally located near consultation rooms; equipped with EHR terminals and supplies.</li> </ul>	<ul style="list-style-type: none"> <li>100-130</li> </ul>
Nurse In-Charge Office	<ul style="list-style-type: none"> <li>Office for the senior nurse, located near the nursing station; equipped with administrative tools.</li> </ul>	<ul style="list-style-type: none"> <li>80-100</li> </ul>
Doctor's Office	<ul style="list-style-type: none"> <li>Office for the doctor in charge of Paediatric Outpatient Department, equipped with administrative tools.</li> </ul>	<ul style="list-style-type: none"> <li>80-100</li> </ul>
Records Office	<ul style="list-style-type: none"> <li>Office for organization and storage of patients health records</li> </ul>	<ul style="list-style-type: none"> <li>150-200</li> </ul>

Section	Description	Size (Sq. Ft.)
Play Area	<ul style="list-style-type: none"> <li>Child-friendly area within the waiting room with safe age appropriate and easy to clean play materials</li> </ul>	<ul style="list-style-type: none"> <li>100-130</li> </ul>
Staff Lounge	<ul style="list-style-type: none"> <li>Comfortable break room for healthcare providers, furnished with seats, refrigerator, and storage</li> <li>Baby Friendly Hospital Initiative</li> </ul>	<ul style="list-style-type: none"> <li>120-150</li> </ul>
Patient Washrooms	<ul style="list-style-type: none"> <li>Separate, child-friendly washrooms; includes lockers and handwashing stations; child-sized toilets and sinks for patients.</li> </ul>	
Staff Washrooms	<ul style="list-style-type: none"> <li>Staff sanitation station</li> </ul>	<ul style="list-style-type: none"> <li>50-70 each</li> </ul>
Baby Changing Area	<ul style="list-style-type: none"> <li>Near washrooms, equipped with changing tables and disposal bins.</li> </ul>	<ul style="list-style-type: none"> <li>50-70</li> </ul>
Sluice Room	<ul style="list-style-type: none"> <li>For cleaning and disinfecting medical equipment, equipped with sinks and storage for cleaning supplies.</li> </ul>	<ul style="list-style-type: none"> <li>60-80</li> </ul>
Storeroom	<ul style="list-style-type: none"> <li>Storage for medical supplies, vaccines, and equipment; located near treatment rooms for easy access.</li> </ul>	<ul style="list-style-type: none"> <li>100-130</li> </ul>

#### 4.4 Standards for Paediatric Health Products and Technologies in Outpatient Departments at Level 4 Health Facilities

The Paediatric Outpatient Department at a Level 4 facility shall be equipped with specialized instruments and devices to support the comprehensive range of services offered. This section sets forth the standards for essential equipment, as detailed in Table 13.

Table 13: Standards for Paediatric Health Products and Technologies in Outpatient Departments at Level 4 Health Facilities

Service Area	Equipment	Consumables
<b>Entrance Area</b>	CCTV; Wall clock; Wheelchair; Stretcher; Hand washing point/sanitizer dispenser	Clean Gloves (small, medium, large), Sterile Gloves (Size6, 6.5, 7, 7.5, 8), Alcohol-based hand rub (sopropyl alcohol 75%-500ml)
<b>Reception/ Registration</b>	Tables; Waiting benches; Computer; Television; Disposal bins; Water dispenser; Hand washing point/ sanitiser; Storage cabinets	Files; medical stationery; Disposable 3 ply surgical Face masks; Alcohol-based hand rub (sopropyl alcohol 75%-500ml)
<b>Play Area</b>	Assortment of age appropriate child friendly, easy to clean appropriate play materials; Storage cabinets; Education material; child friendly Furniture (table and chairs)	Craft supplies (Colouring pens and pencils); Drawing books, Play materials; cleaning whipes
<b>Triage Area</b>	Table; Chairs; Paediatric stethoscopes; Vital signs monitor; Digital thermometer; Handheld pulse oximeter with infant and paediatrics probes; BP machines with a range of cuff sizes (infants, older children and Adolescents); Weighing scales (infant and older children and Adolescents); Stadiometer; Tape measures (MUAC tapes, Breslow tapes); Examination couch; Heating source; Computer; Storage cabinets	Alcohol-based hand rub (sopropyl alcohol 75%-500ml) Disposable hand paper towels

<b>Treatment room</b>	<p>Examination couch; Examination lamp; Radiant warmer/room heater; Resuscitation trolley with emergency drugs; Drip stand ;Syringe/ infusion pumps; Paediatric stethoscopes; Vital signs monitoring equipment with paediatric accessories</p> <p>Pen torch; Otoscope; Automated external defibrillator; Suction machine; Glucometer; Oxygen source; Portable oxygen cylinder; Nebulizer; Treatment trolley; 4 decontamination buckets; colour coded Bins; Storage cabinets</p>	<p>Appropriate Drugs as per the disease burden guided by the KEML See annex</p> <p>Infusion giving set ; Giving set with burette 100-150mL, Blood giving set with burette 100-150mL ; Glucometer strips; Medical gloves; Disposable 3 ply Surgical face masks;</p> <p>IV cannulas(26G, 24G 22G,20G,18G,16G); Syringes and Needles (2ml,5ml,10ml,20ml); Needle, Hypodermic, disposable (21G, 23G); Cotton Gauze plain; Adhesive tapes ( surgical, porous, 2.5cm x 5cm transparent; Crepe bandages elastic); Disposable aprons; Colour coded Bin liners; Alcohol swabs; IV fluids (Normal saline 0.9%, Ringers Lactate, Dextrose 10% 500ml, Dextrose 50%); Cotton wool; sharps containers</p> <p>Emergency drugs see annex</p>
<b>Consultation Room</b>	<p>Clinician's desk and chair; Patient/caregiver seat; Cabinets; Paediatric stethoscopes; Otoscope; Ophthalmoscope; Stadiometer; Weighing scales (infant and older children and Adolescents); Tape measures (MUAC tapes, Breslow tapes); Computer; Examination couch and step; Examination lamp; Examination set; Bins; Storage cabinets</p>	<p>Medical Stationery, Disposable 3 ply surgical Face masks; Alcohol-based hand rub (sopropyl alcohol 75%-500ml) Clean Gloves (small, medium, large), Sterile Gloves (Size6, 6.5, 7, 7.5, 8),</p>
<b>ORT Corner (Room)</b>	<p>Water dispenser; Measuring cups/jugs; Comfortable chairs/tables; Storage cabinets; Wall clock, Hand washing station, waste bins Safe drinking water</p>	<p>Disposable cups and spoons; ORS sachets; Hand washing soaps; Disposable paper towels; Co-pack (Zinc sulphate 20mg dispersible tablets + ORS, 5-bucket decontamination system, Colour coded bin liners.</p>
<b>Nutrition Room</b>	<p>Furniture (table, chair, stools); Digital weighing scales(infant and older children and Adolescents); Stadiometer; MUAC tapes; Tape measures; Paediatric growth charts; Baby manikins and breast models, anthropometric height and length board, room heaters and warmers.</p>	<p>Assorted nutrition supplements</p>
<b>Isolation Room</b>	<p>Cardiac monitors; Nebulizer ; Portable suction machine; Airway adjuncts (NPA/LMA), Hand washing station</p>	<p>IV fluids (Normal saline 0.9%, Ringers Lactate, Dextrose 10% 500ml, Dextrose 50%); Disposable gowns Liquid hand soap; Disposable 3 ply surgical Face masks; Alcohol-based hand rub (sopropyl alcohol 75%-500ml) Clean Gloves (small, medium, large), Sterile Gloves (Size6, 6.5, 7, 7.5, 8),</p>
<b>Holding Room</b>	<p>Air filters; Running water for hand hygiene; Soap dispenser</p>	<p>Disposable gloves; Paper towels</p>
<b>Storage Area</b>	<p>Cabinets for medication; Shelving units for linen; Areas for bulk medical supply</p>	<p>Labels for medication storage; Plastic bins for organization; Clean storage bags</p>
<b>Procedure Room</b>	<p>Examination bed; Surgical instruments; Autoclave: waste bins :</p>	<p>Sterile drapes; Disposable 3 ply surgical Face masks; Sterile Gloves (Size6, 6.5, 7, 7.5, 8), waste bin liners; sharp containers.</p>
<b>Clean Utility Room</b>	<p>Sinks for washing hands; Shelving for clean supplies, Storage for bulk Bin Liners, Cleaning buckets, Mops</p>	<p>Liquid soap; Cleaning agents, Bulk storage of toiletries</p>

<b>Dirty Utility Room</b>	Bins for biohazard waste; Sinks for disposal of contaminated materials	Disinfectants [Sodium Hypochlorite 4-6% chlorine, Enzymatic Detergent, Chlorhexidine Solution for dilution 5% (as gluconate/digluconate), Glutaraldehyde 2% Solution] Brushes, cleaning cloths and mops
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### 4.5 Standards for Human Resources for Health in Paediatric Outpatient Departments at Level 4 Health Facilities

Adequate staffing is a critical requirement for the delivery of safe, efficient, and high-quality paediatric care in Level 4 health facilities. To maintain comprehensive service delivery, each facility shall ensure that the Paediatric Outpatient Department is staffed in accordance with established norms. The minimum staffing requirements are outlined in Table 14.

Table 14: Minimum Staffing Standards for Paediatric Outpatient Department in a Level 4 Health Facility

Department/Service	Role	Staffing Requirement
Emergency Room	Doctors & Clinical Staff	
	Paediatrician	On call (consulting) Should have training in emergency paediatric care (ETAT+ and PALS/EPALS) with regular recertification as per standards
	Medical Officer	1 per shift Should have training in emergency paediatric care (ETAT+ and PALS/EPALS) with regular recertification as per standards
	Clinical Officer Paediatrics	1 per shift Should have training in emergency paediatric care (ETAT+ and PALS/EPALS) with regular recertification as per standards
	Nurses	
	Nurse incharge	Should be a paediatric nurse with a degree or equivalent
	Paediatric Nurse	2 per shift Should have training in emergency paediatric care (ETAT+ and PALS/EPALS) with regular recertification as per standards
	Paediatric Critical Care Nurse	1 per shift Should have training in emergency paediatric care (ETAT+ and PALS/EPALS) with regular recertification as per standards
	General Nurse	1 per shift Should have training in emergency paediatric care (ETAT+ and PALS/EPALS) with regular recertification as per standards
General Outpatient	Doctors & Clinical Staff	
	Medical Officers	2 per shift
	Clinical Officer Paediatricians	2 per shift
	Paediatrician	1 per shift
	Nurses	1:50
	Paediatric Nurses	1:50
	Nutritionist	2 per shift
Allied Health professionals		
	Laboratory Technician	1 (Shared resource)
	Clinical Pharmacist	1 (Shared resource)
	Pharmacist	1 (Shared resource)
	Pharmaceutical Technologist	1 (Shared resource)
	Community Oral Health Officer	1 (Shared resource)
	Dentist	1 (Shared resource)

Department/Service	Role	Staffing Requirement
	Physiotherapist	1 (Shared resource)
	Occupational Therapist	1 (Shared resource)
	Speech & Language Therapist	1 (Shared resource)
	Orthopedic Technologist	1 (Shared resource)
	Medical Engineering Technologist	1 (Shared resource)
	Health Records Information Officer	1 (Shared resource)
	Adolescent Specialist	1 (Shared resource)
	Counselor	1 (shared resource)
Community Services	Community Health Assistant/ Officer	1:10 CHPs
Specialist Clinics	Paediatrician (POPC and NOPC)	1 per shift
	All Paediatric Subspecialists (Endocrinology, Neurology, etc.)	Consulting
Support Staff	Clerks/Cashier	1 (Shared resource)
	Housekeeping	2 (Shared resource)
	Security Officer	1 (Shared resource)
	Sign Language Expert	1 (Shared resource)
	Porter	2 (Shared resource)
	Spiritual Leader	1 (Shared resource)
	Social Worker	1 (Shared resource)

#### 4.6 Standards for Paediatric inpatient Department at Level 4 Health Facility

The provision of paediatric inpatient services at Level 4 health facilities shall adhere to defined standards of care to ensure safety, quality, and continuity of treatment. These standards establish the minimum requirements for infrastructure, equipment, staffing, and clinical practices necessary to deliver comprehensive and effective paediatric inpatient care.

##### 4.6.1. Paediatric Inpatient Department Services offered at Level 4 Health Facility

The list of inpatient services provided by level 4 health facility is shown in Table 15.

Table 15: Services offered in a Paediatric Inpatient Department at a Level 4 Health Facility

Service Category	Services Offered
<b>General Paediatric consultation</b>	<ul style="list-style-type: none"> <li>Specialist in-patient reviews and treatment of children admitted with medical conditions</li> <li>Pain management</li> <li>Administration of blood products</li> <li>Renal support</li> <li>Intravenous therapy</li> </ul>
<b>Respiratory support</b>	<ul style="list-style-type: none"> <li>Oxygen therapy including non invasive ventilation options</li> </ul>
<b>Nutritional Services</b>	<ul style="list-style-type: none"> <li>Nutritional assessment</li> <li>Breastfeeding and lactation support</li> <li>Therapeutic feeding</li> <li>Micronutrients supplementation</li> <li>Caregiver nutritional planning</li> </ul>
<b>Psychosocial Services</b>	<ul style="list-style-type: none"> <li>Counselling and psychosocial support</li> <li>family centered care</li> <li>Mental Health support</li> <li>GBV and recovery support</li> </ul>

Service Category	Services Offered
<b>Nurturing care</b>	<ul style="list-style-type: none"> <li>• Safety and security</li> <li>• Opportunities for early learning</li> <li>• Responsive care giving</li> </ul>
<b>Rehabilitation Services</b>	Physical and occupational therapy for children recovering from illness, injury, or surgery
<b>Health Education and Monitoring</b>	Ongoing health education and support for caregivers and families on various health topics Monitoring and observation
<b>Infection, Prevention and Control</b>	Implementation of infection control protocols; Access to antimicrobial stewardship programs and isolation rooms.
<b>Blood and Blood Transfusion Services</b>	Blood transfusion services for conditions such as severe anaemia or sickle cell crises
<b>Palliative care</b>	Supportive care for children with life limiting or terminal conditions.

#### 4.6.2. Standards for Design and Layout of a Paediatric Inpatient Department in a Level 4 Health Facility

The design and layout of the Paediatric Inpatient Department should prioritize effective patient care by creating distinct areas for various patient needs. Key features include:

- Designated ward: Separate cubicles for infants, under 5, older children and Adolescents.
- Isolation Rooms: Specifically for patients with infectious diseases.
- Acute Rooms: For critically ill patients requiring close monitoring. *Please refer to paediatric Critical care Section\**
- Family-Friendly Spaces: Areas designed for caregivers, fostering a supportive environment.

#### Key Design Considerations:

- Easy monitoring of patients and efficient staff movement.
- Accessibility to medical equipment.
- Adequate ventilation, lighting, and sanitation to maintain infection control standards.

For more detailed architectural design guidelines, refer to Annex 3 Table 16 summarises the key components of an inpatient paediatric unit in a Level 4 Healthcare Facility.

Table 16: Design and Layout for Paediatric Inpatient Department in a Level 4 Health Facility

Section	Details	Size (Sq. Ft.)
<b>Reception Area</b>	Check-in desks, waiting area with comfortable sitting and entertainment options, information desk.	300-400
<b>Waiting Area</b>	Comfortable chairs, engaging play area, natural light from windows.	600-800
<b>Paediatric Wards</b>	6-10 cubicles, equipped with beds and child appropriate furnishings.	1,500-2,000 total
<b>Isolation Room</b>	Negative pressure environment with direct access to a private bathroom.	150-200
<b>Acute room</b>	Dedicated room for the treatment and management of seriously ill children. <i>Please refer to paediatric Critical care Section*</i>	1,200 (for 6 beds)
<b>Treatment Room</b>	Designed for minor procedures, equipped with necessary paediatric- sized medical tools.	150-200
<b>Paediatric Resuscitation Room</b>	Equipped for emergency interventions specific to paediatric patients.	200-300

<b>ORT room</b>	Dedicated area for Oral Rehydration Therapy education and administration.	100-150
<b>Nutrition/Counselling Room</b>	Private space for dietary consultations, with comfortable seating for parents and caregivers.	150-200
<b>Utility Rooms</b>	Clean utility room for sterile supplies and handwashing; dirty utility room for waste disposal.	100-150
<b>Nurse Station</b>	Centralized area for nursing staff to monitor patient flow and documentation.	150-200
<b>Staff Lounge</b>	Comfortable break area for healthcare staff.	150-200
<b>Family Support Area</b>	Comfortable family rooms with access to refreshments, and space for support services like social workers.	200-300

**4.6.3. Standards for Paediatric Health Products and Technologies in Inpatient Departments at Level 4 facility**

The Paediatric inpatient Department must be equipped with specialized medical equipment and consumables to ensure high quality care for Paediatric patients. Key equipment and consumables include:

Table 17: Minimum Standards for Essential Paediatric Inpatient Supplies in a Level 4 Health Facility

Category	Equipment
<b>Emergency Equipment</b>	<p><b>Airway:</b></p> <ul style="list-style-type: none"> <li>• Oropharyngeal airway</li> <li>• Nasopharyngeal airway</li> <li>• Suction devices</li> <li>• Suction catheters of different sizes</li> </ul> <p><b>Breathing:</b></p> <ul style="list-style-type: none"> <li>• Ambu bag 500mls</li> <li>• Masks for BVM</li> <li>• Nasal prongs</li> <li>• Nasal catheter</li> <li>• Pulse oximeter with paediatric probe</li> <li>• Oxygen splitters</li> <li>• Oxygen sources</li> <li>• Oxygen accessories</li> <li>• CPAP machine</li> <li>• Nebulizer kit</li> <li>• Spacers</li> </ul> <p><b>Circulation:</b></p> <ul style="list-style-type: none"> <li>• Blood pressure machines with paediatric cuffs</li> <li>• IV cannulas: gauges 24,22, 20, 18, 16</li> <li>• Infusion sets-paediatric burettes, infusion/syring pump, blood giving set with its burette</li> <li>• Cardiac monitors</li> <li>• Paediatric vacutainers</li> <li>• Intraosseous needles</li> </ul> <p><b>Disability:</b></p> <ul style="list-style-type: none"> <li>• Glucometer with strips</li> <li>• Pen torch</li> <li>• Nasogastric tubes of different sizes</li> </ul>

Category	Equipment
<b>Diagnostic and Therapeutic Tools</b>	<ul style="list-style-type: none"> <li>• Age appropriate Medicines as per the KEML</li> <li>• Laboratory diagnostic, commodities as per KEMSL</li> <li>• Point of Care Ultrasound</li> <li>• Portable X-Ray Machines</li> <li>• Electrocardiogram (ECG) Machines</li> </ul>
<b>General Ward Equipment and Consumables</b>	<ul style="list-style-type: none"> <li>• Paediatric beds, bedside tables, couches or recliners</li> <li>• Intravenous fluids(Normal saline 0.9%, Ringers Lactate, Dextrose 10% 500ml, Dextrose 50%)</li> <li>• Medications</li> <li>• Wound care supplies</li> </ul>

Table 18: Standards for Equipment and Consumables for Paediatric Inpatient Department in Level 4 Health Facility

Service Area	Equipment	Consumables
<b>General Wards</b>	• Hospital beds	• Bed linens
	• Vital signs monitors	• Disposable gloves
	• IV poles	• Paper towels
	• Paediatric chairs	• Sanitizing wipes
	• Bedside tables	• Adult diapers
<b>Acute Rooms</b> <i>Please refer to paediatric Critical care Section*</i>	• Cardiac monitors	• IV fluids
	• Suction machine	• Branular (all gauges)
	• Ambu-bag	• Needles
	• Piped and portable oxygen supply	• Syringes
	• Crash cart	• Non-rebreather masks
	• Nebulizer	• Gloves
	• Digital thermometer	• Pharmaceuticals
<b>Isolation Room</b>	• Negative pressure ventilation system	• Disposable gowns
	• Cardiac monitors	• Face masks
	• Nebulizer	• Gloves
<b>Storage Area</b>	• Cabinets for medications	• Labels for medication storage
	• Shelving units for linens	• Plastic bins for organization
<b>Clean Utility Room</b>	• Sinks for washing hands	• Liquid soap
	• Shelving for clean supplies	• Cleaning agents
<b>Dirty Utility Room</b>	• Bins for biohazard waste	• Disinfectants
	• Sinks for disposal of contaminated materials	• Brushes
<b>Waste Disposal</b>	• Properly labelled bins for hazardous and non-hazardous waste	• Liners
		• Sharps disposal containers
<b>Family Support Area</b>	• Couch	• Information brochures
	• Chairs	• Refreshments (snacks, drinks)
	• Space for social workers and child life specialists	• Toys and activities for siblings

#### 4.6.4. Standards for Human Resources for Health in Paediatric Inpatient Departments Level 4 Health Facility

Effective inpatient care for paediatric patients requires a multidisciplinary team of healthcare professionals with specialized training in paediatric care. The team should include medical, nursing, and support staff, each with specific responsibilities to ensure comprehensive patient care. The complete staffing requirements are outlined in Table 19.

Table 19: Minimum Staffing Standards for Paediatric Inpatient Department in a Level 4 health facility

**1. Doctors / Specialists**

Cadre	Number per Shift / Ratio	Description
<b>Paediatrician</b>	2 per shift	The head of the unit should be a paediatrician The paediatrician should conduct ward rounds and specialized clinics (POPC) Should be the lead mentors in their respective subspecialty A paediatrician must be available for emergency back-up 24 hours a day.
<b>Medical Officers</b>	1:10 per shift	Minimum in-house medical officer coverage for 24 hours
<b>Clinical Officer – Paediatrics</b>	1:10 per shift	Minimum in-house Clinical Officer coverage for 24 hours

**2. Nurses**

Cadre	Number per Shift / Ratio	Remarks
Sub-specialty Nurses	-	See annex 2
Head nurse	1 per unit	The head nurse should be a paediatric nurse with a degree or equivalent. Responsible for coordinating inpatient activities and multidisciplinary care
Nurses	As per nurse-to-patient ratio described in this section, per shift	A sufficient number of nurses trained with the following nursing ratios Acute room: ratio of 1:3 The nurses in acute room should be paediatric nurses General paediatric ward 1:6 In addition, 1 extra nurse available per shift who is the team leader There must be 1 nurse dedicated to IPC/equipment cleaning and sterilization 1 nurse can supervise only 2 nurses in training.

**3. Allied Health Professionals**

Cadre	Number per Shift / Ratio	Remarks
<b>Nutritionist</b>	1	Dedicated
<b>Play therapist</b>	1	Dedicated
<b>Laboratory Technician</b>	1	Dedicated
<b>Clinical Pharmacist</b>	1	Dedicated
<b>Pharmacist</b>	1	Dedicated
<b>Pharmaceutical Technologist</b>	1	Dedicated
<b>Health Records Information Officers</b>	1	Dedicated
<b>Radiologist</b>	Consulting	
<b>Radiographer</b>	1	Shared resource
<b>Paediatric Dentist</b>	1	Shared resource
<b>Speech Therapist</b>	1	Shared resource
<b>ICT Support</b>	1	Shared resource
<b>Counsellor</b>	1	Shared resource
<b>Physiotherapist</b>	1	Shared resource
<b>Orthopaedic Technologist</b>	1	Shared resource
<b>Occupational Therapist</b>	1	Shared resource
<b>Medical Engineering Technologist</b>	1	Shared resource
<b>Medical Engineering Technician</b>	1	Shared resource

**4. Support Staff**

<b>Cadre</b>	<b>Number per Shift</b>	<b>Remarks</b>
<b>Porter</b>	2	Dedicated
<b>Clerks/Cashier</b>	1	Dedicated
<b>cleaner</b>	2	dedicated
<b>Security Officer</b>	1	Dedicated
<b>Spiritual Leader</b>	1	Shared resource
<b>Social Worker</b>	1	Shared resource
<b>Sign Language Expert</b>	1	Shared resource

Chapter 5:

# **Standards for Level 5 Hospitals**

## Standards for Level 5 Hospitals

### 5.1. Introduction

This chapter outlines the essential standards for Level 5 hospitals, which serve as secondary referral centers within the healthcare system. In addition to the services provided at Level 4 health facilities, Level 5 hospitals are mandated to deliver advanced paediatric care and to function as centers for training, mentorship, and research in child health.

### 5.2. Standards for Paediatric Outpatient Department Services at Level 5 Hospitals

Table 20 outlines the services provided in a Paediatric Outpatient Department at a Level 5 Hospital

Table 20: Services offered in Paediatric Outpatient Department at a Level 5 Hospital

Category	Description
<b>Promotive and Preventive Healthcare</b>	In addition to services provided in Level 4 health facilities, prevention of secondary and tertiary complication of chronic conditions such as diabetes, sickle cell disease, asthma, neuro developmental complications etc.
<b>Specialized Paediatric Clinics</b>	Subspecialty care for conditions including HIV/AIDS, cardiology, Neurology, Pulmonology, endocrinology, Hemato-oncology, Gastroenterologist and adolescent and youth- responsive services, Infectious diseases etc.
<b>Emergency and Acute Care</b>	Advanced emergency care, stabilization, and resuscitation for more severe and critical Paediatric cases. Expanded trauma care, poisoning management, and respiratory support, including invasive ventilation.
<b>Nutritional services</b>	<ul style="list-style-type: none"> <li>• Nutritional assessment</li> <li>• Growth monitoring and promotion</li> <li>• Nutritional counselling and therapy</li> <li>• Breastfeeding and lactation</li> </ul>
<b>Mental Health and Psychosocial Services</b>	Counselling and psychosocial support for patients and caregivers, addressing emotional, behavioural and mental health needs.
<b>Diagnostic and Imaging Services</b>	<ul style="list-style-type: none"> <li>• Expanded class E laboratory services (as per KMLTTB) for complex diagnostics</li> <li>• Advanced imaging services such as MRI, in addition to basic radiology.</li> </ul>
<b>Palliative and Rehabilitative Care</b>	Expanded pain management (including IV sedation), fever management, and ongoing IV therapy. Comprehensive rehabilitative services, including physical and occupational therapy. Orthotic and prosthetic fitting.
<b>Oncology services</b>	Outpatient chemotherapy administration, diagnostic and supportive services
<b>Sexual reproductive health services</b>	Comprehensive and specialised sexual reproductive health services, promoting, preventing, and rehabilitative care
<b>Referral, and Follow-Up</b>	Includes follow-up for complex cases requiring extended care. Refer down for continued management in the lower level facilities Referral to level 6 for highly specialized care

### 5.3. Standards for Design and Layout of a Paediatric Outpatient Department and Emergency Unit in a Level 5 Hospital

This section sets out the standards for the design and layout of Paediatric Outpatient Departments and Emergency Unit in Level 5 hospitals. For detailed architectural specifications, reference should be made to the annexed architectural guidelines (Annex 2). Table 21 outlines the recommended design and layout for Level 5 hospitals, which shall include a dedicated Emergency and Outpatient Department area.

Table 21: Design and Layout Plan for a Paediatric Outpatient Department and Emergency Unit in a Level 5 Hospital

Section	Details	Size (Sq. Ft.)(OPD)
<b>Outpatient Department</b>		
<b>Overall Design Considerations</b>	Child-Friendly Environment: Bright colours, playful designs, and engaging decor to create a welcoming Atmosphere.	N/A
	Accessibility: General guidelines and standards in Paediatric healthcare facility design shall apply.	
<b>Unit Size</b>	Total Area: depends on expected patient volume.	3,000-5,000
	Space Allocation: See appendix 4	
<b>Key Zones in the Layout</b>	Public Zone: Entrance, registration and billing, waiting area, play area, Reception.	N/A
	Clinical Zone: Triage, consultation rooms, treatment/procedure room, Nutrition/ counselling room.	
	Staff Zone: Nurse station, lounge, office	
<b>Entrance/ Reception Area</b>	Clear signage and Welcoming decor.	200-300
	Space for registration and billing inquiries.	
	Play area for children and family seating.	
<b>Triage Area</b>	Separate space for initial patient assessments and prioritizing care.	200-300
<b>Consultation Rooms</b>	4-6 rooms for Paediatric assessments and consultations, equipped with child-friendly medical tools.	100-150 each
<b>Isolation Room</b>	For outpatient infectious cases, with negative pressure environment.	150-200
<b>ORT Corner (Room)</b>	Specific area for Oral Rehydration Therapy (ORT) education and administration.	100-150
<b>Nutrition Room</b>	Private space for dietary consultations	150-200
<b>counselling</b>	Private space for counselling.	
<b>Treatment/ Procedure Room</b>	Designed for minor outpatient procedures.	150-200
<b>Records</b>	Secure area for outpatient medical records, accessible to authorized personnel.	100-150
<b>Waiting Area</b>	Comfortable seating, play area, and entertainment for families.	400-600
<b>Nurse In- Charge’s Office</b>	Office for overseeing outpatient operations and staff.	100-150
<b>Nursing Station</b>	Centralized area for monitoring patient flow and managing documentation.	150-200
<b>Play Area</b>	Safe and engaging play area for children while waiting.	200-300
<b>Lounge for Health Care Providers</b>	Comfortable break area for outpatient healthcare staff.	150-200
<b>Sluice Room</b>	Area for cleaning and disposing of outpatient waste materials.	100-150
<b>Clean and Dirty Utility Rooms</b>	Clean Utility Room: Sterile supply storage and handwashing stations. Sterilisation	100-150 each
	Dirty Utility Room: Disposal of outpatient waste.	
<b>Staff and Patient Washrooms</b>	Separate, accessible washrooms for staff and patients.	150-250
<b>Baby Changing Area</b>	Designated space for baby changing, with comfortable facilities.	50-100
<b>Store</b>	Storage area for outpatient medical supplies and equipment.	100-150
<b>Pharmacy</b>	Secure area for dispensing outpatient medications.	150-200
<b>Laboratory</b>	Space for basic lab tests (e.g., blood tests, urinalysis) for outpatient cases.	200-300
<b>Family Support Areas</b>	Comfortable family areas with couches and refreshments.	N/A
<b>Sterilization Room/ Area:</b>	Dedicated space in healthcare facilities for cleaning, disinfecting, sterilizing, and storing medical instruments.	300-400

Section	Details	Size (Sq. Ft.) (Emergency Unit)
<b>Emergency Unit</b>		
<b>Overall Design Considerations</b>	Child-friendly environment with focus on quick and efficient care	N/A
	Immediate access to Critical areas.	
<b>Unit Size</b>	Higher total Area tailored for higher patient volume and Emergency needs.	5,000-7,000
<b>Key Zones in the Layout</b>	Public Zone: Reception, waiting area, children's play area.	N/A
	Clinical Zone: Triage, resuscitation room, treatment rooms, Isolation room.	
	Staff Zone: Nurse station, break room, Utility areas.	
<b>Entrance/ Reception Area</b>	Check-in desks and Information desks.	300-400
	Immediate access to triage and emergency care areas.	
<b>Triage Area</b>	Same, with focus on assessing urgency of care needs in emergency cases.	300
<b>Resuscitation Room</b>	Equipped for Paediatric emergency interventions.	200-300
<b>Isolation Room</b>	For emergency patients requiring isolation, with a private bathroom.	150-200
<b>Treatment/ Procedure Room</b>	Designed for emergency procedures, fully equipped for trauma care.	200-300
<b>Records</b>	Same for emergency patients' records.	100-150
<b>Waiting Area</b>	Family sitting with a focus on quick transitions to care areas.	400-500
<b>Nurse In- Charge's Office</b>	Office for overseeing emergency unit operations.	100-150
<b>Nursing Station</b>	Positioned centrally to manage patient flow between triage, treatment, and resuscitation areas.	200-300
<b>Play Area</b>	Play area included in the waiting zone, but access is often minimized due to urgency of cases.	100-150
<b>Lounge for Health Care Providers</b>	Break room for emergency healthcare providers.	150-200
<b>Sluice Room</b>	Area for handling soiled linen and contaminated materials from procedures.	100-150
<b>Clean Utility Room</b>	Clean Utility Room: Sterile supply storage and handwashing stations. Sterilisation	150-200 each
<b>Medical waste holding area</b>	Dirty Utility Room: Disposal of outpatient waste.	
<b>Staff and Patient Washrooms</b>	With provisions for emergency staff and patients.	150-250
<b>Baby Changing Area</b>	Included if needed in the emergency waiting area, but less common.	50-100
<b>Store</b>	Storage area for emergency equipment, including crash carts and critical care supplies.	150-200
<b>Pharmacy</b>	Emergency pharmacy to provide medications needed for urgent interventions.	200-300
<b>Laboratory</b>	Lab tests for emergency diagnostics (e.g., rapid blood tests, urinalysis).	300-400
<b>Family Support Areas</b>	Family support areas, often with access to social workers or child life specialists.	N/A
<b>Sterilization Room/Area:</b>	Dedicated space in healthcare facilities for cleaning, disinfecting, sterilizing, and storing medical instruments.	300-400

## 5.4. Standards for Paediatric Outpatient and Emergency Department Equipment and Consumables in Level 5 Hospitals

### A. Paediatric Outpatient Department (OPD)

The Paediatric Outpatient Department (OPD) in a Level 5 hospital shall be adequately equipped to provide preventive, promotive, diagnostic, and curative services to children.

Table 22: Essential Equipment and Consumables for Paediatric Outpatient Departments in Level 5 Hospitals

Category	Equipment	Consumables
<b>General Diagnostics</b>	Paediatric stethoscopes; Oscopes with paediatric specula; Ophthalmoscopes; Vision screening charts; Audiometers (portable); Peak flow meters	Ear speculums; Disposable tongue depressors; Cotton swabs; Eye drops for screening
<b>Vital Signs Monitoring</b>	Digital thermometers (ear/forehead); Paediatric BP cuffs (different sizes); Weighing scales (infant & child)	Thermometer covers; Disposable sheets for scales
<b>Laboratory &amp; Point of Care</b>	Point-of-care testing kits (HIV, malaria, glucose); Hemoglobin meters; Centrifuge (tabletop)	Test strips (glucose, Hb, etc.); Blood collection tubes (various types); Lancets
<b>Nutrition &amp; Growth Monitoring</b>	Paediatric growth scales (digital preferred); Height boards; Nutritional assessment tools (BMI calculators)	Micronutrient powders (iron, zinc); Nutritional supplements (protein shakes, enteral feeds)
<b>General Care &amp; Wound Management</b>	Wound dressing sets (basic/sterile); Suture kits (minor procedures)	Bandages; Gauze; Antiseptics (alcohol wipes, iodine)
<b>Medications &amp; Vaccines</b>	Vaccine refrigerators (with temperature monitoring); Drug storage cabinets (lockable)	Vaccines (routine & catch-up); Syringes (various sizes); Oral rehydration salts (ORS); Antibiotics (oral)

### B. Paediatric Emergency Department (ED)

The Paediatric Emergency Department in a Level 5 hospital shall serve as the frontline unit for the stabilization and resuscitation of critically ill or injured children.

Table 23: Essential Equipment and Consumables for Paediatric Emergency Departments in Level 5 Hospitals

Category	Equipment	Consumables
Airway & Breathing	Oxygen concentrators; Portable oxygen cylinders; Ventilator (for emergency use); CPAP machine; Bag-valve-mask (infant, child, adolescent); Suction devices (portable & wall-mounted); Airway management kits (OPA/NPA)	Nebulizer kits (with masks); Oxygen tubing; Nasal cannulas (various sizes); Face masks (all paediatric sizes); Suction catheters (various sizes); Filters & accessories; Disposable inhalers
Circulation	Paediatric defibrillator (with pads); Paediatric IV pumps (smart pumps); Infusion sets (with filters); IV poles (multi-hook); Cardiac monitors	IV fluids (glucose, saline, electrolytes); Paediatric IV cannulas (various sizes); Infusion syringes & safety needles; Chest drain kits; Blood giving sets with burettes
Disability (Neurology & Monitoring)	Glucometer (with paediatric strips); Pen torch; Neurological assessment tools	Test strips (glucose)
Exposure & Supportive Care	Paediatric emergency cots and beds; CPR boards	Gloves (sterile, non-sterile); Disposable gowns & aprons; Disinfectants
Pain Management & Sedation	Infusion pumps for analgesia; Syringe drivers	Analgesics (acetaminophen, ibuprofen); Sedatives (for procedural use); Local anesthetics (cream/injectable)

**Note:**

- Paediatric OPDs shall focus on preventive, diagnostic, and follow-up services, requiring general diagnostic tools, growth monitoring equipment, vaccination support, and minor wound care materials.
- Paediatric Emergency Departments shall maintain ready-to-use life-saving equipment and consumables arranged according to the ABCDE framework, ensuring immediate and effective response to critically ill patients.
- The equipment and consumables listed above represent minimum standards; facilities are encouraged to enhance capacity with advanced tools as resources allow.

## 5.5. Standards for Human Resources for Health in Paediatric Outpatient Department in Level 5 Hospital

The staffing requirements for Level 5 Paediatric Outpatient Departments should include highly trained personnel capable of handling a wide range of Paediatric conditions. This necessitates a multidisciplinary team of professionals with specialized training and expertise. Table 24 outlines the minimum staffing requirements.

Table 24: Minimum Staffing Standards for Paediatric Emergency Unit and Outpatient Department in a Level 5 Hospital

Department/Service	Cadre	Number per Shift	Remarks
<b>Emergency Room</b>	<b>Service Delivery Staff</b>		
	Paediatric Internist	1	Head of the Unit. In the absence of a paediatric intensivist a paediatrician with emergency care training (ETAT+ and PALS/EPALS) can be the head of the unit
	Medical Officer	2	Should be trained in emergency paediatric care (ETAT+ and PALS/EPALS) with regular recertification as per standards
	Clinical Officers Paediatrics Emergency and Critical Care	1	Should be trained in emergency paediatric care (ETAT+ and PALS/EPALS) with regular recertification as per standards
	Paediatric critical care Nurse	1	Should be trained in emergency paediatric care (ETAT+ and PALS/EPALS) with regular recertification as per standards
	Paediatric nurses	2	Should be trained in emergency paediatric care (ETAT+ and PALS/EPALS) with regular recertification as per standards
<b>General outpatient</b>			
	Medical officers paediatrics	2	
	Clinical officer paediatrics	2	
	Clinical officers	2	
	General Nurses	1:50	
	Nutritionist	1	
<b>Specialist Clinics</b>			
	Paediatrician	1:50	
	Paediatrician sub-specialists (e.g., Endocrinology, Neurology etc.)	1 each specialty	
<b>Community Services</b>			
	Community Health Assistant/Officer	1:10-CHPs	

Allied Health			
	Laboratory technician	1	Shared resource
	Pharmacist	1	Shared resource
	Pharmaceutical Technologist	1	Shared resource
	Community Oral Health Officer	1	Shared resource
	Dentist	1	Shared resource
	Physiotherapist	1	Shared resource
	Occupational therapist	1	Shared resource
	Speech and language therapist	1	Shared resource
	Orthopedic technologist	1	Shared resource
	Medical Engineer	1	Shared resource
	Medical Engineering technologist	1	Shared resource
	Medical engineering technician	1	Shared resource
	Health records information officers	1	Shared resource
	Adolescent nurse	1	Shared resource
	Social Worker	1	Shared resource
Support Staff			
	Clerk/Cashier	1	Shared resource
	Housekeeping	2	Shared resource
	Security officer	1	Shared resource
	Sign language expert	1	Shared resource
	Porter	2	Shared resource
	Spiritual leader	1	Shared resource

## 5.6. Standards for Paediatric Inpatient Department in a Level 5 Hospital

This section outlines the essential standards required for the effective operation of a Paediatric In-Patient Department within a secondary referral facility. It details the necessary infrastructure, staffing requirements, clinical care protocols, infection prevention measures, and patient safety guidelines. Additionally, it highlights best practices for ensuring quality care, promoting family-centered approaches, and aligning with best practice. These standards serve as a framework to enhance service delivery, optimize patient outcomes, and uphold excellence in Paediatric in-patient care.

### 5.6.1 Services offered in a paediatric inpatient department at a level 5 Hospital

Table 25 outlines the range of services provided within Paediatric Inpatient Departments at Level 5 hospitals. These services are designed to address both routine and complex healthcare needs of children, ensuring access to specialized care, continuity of treatment, and comprehensive management of paediatric conditions

Table 25: Services offered in Paediatric Inpatient Department at a Level 5 Hospital

Service Category	Services Offered
<b>General Paediatric consultation</b>	<ul style="list-style-type: none"> <li>Specialist in-patient reviews and treatment of children admitted with medical conditions</li> <li>Pain management</li> <li>Administration of blood products</li> <li>Renal support</li> <li>Intravenous therapy</li> </ul>
<b>In patient Pharmacy</b>	Pharmacy services available for all Paediatric patients.
<b>Nutritional Services</b>	<ul style="list-style-type: none"> <li>Nutritional assessment</li> <li>Breastfeeding and lactation support</li> <li>Therapeutic feeding</li> <li>Micronutrients supplementation</li> <li>Caregiver nutritional planning</li> <li>Parenteral nutrition</li> </ul>

Service Category	Services Offered
<b>Specialised clinical services</b>	<ul style="list-style-type: none"> <li>• Pulmonology</li> <li>• Neurology</li> <li>• Gastroenterology</li> <li>• Cardiology</li> <li>• Nephrology etc</li> </ul>
<b>Specialised nursing services</b>	<ul style="list-style-type: none"> <li>• Critical care nursing</li> <li>• renal Nursing</li> <li>• all subspecialist nurses</li> </ul>
<b>Mental Health and Psychosocial Support</b>	<ul style="list-style-type: none"> <li>• Counselling and psychosocial support</li> <li>• Family centered care</li> <li>• Mental Health support</li> <li>• GBV and recovery support</li> </ul>
<b>Diagnostic and laboratory services</b>	<ul style="list-style-type: none"> <li>• Advanced laboratory investigations</li> <li>• Advanced imaging</li> <li>• Blood and blood products Services</li> </ul>
<b>Nurturing care</b>	<ul style="list-style-type: none"> <li>• Safety and security</li> <li>• Opportunities for early learning</li> <li>• Responsive care giving</li> </ul>
<b>Specialised Rehabilitation Services</b>	<ul style="list-style-type: none"> <li>• Physical and occupational therapy for children recovering from illness, injury, or surgery</li> <li>• Advanced surgical rehabilitation and therapy for chronic or complex illnesses</li> </ul>
<b>Public Health and preventive services</b>	<ul style="list-style-type: none"> <li>• Implementation of infection control protocols; Access to antimicrobial stewardship programs and isolation rooms.</li> <li>• Health Education and promotion</li> <li>• Disease surveillance and outbreak response</li> <li>• Immunisation etc</li> </ul>
<b>Teaching, training and research</b>	Training centers for all medical interns, nurse interns and other health professionals and mentorship
<b>Palliative care</b>	Supportive care for children with life limiting or terminal conditions.
<b>Last Office</b>	Dignified final care of the body after death
<b>Social protection services</b>	<ul style="list-style-type: none"> <li>• Care, protection and placement of children</li> <li>• Linkage to social safety nets</li> </ul>
<b>Referrals and Follow-Up</b>	<ul style="list-style-type: none"> <li>• Upward and downward Referral of patients for specialized care to higher-level facilities, with structured handoff and referral policy.</li> <li>• Community facility linkages</li> </ul>

### 5.6.2. Standards for Design and Layout of a Paediatric Inpatient Department at a level 5 Hospital

The design and layout of the Paediatric inpatient Department in a Level 5 facility are essential for creating a functional and child-friendly healing environment.

The layout must prioritize ease of movement for patients and healthcare workers while ensuring privacy and safety standards. A detailed architectural layout is annexed (Annex 3).

#### Capacity and Design of Paediatric Ward

- **Bed Capacity:** The Paediatric ward should accommodate 8-10% of the total hospital beds, in accordance with Indian public Health standards (IPHS) 2012 standards.
- **Unit Size:** The total area for the Paediatric inpatient Department should range from 7,000 to 10,000 square feet, depending on expected patient volume and integrated services.

Table 26: Design and Layout for Paediatric Inpatient Department in a Level 5 Hospital

Section Area	Details	Size (Sq. Ft.)
<b>Reception Area</b>	Check-in desks, waiting area with comfortable seating, play area, and information desk.	300-400
<b>Waiting Area</b>	Comfortable seating, engaging play area, natural light for a welcoming atmosphere.	600-800
<b>Paediatric Wards</b>	4-6 ward units designed for Paediatric patients, equipped with beds and childfriendly furnishings. Separate paediatric surgical wards. Each ward will have cubicles. <b>Cubicle Design:</b> <ul style="list-style-type: none"> <li>• <b>4-Bedded Cubicle:</b> Requires approximately 320 sq. ft.</li> <li>• <b>6-Bedded Cubicle:</b> Requires approximately 400 sq. ft.</li> <li>• <b>Privacy Considerations:</b> Low partitions between beds can provide privacy while allowing nursing staff to monitor patients effectively.</li> </ul>	1,500-2,000
<b>Doctors Call Room</b>	It is a designated space within the paediatric ward where on-duty or on-call doctors can rest or take breaks between shifts.	150-200
<b>Acute Room</b> <i>Please refer to paediatric Critical care Section*</i>	For Paediatric patients requiring closer monitoring, equipped with essential Monitoring tools.	150-200
<b>Classroom</b>	A learning space for hospitalised children	150-200
<b>Learning hub</b>	<ul style="list-style-type: none"> <li>• Continuous medical education room</li> <li>• Simulation Room</li> <li>• Resource center</li> </ul>	200-300
<b>Inpatient Pharmacy</b>	A dedicated paediatric inpatient pharmacy	150-200
<b>Isolation Room</b>	Designed for contagious patients with negative pressure and a private bathroom.	150-200
<b>Treatment Room</b>	For minor procedures, equipped with Paediatric-sized medical tools.	150-200
<b>Storage Rooms</b>	designated spaces used for organizing, securing, and maintaining supplies, equipment, or inventory	200-300
<b>Resuscitation Room</b>	Well-equipped for Paediatric emergencies with advanced life support equipment.	200-300
<b>ORT Corner (Room)</b>	Area for Oral Rehydration Therapy education and administration.	100-150
<b>Nutrition Room</b>	Private space for dietary consultations with comfortable seating. Storage for nutrition commodities	150-200
<b>Counselling Room</b>	Private space for counselling with comfortable seating	
<b>Clean and Dirty Utility Rooms</b>	Clean Utility Room: Sterile supply storage and handwashing stations. Sterilisation	100-150 each
	Dirty Utility Room: Disposal of outpatient waste.	

Section Area	Details	Size (Sq. Ft.)
<b>Washroom</b>	A separate ensures hygiene and privacy by providing distinct restroom and washing facilities for patients and staff within a ward	
	<p><b>Patient washroom</b>                      Designed for ease of access, especially for patients with mobility challenges.                      Equipped with toilets, sinks, showers, and handwashing stations.                      Must include wheelchair-accessible stalls and support rails for safety</p>	Standard patient toilet: 30–40 sq. ft. Wheelchair-accessible toilet: 50–65 sq. ft. Shower area (if included 25–40 sq. ft. Handwashing station: 15–20 sq. ft. Total estimated size for a patient ablution block: 300–500 sq. ft
	<p><b>Staff washroom</b>                      Separate from patient facilities to maintain hygiene and infection control.                      Includes toilets, sinks, and showers, especially for staff working long shifts.                      Must have lockers or changing areas for staff convenience.</p>	Standard staff toilet: 25–35 sq. ft. Shower cubicle (if included): 20–30 sq. ft. Changing area/lockers (if included): 50–100 sq. ft. Total estimated size for a staff ablution block: 200–400 sq. ft.
<b>Kitchenette</b>	Cooking and food preparation area, typically equipped with essential appliances and storage. It is used for preparing light meals, snacks, and beverages.	50–150 sq.
<b>Pantry</b>	Storage area for dry goods, non-perishable food items, and kitchen supplies. Located near the kitchenette for easy access.	25–100 sq. ft
<b>Hazardous Materials Storage Room</b>	for storing, managing, and safely disposing of hazardous substances, including chemical spills, biohazardous waste, and toxic materials. These rooms are essential for ensuring compliance with safety regulations and minimizing exposure risks to healthcare workers, patients, and the environment.	50–150 sq
<b>Staff Lounge</b>	Comfortable break area with seating and refreshments for healthcare staff.	150-200
<b>Family Support Area</b>	Comfortable rooms for families with access to support services and refreshments.	200-300
<b>Patient Lactation room</b>	A designated private place that is clean well ventilated and furnished with comfortable chairs, and hand hygiene facilities to ensure a safe and supportive environment for breastfeeding or expressing milk	100-150
<b>Play Area</b>	Safe and engaging play area for children while waiting.	200-300

**5.6.3. Standards for Paediatric Health Products and Technologies in a Paediatric Inpatient Department in a level 5 Hospital**

The Paediatric In-Patient Department must be equipped with essential Health products and technologies as outlined in table 27. This section outlines the essential equipment and consumables, all general standards and guidelines for health products and technologies shall apply.

Table 27: Standards for Health Products and Technologies in a Paediatric Inpatient Department in a Level 5 Hospital

Service Area	Equipment/Consumables
<b>Monitoring</b>	Vital Signs Monitor
	Pulse Oximeter
	Glucometer

Service Area	Equipment/Consumables
<b>Emergency and Resuscitation</b>	Crash-cart
	Defibrillator
<b>Diagnostics</b>	Portable Ultrasound
	Diagnostic Set
	X-ray Viewing Box
<b>Treatment</b>	Treatment Trolley
	Syringe/Infusion Pump
	Drip Stand
	Nebulizer
	Suction Machine
	Advanced Airway Device
<b>Patient Care</b>	Paediatric Bed/Couch
	Bedside Locker
	Drug Fridge
	Dressing Pack
	Suture Kit
<b>Support Services</b>	Procedure Trolley
	Decontamination Buckets
	Color-coded Bins/Sharp Containers
	Measuring Tape/MUAC Tape
<b>Miscellaneous</b>	Wall Clock
	Heating Source
	Wheelchair
	Patient Stretcher
	Cool box + Icepacks
	Examination Light

### 5.6.3. Standards for Human Resources for Health in a Paediatric Inpatient Department in Level 5 Hospital

Adequate staffing is essential to deliver high-quality, safe, timely care in Paediatric in-patient settings. The staffing model in a Level 5 hospital must include a multidisciplinary team of healthcare professionals. Staffing levels should reflect patient acuity and ensure a sufficient nurse-to-patient ratio, access to specialised care providers, and ongoing staff training to maintain high standards of care. Staffing levels should be regularly evaluated and adjusted based on patient needs, ensuring ongoing training and professional development for all team members to maintain high standards of care. Table 28 presents the Minimum Standards for Staffing in a Paediatric Inpatient Department in Level 5 Hospital.

Table 28: Minimum Staffing Standards for a Paediatric Inpatient Department in Level 5 Hospital

#### 1. Doctors / Specialists

Cadre	Number per Shift / Ratio	Description
<b>Paediatric subspecialists</b>	-	The head of their respective subspecialty Lead mentors in their respective subspecialty One should be the head of the unit Conduct ward rounds and sub specialized clinics Lead in training and research
<b>Paediatrician</b>	2 per shift	In the absence of paediatric subspecialists, the head of the unit should be a paediatrician The paediatrician should conduct ward rounds and specialized clinics (POPC) A paediatrician must be available for emergency back-up 24 hours a day.

Cadre	Number per Shift / Ratio	Description
<b>Medical Officers</b>	1:10 per shift	Minimum in-house medical officer coverage for 24 hours
<b>Clinical Officer – Paediatrics</b>	1:10 per shift	Minimum in-house medical officer coverage for 24 hours

## 2. Nurses

Cadre	Number per Shift / Ratio	Remarks
Sub-specialty Nurses	-	See annex
Head nurse	1 per unit	The head nurse should be a paediatric nurse with a degree or equivalent. Responsible for coordinating inpatient activities and multidisciplinary care
Clinical nurse educator	1 per unit	There should be at least 1 designated nurse for continuing education and training with specialised training in paediatric care
Paediatric Nurses	As per nurse- to-patient ratio described in this section, per shift	A sufficient number of nurses trained with the following nursing ratios Acute room: ratio of 1: 3 General paediatric ward 1:6 In addition, 1 extra nurse available per shift who is the team leader There must be 1 nurse dedicated to IPC/equipment cleaning and sterilization 1 nurse can supervise only 2 nurses in training.

## 3. Allied Health Professionals

Cadre	Number per Shift / Ratio	Remarks
Nutritionist	2	Dedicated
Play therapist	1	Dedicated
Laboratory Technician	1	Dedicated
Clinical Pharmacist	2	Dedicated
Pharmacist	4	Dedicated
Pharmaceutical Technologist	6	Dedicated
Health Records Information Officers	1	Dedicated
Radiologist	Consulting	
Radiographer	1	Shared resource
Paediatric Dentist	1	Shared resource
Speech Therapist	1	Shared resource
ICT Support	1	Shared resource
Counsellor	1	Shared resource
Physiotherapist	1	Shared resource
Orthopaedic Technologist	1	Shared resource
Occupational Therapist	1	Shared resource
Medical Engineering Technologist	1	Shared resource
Medical Engineering Technician	1	Shared resource

## 4. Support Staff

Cadre	Number per Shift	Remarks
Porter	2	Dedicated
Clerks/Cashier	1	Dedicated

Cadre	Number per Shift	Remarks
Housekeeping	2	Shared resource
Cook	1	Shared resource
Security Officer	1	Dedicated
Spiritual Leader	1	Shared resource
Social Worker	1	Shared resource
Sign Language Expert	1	Shared resource

# Chapter 6: **Standards for Level 6 Hospital**

## Standards for Level 6 Hospital

### 6.1. Introduction

Level 6 hospitals represent Kenya's highest referral facilities, mandated to manage the most complex medical cases that require specialized treatment, highly skilled personnel, and advanced technologies. They serve as the final referral point from Levels 2 to 5 and collaborate internationally for specialized interventions. Beyond clinical care, these hospitals shape national policy and are key centers for medical education, research and training.

This chapter outlines paediatric care standards at Level 6, emphasizing their role in specialized treatment, research, and medical education.

### 6.2. Standards for Paediatric Outpatient and Emergency Department Services at a Level 6 Hospital

The Paediatric Outpatient Department provides multidisciplinary care, ensuring prompt diagnosis, treatment and follow-up for children with acute and chronic conditions. The department should be well- equipped to manage complex cases and facilitate continuous care through effective referral systems. Table 29 provides a list of services offered in Paediatric outpatient Departments at Level 6 hospitals.

Table 29: Services Offered in Paediatric Outpatient and Emergency Department at a level 6 Hospital

Category	Description
<b>Promotive and Preventive Healthcare</b>	Prevention of complex secondary and tertiary complication of chronic conditions
<b>Advanced Subspecialty Paediatric Clinics</b>	Highly specialised care for conditions including, cardiology, Neurology, Pulmonology, endocrinology, Hemato-oncology, Genetics, immunology, Gastroenterology, Developmental paediatrics, adolescent and youth- responsive services, Infectious diseases , paediatric mentalhealth and psychiatry etc.
<b>Emergency and Acute Care</b>	Advanced emergency care, stabilization and resuscitation for more severe and critical Paediatric cases. Expanded trauma care, poisoning management, and respiratory support, including invasive ventilation.
<b>Specialised Nutritional services</b>	<ul style="list-style-type: none"> <li>• Nutritional assessment</li> <li>• Growth monitoring and promotion</li> <li>• Nutritional counselling and therapy</li> <li>• Breastfeeding and lactation</li> </ul>
<b>Mental Health and Psychosocial Services</b>	Counselling, psychosocial support and treatment for patients and caregivers, addressing emotional, behavioural and mental health needs.
<b>Diagnostic and Imaging Services</b>	<ul style="list-style-type: none"> <li>• Expanded class F and G laboratory services (as per KMLTTB) for complex diagnostics</li> <li>• Advanced imaging services such as MRI, PET scan in addition to basic radiology.</li> </ul>
<b>Palliative and Rehabilitative Care</b>	Expanded pain management (including IV sedation), fever management, and ongoing IV therapy. Comprehensive rehabilitative services, including physical and occupational therapy. Orthotic and prosthetic fitting.
<b>Sexual reproductive health services</b>	Comprehensive and specialised sexual reproductive health services, promoting, preventing, and rehabilitative care
<b>Oncology services</b>	Outpatient chemotherapy administration, diagnostic and supportive services
<b>Referral, and Follow-Up</b>	<ul style="list-style-type: none"> <li>• Includes follow-up for complex cases requiring extended care.</li> <li>• Refer down for continued management in the lower level facilities</li> </ul>

### 6.3. Standards for Design and Layout of a Paediatric Outpatient and Emergency Department at a level 6 Hospital

The design and layout of the Paediatric Outpatient and Emergency Department at a Level 6 hospital emphasize efficient patient flow, safety, and comfort for children and their families. The layout should incorporate three key zones:

- **Public Zone:** Includes the reception, waiting area, and a children’s play area to ensure a welcoming and engaging environment.
- **Clinical Zone:** Comprises the triage area, treatment rooms, a resuscitation room, and an isolation room, focusing on effective patient care, infection control, and privacy. Distinct spaces for general consultations, highly specialized clinics and diagnostic services should be included.
- **Staff Zone:** Features the nurse station, break room, and utility areas to support staff functionality and workflow.

Table 29: Design and Layout for a Paediatric Outpatient and Emergency Department in a Level 6 Hospital

Section	Details	Paediatric Outpatient Department Size (Sq. Ft.)	Emergency Unit Size (Sq. Ft.)
<b>Unit Size</b>	Total Area depends on expected patient volume.	3,000 - 5,000	3,000 - 5,000
<b>Reception Area</b>	Check-in Desks: Staffed and clearly marked.	300-400	300-400
	Information Desk for assistance.		
<b>Waiting Area</b>	Comfortable seating, play area for children, entertainment options (TV, books).	600-800	400-600
<b>Triage Area</b>	Separate from waiting area.	300	300
	Equipped with triage tools and patient monitoring.		
<b>Consultation Rooms</b>	4-6 rooms for Paediatric assessments.	100-150 each	Not applicable
	Child-friendly design		
<b>Treatment Rooms</b>	2-4 rooms for minor procedures and treatments.	150-200 each	150-200 each
<b>Paediatric Resuscitation Room</b>	Equipped for emergency interventions.	200-300	200-300
	Advanced life support tools (monitors, defibrillators).		
<b>Isolation Room</b>	For contagious diseases.	150-200	150-200
	Negative pressure, private bathroom access.		
<b>ORT Corner (Room)</b>	Area for Oral Rehydration Therapy education and administration.	100-150	Not applicable
<b>Nutrition Room</b>	Private space for dietary consultations with comfortable seating. Storage for nutrition commodities	150-200	Not applicable
<b>Counselling Room</b>	Private space for counselling with comfortable seating		
<b>Emergency Reception</b>	Immediate registration of emergency patients.	Not applicable	300-400
	Staffed for quick processing.		
<b>Paediatric Emergency Waiting Area</b>	Seating for families, natural light to reduce anxiety.	Not applicable	400-600
<b>Utility Rooms (Clean/ Dirty)</b>	For sterile supplies, waste disposal (biohazard and regular).	100-150	100-150
<b>Nurse Station</b>	Centralized area for patient flow and documentation.	150-200	150-200
	Access to EHR systems.		
<b>Staff Lounge</b>	Break area for staff, equipped with seating and refreshments.	150-200	150-200

Section	Details	Paediatric Outpatient Department Size (Sq. Ft.)	Emergency Unit Size (Sq. Ft.)
<b>Family Support Area</b>	Rooms with couches, restrooms, access to social support services.	200-300	200-300
<b>Washroom</b>	Separate, child-friendly washrooms; includes lockers and handwashing stations for staff; child-sized toilets and sinks for patients	150-200	150-200
<b>Kitchenette</b>	A small compact kitchen area equipped with basic appliances and facilities for food preparation.	150-200	150-200
<b>Holding room</b>	A secure room set aside within the Paediatric unit for temporarily holding the bodies of babies awaiting collection by the morgue.	150-200	150-200
<b>Specialist consultation rooms</b>	4-6 rooms for specialist consultations	100-150 each	150-200
<b>Pharmacy</b>	Positioned near exit for easy access to medications; stocked with paediatric medications and supplies; includes waiting area for caregivers	100-150	150-200
<b>Supplies store</b>	Storage for medical supplies, vaccines, and equipment; located near treatment rooms for easy access	150-200	150-200
<b>Sluice room</b>	For cleaning and disinfecting medical equipment, equipped with sinks and storage for cleaning supplies	150-200	150-200
<b>Play Area</b>	Safe and engaging play area for children while waiting.	200-300	200-300
<b>Patient Lactation room</b>	A designated private place that is clean well ventilated and furnished with comfortable chairs, and hand hygiene facilities to ensure a safe and supportive environment for breastfeeding or expressing milk	100-150	100-150

#### 6.4. Standards for Paediatric Health Products and Technologies in a paediatric outpatient department at a level 6 Hospital

A Level 6 Paediatric Outpatient Department must be equipped with advanced medical equipment and adequate consumables to support a wide range of paediatric outpatient services. The equipment should include diagnostic tools, life-saving equipment, and specialized instruments tailored for paediatric care. Consumables should be readily available to ensure smooth, continuous service provision.

Table 30: List of equipment and consumables for a Paediatric outpatient department in a level 6 Hospitals

Service Area	Equipment	Consumables
Entrance Area	CCTV; Wall clock; Wheelchair; Stretcher; Hand washing point/sanitizer dispenser	Hand sanitizer
Reception/ Registration	Tables; Waiting benches; Computer; Television; Disposal bins; Water dispenser; Hand washing point/ sanitizer; Storage cabinets	Files; medical stationery; Disposable 3 ply surgical Face masks; Alcohol-based hand rub (sopropyl alcohol 75%-500ml)
Play Area	Assortment of toys; Storage cabinets; Furniture (table and chairs)	Colouring pens and pencils; Drawing books

Service Area	Equipment	Consumables
Triage Area	Table; Chairs; Paediatric stethoscopes; Vital signs monitoring equipment with neonatal and paediatric accessories Weighing scales (infant and older children); Stadiometer; Tape measures (MUAC tapes, Breslow tapes); Examination couch; Heating source; Computer; Storage cabinets	Hand sanitizer; Disposable hand towels
Treatment room	Examination couch; Examination lamp; Radiant warmer/ room heater; Resuscitation trolley; Drip stand ;Syringe/ infusion pumps; Paediatric stethoscopes; Vital signs monitoring equipment with neonatal and paediatric accessories Pen torch; Otoscope; Automated external defibrillator; Suction machine; Glucometer; Oxygen source; Portable oxygen cylinder; Nebulizer; Treatment trolley; 4 decontamination buckets; colour coded Bins; Storage cabinets	Solu sets; Glucometer strips; Medical gloves; Surgical face masks; IV cannulas; Syringes; Gauze; Adhesive tapes; Crepe bandages; Disposable aprons; Colour coded Bin liners; Alcohol swabs; IV fluids; Needles; Cotton wool; sharps containers
Consultation Room	Clinician's desk and chair; Patient/caregiver seat; Cabinets; Paediatric stethoscopes; Otoscope; Ophthalmoscope; Stadiometer; Weighing scales (infant and older children); Tape measures (MUAC tapes, Breslow tapes); Computer; Examination couch and step; Examination lamp; Examination set; Bins; Storage cabinets	Hand sanitizer; Medical gloves; Surgical face masks
Specialist consultation clinics	In addition to the basic consultation room equipment the specialist consultation room will require – Cardiology -portable echocardiograph, ECG Neurology –EEG, nerve conduction study equipment Pulmonology- Spirometer bronchoscope Gastroenterology – endoscopy tower for day cases	ECG Electrodes, ECG Paper, Conductive Gel, Alcohol Swabs, Gloves; EEG electrodes Mouthpieces, Nose Clips, Bacterial/Viral Filters, Bronchoscope Covers, Sterile Saline, Biopsy Forceps, Endoscope Covers, Lubricant Jelly, Sterile Water, Disposable Suction Tubing, Disinfectant Solution
Paediatric Resuscitation rooms	Examination couch; Examination lamp; Radiant warmer/ room heater; Chair; Table Emergency crash cart with Airway Laryngoscope (Paediatric & Neonatal Blades), Bag- Valve Mask (Ambu Bag) Breathing Portable Suction Machine, Oxygen Cylinders with Flowmeters, Nebulizer Machine, Portable ventilator with accessories Circulation Automated External Defibrillator (AED) or Manual Defibrillator	Airway -Endotracheal Tubes (sizes 2.5–6.5mm), Oxygen Masks (Infant & Child Sizes), Suction Catheters, Oropharyngeal Airways (OPA sizes 00–4) ,Nasopharyngeal Airways (NPA) Breathing - nasal prongs, Non- rebreather mask Circulation IV Cannulas (24G, 22G, 20G), Intraosseous Needles (for emergency access), Pressure Infusion Bags, Blood Glucose Monitor & Strips, Syringes & Needles (1mL, 3mL, 5mL, 10mL, 20mL),IV Fluids (Normal Saline, Ringer's Lactate, Dextrose 5%, Dextrose 10%)
Isolation Room	Negative Pressure System, Oxygen Supply, UV Light Sterilizer	PPE Kits, N95 Masks, Disinfectants, hand sanitizer, soap
Nutrition/Counselling Room	Table; chairs; Stadiometer; Weighing scales (infant and older children); Tape measures (MUAC tapes, Breslow tapes); examination couch	F75, F100, RUTF

Service Area	Equipment	Consumables
Utility room	Linen Carts, Waste Segregation Bins	Linen, Disinfectants, Disposable Gloves, PPE Kits
Nurses station	Computers, Communication Systems, Drug Storage Cabinets, Table chairs, drug fridge	Patient Charts, Medication Labels
Family support area	Counselling Desks, Sofas, Educational Materials	Brochures, Pamphlets, Handbooks
Staff Lounge	Lockers, Chairs, Tables, Microwave, Refrigerator, Television	Utensils
Kitchenette	Fridge, Microwave, Kettle	Kitchen utensils
Sluice room	Shelving for Clean & Dirty Equipment - Lockable Cupboards for Chemicals & Disinfectants, Mop Buckets & Cleaning Brushes Clinical Waste Bins (Sharps, Infectious Waste, General Waste)	High-Level Disinfectants; Detergents for Cleaning Surfaces; Spill Kits (Blood & Body Fluid Spill Kits) PPE Kits (Gloves, Aprons, Masks, Face Shields); Disposable Gowns; Waterproof Boots - Biohazard Bags (Yellow, Red, Black) - Needle & Syringe Disposal Containers

### 6.5. Standards for Human Resources for Health in Paediatric Outpatient Department in Level 6 Hospital

Staffing in Level 6 Paediatric Outpatient Departments shall be based on a multidisciplinary model, comprising paediatric subspecialists, paediatricians, medical officers, specialized nurses, and allied health professionals. Personnel must demonstrate expertise in advanced paediatric care, including resuscitation, specialized diagnostics, and the management of chronic and complex conditions. Appropriate staff-to-patient ratios shall be maintained to ensure safe, efficient, and high-quality service delivery.

#### Training and Competency Requirements

- All medical staff shall have completed ETAT+ training.
- Registered Clinical Officers (RCOs), Medical Officers, and Paediatricians shall additionally hold up-to-date certification in Advanced Life Support (APLS/PALS/EPALS).
- All support staff shall be trained and certified in Basic Life Support (BLS).

Table 31: Minimum Staffing Standards for Paediatric Outpatient Department in a Level 6 Hospital

Department/ Service	Cadre	Number per Shift	Remarks
<b>Emergency Room</b>	<b>Service Delivery Staff</b>		
	<b>Paediatric Internist</b>	2	Head of the Unit. In the absence of a paediatric intensivist a paediatrician with emergency care training (ETAT+ and PALS/EPALS) can be the head of the unit
	<b>Medical Officer</b>	4	Should be trained in emergency paediatric care (ETAT+ and PALS/EPALS) with regular recertification as per standards
	<b>Clinical Officers Paediatrics Emergency and Critical Care</b>	4	Should be trained in emergency paediatric care (ETAT+ and PALS/EPALS) with regular recertification as per standards
	<b>Paediatric critical care Nurse</b>	1:1 critical care bed	Should be trained in emergency paediatric care (ETAT+ and PALS/EPALS) with regular recertification as per standards
	<b>Paediatric nurses</b>	1:6	Should be trained in emergency paediatric care (ETAT+ and PALS/EPALS) with regular recertification as per standards

<b>Highly Specialized Outpatient</b>			
	<b>Paediatric subspecialists</b>	1:50	See annex
	<b>Paediatrician</b>	1:50	
	<b>Specialist Clinical officer</b>	2	
<b>Allied Health professionals</b>			
	<b>Nutritionist</b>	1	Dedicated
	<b>Laboratory technician</b>	1	Dedicated
	<b>Pharmacist</b>	1	Dedicated
	<b>Pharmaceutical Technologist</b>	1	Dedicated
	<b>Health records Information Officer</b>	1	Dedicated
	<b>Paediatric Dentist</b>	1	Shared resource
	<b>Physiotherapist</b>	1	Shared resource
	<b>Occupational therapist</b>	1	Shared resource
	<b>Speech and language therapist</b>	1	Shared resource
	<b>Orthopedic technologist</b>	1	Shared resource
	<b>Medical Engineer</b>	1	Shared resource
	<b>Medical Engineering technologist</b>	1	Shared resource
	<b>Medical engineering technician</b>	1	Shared resource
	<b>Adolescent nurse</b>	1	Shared resource
	<b>Social Worker</b>	1	Shared resource
<b>Support Staff</b>			
	<b>Clerk/Cashier</b>	1	Shared resource
	<b>Cleaner</b>	2	Shared resource
	<b>Security officer</b>	1	Shared resource
	<b>Sign language expert</b>	1	Shared resource
	<b>Porter</b>	2	Shared resource
	<b>Spiritual leader</b>	1	

## 6.6. Standards for Paediatric In-Patient Department in a Level 6 Hospital

The Paediatric In-Patient Department in a Level 6 hospital receives referrals from all levels of care. It provides highly specialized care for the critically ill and children with medically complex conditions. Staffed by multidisciplinary subspecialists, it features specialized units, critical care units and surgical units, equipped with cutting-edge technology to handle diverse paediatric conditions.

Paediatric Inpatient Departments follow strict infection control protocols, with dedicated isolation areas and advanced hygiene measures. They integrate a family-centred care model, supporting parental involvement. As centres of excellence, they ensure high staffing standards, quality assurance, continuous training, research, and advanced diagnostics, shaping paediatric healthcare at a national level.

### 6.6.1. Standards for Paediatric Inpatient Department Services at level 6 Hospital

The Paediatric Inpatient Department in a Level 6 hospital must provide comprehensive medical, surgical, and rehabilitative services for paediatric patients. Table 32 lists Paediatric inpatient department services offered at a level 6 Hospitals.

Table 32: Services offered in Paediatric Inpatient Department at Level at a level 6 Hospital

Service	Description	Specialties/Interventions
<b>Infectious Disease Care</b>	Management of complex infectious diseases, including MDR sepsis.	Isolation units, multidisciplinary management teams for complex cases, and access to advanced diagnostics etc.
<b>Surgery &amp; Post-Operative Care</b>	Comprehensive care for pre- and post-operative paediatric patients.	Paediatric surgery, including general, neurosurgery, orthopaedics surgery, cardiothoracic, and oncology surgeries with multi-disciplinary post-operative teams etc.
<b>Oncology &amp; Haematology</b>	Specialised care for oncology and haematology conditions	Chemotherapy, radiotherapy, blood transfusions, bone marrow aspirations, and management of hematologic disorders etc.
<b>Neurology</b>	Care for children with neurological disorders.	Continuous EEG monitoring, management of seizures, developmental delays, and neuromuscular disorders with access to advanced imaging techniques etc.
<b>Cardiology</b>	Care for congenital and acquired heart diseases.	Echocardiography, catheterization, and post-surgical cardiac care, including specialized monitoring and interventions in a cardiac care unit etc.
<b>Nephrology</b>	Comprehensive management of kidney-related diseases.	Dialysis (peritoneal and haemodialysis), kidney biopsies, management of congenital renal anomalies, and renal transplant services etc.
<b>Respiratory Care</b>	Management of acute and chronic respiratory illnesses.	Invasive mechanical ventilation, bronchoscopy, and treatment for rare pulmonary diseases, including specialized respiratory therapy etc.
<b>Gastroenterology</b>	Comprehensive care for digestive system disorders.	Nutritional support, endoscopy, liver biopsies, and management of conditions like inflammatory bowel disease and severe gastroenteritis etc.
<b>Endocrinology</b>	Specialized care for endocrine disorders.	Insulin therapy, growth hormone therapy, and management of congenital endocrine disorders with access to specialized testing and monitoring etc.
<b>Dermatology</b>	Treatment for complex skin conditions.	Skin biopsies, wound care, and management of chronic dermatological conditions, with access to phototherapy and advanced imaging techniques etc.
<b>Rheumatology</b>	Management of autoimmune and inflammatory diseases.	Immunosuppressive therapy, biologics for inflammation control, and comprehensive care for conditions like juvenile idiopathic arthritis etc.
<b>Burns Unit</b>	Acute treatment of moderate to severe burns.	Plastic and reconstructive surgery, physical therapy, and psychological support, with specialized burn care teams etc.
<b>Rehabilitation</b>	Rehabilitation services for recovery from illness, injury, or surgery.	Physiotherapy, occupational therapy, speech therapy, post-trauma care, and specialized care for conditions like cerebral palsy etc.
<b>Palliative Care</b>	Holistic care for children with life-limiting illnesses.	Focus on pain management and symptom relief, with emotional and spiritual support for patients and families through a multi-disciplinary approach etc.
<b>Adolescent Medicine</b>	Inpatient care for adolescents with medical, psychological, and behavioural issues.	Management of depression, anxiety, adolescent pregnancy, substance abuse, and sexually transmitted infections, with access to counselling and educational resources etc.
<b>Child and Adolescent Mental Health</b>	Inpatient care for children with severe mental health disorders.	Psychotherapy, medication management, family therapy, and treatment of autism spectrum disorders and psychosis, with a dedicated mental health unit etc.
<b>Pain Management</b>	Specialized care for managing acute and chronic pain in children.	Multimodal pain relief strategies, including medications, nerve blocks and psychological support tailored to paediatric patients etc.

Service	Description	Specialties/Interventions
<b>Teaching, training and research</b>	Training centers for all medical interns, nurse interns and other health professionals and mentorship	

### 6.6.2. Standards for Design and Layout of a Paediatric Inpatient Department at a Level 6 Hospital

The Paediatric In-Patient Department in a Level 6 hospital must be designed for efficient care, safety, and patient comfort. It should have dedicated areas for general and subspecialty care, ensuring infection control, optimal patient observation, and staff accessibility. A child-friendly, family-inclusive environment, smooth workflow, and easy patient mobility are essential for high-quality care delivery. The wards should have specialised cubicles with segregated age categories.

Table 33 outlines the Paediatric Inpatient Department Design and Layout Plan for a Level 6 Hospital.

Table 33: Design and Layout for Paediatric Inpatient Department in a Level 6 Hospital

Section	Details	Size (Sq. Ft.)	Baseline Number of Beds
<b>Unit</b>	Designed for mixed-age paediatric patients, with multiple beds (4-6 beds per room).	2,000-3,000	30-40
<b>Nurse In-Charge’s Office</b>	Office for the ward manager, equipped for administrative tasks and staff supervision.	150-200	N/A
<b>Doctors Room</b>	Doctors office for administrative tasks	150-200	N/A
<b>Infant Room</b>	Specialized room for infants, equipped with cribs and necessary monitoring equipment.	200-300	8
<b>2-5 Years Room</b>	Designed for toddlers, with age-appropriate furnishings and play materials.	250-350	8
<b>5-10 Years Room</b>	Designed for school-aged children, with space for activities and studies.	250-350	12
<b>10-14 Years (Adolescents) Room</b>	Designed for younger children and teenagers, offering privacy and space for socialization.	250-350	8 -10
<b>15-17 Years (Adolescents) Room</b>	Designed for older children and teenagers, offering privacy and space for socialization.	250-350	
<b>18-19 Years (Adolescents) Room</b>	Designed for the oldest teenagers, offering privacy and space for socialization.		
<b>Acute Room (Basic Critical Care)</b>	For paediatric patients requiring closer monitoring and basic critical care.	200-300	5
<b>Isolation Room</b>	Negative pressure environment for patients with contagious diseases.	150-200	2
<b>Treatment / procedure Room</b>	For minor procedures and treatments, equipped with necessary medical tools and paediatric-sized equipment.	150-200	2
<b>Resuscitation Room</b>	Well-equipped for emergency interventions specific to paediatric patients.	250-350	2
<b>ORT Corner (Room)</b>	Dedicated area for Oral Rehydration Therapy education and administration.	100-150	N/A
<b>Nutrition Room</b>	Private space for nutritional assessments and preparation of therapeutic feeds	150-200	N/A
<b>Counselling Room</b>	Private space for dietary consultations		
<b>Utility Rooms</b>	Clean and dirty utility rooms for managing sterile supplies and disposal of waste.	100-150	N/A

Section	Details	Size (Sq. Ft.)	Baseline Number of Beds
<b>Nurse Station</b>	Centralized area for nursing staff to monitor patient flow and documentation.	200-300	N/A
<b>Staff Lounge</b>	Comfortable break area for healthcare staff, equipped with seating, refreshments, and relaxation space.	200-300	N/A
<b>Family Support Area</b>	Comfortable family rooms with couches, restrooms, and access to refreshments.	300-400	N/A
<b>Washrooms</b>	Male and female, child friendly toilets and bathrooms	150-200	
<b>Call room</b>	A dedicated room for staff to rest while on call	250-350	
<b>Sluice</b>	Area for handling medical waste and contaminated materials	100-150	
<b>Kitchenette</b>	Area for preparation of food	150-200	
<b>Holding room</b>	A secure room set aside within the Paediatric unit for temporarily holding the bodies of babies awaiting collection by the morgue	100-150	
<b>Conference room</b>	A room designed and equipped to facilitate formal meetings and presentations	200-300	
<b>Library</b>	A room to facilitate intellectual learning for the paediatric patients	200-300	
<b>Play area</b>	Child-friendly area within the ward, equipped with toys and screens displaying child-friendly content	300-400	
<b>Classroom</b>	A learning space for hospitalised children	150-200	
<b>Simulation lab</b>	Dedicated learning environment for the staff to learn and practice clinical skills	150-200	

**6.6.3. Standards for Paediatric Health Products and Technologies in Inpatient Departments at Level 6 Hospital**

A Level 6 Paediatric In-Patient Department requires comprehensive, specialized medical equipment to deliver advanced care for critically ill and medically complex children. The unit must be equipped with state-of-the-art diagnostic, therapeutic, and monitoring devices, including ventilators, dialysis machines, infusion pumps, and paediatric-specific tools. To ensure uninterrupted care, the department should also maintain a continuous supply of essential consumables. Table 34 outlines the minimum required equipment and consumables for the effective functioning of a Paediatric In-Patient Department in a Level 6 hospital.

Table 34: Standards for Paediatric Health Products and Technologies in Inpatient Departments at a Level 6 Hospital

Service Area	Equipment	Consumables
<b>Nurse In-Charge’s Office</b>	Desk, Chairs, Computer, Filing Cabinet, Communication System	Patient Records, Stationery, Hand Sanitizer
<b>Doctors’ Room</b>	Desk, Chairs, Computer, communication system	Hand Sanitizer, Face Masks
<b>Infant Room</b>	Infant Cots/ beds, mothers bed, bedside lockers, Radiant Warmer, Piped Oxygen Supply , vital signs Monitoring Equipment with infant accessories, nebuliser	Diapers, Baby Wipes, Formula, Hand Sanitizer
<b>2-5 Years Room</b>	Paediatric Beds, Care giver Hospital Beds, Chairs, bedside lockers piped Oxygen Supply, , vital signs Monitoring Equipment with infant and paediatric accessories, nebuliser	
<b>5-10 Years Room</b>	Paediatric Beds, Care giver Hospital Beds, Chairs bedside lockers, Piped oxygen supplies Monitoring Equipment with paediatric accessories; syringe/ infusion pumps; stethoscope, nebulizer	Bedding, Disinfectant Wipes, Hand Sanitizer

Service Area	Equipment	Consumables
<b>10-14 Years (Adolescents) Room</b>	Care giver Hospital Beds, Chairs, Bedside Lockers, Piped oxygen; monitoring equipment with paediatric and adult accessories; nebulizer,syringe/ infusion pumps, Privacy Curtains, Entertainment System	Bedding, Disinfectant Wipes, Hand Sanitizer
<b>15-17 Years (Adolescents) Room</b>	Hospital Beds, Chairs, Bedside Lockers, Piped oxygen; monitoring equipment with paediatric and adult accessories; nebulizer,syringe/ infusion pumps, Privacy Curtains, Entertainment System	Bedding, Disinfectant Wipes, Hand Sanitizer
<b>17-19 Years (Adolescents) Room</b>	Hospital Beds, Chairs, Bedside Lockers, Piped oxygen; monitoring equipment with paediatric and adult accessories; nebulizer,syringe/ infusion pumps, Privacy Curtains, Entertainment System	Bedding, Disinfectant Wipes, Hand Sanitizer
<b>Acute Room (Basic Critical Care)</b>	Details in chapter 7 on paediatric critical care	
<b>Isolation Room</b>	Paediatric beds; chairs; bedside lockers; piped oxygen supply; nebulizer, stethoscope syringe/infusion pumps; Negative Pressure System, UV Light Sterilizer	PPE Kits, N95 Masks, Disinfectants, Hand Sanitizer, Soap
<b>Treatment/Procedure Room</b>	Examination Couch, Examination Lamp, Syringe/ Infusion Pumps, Otoscope, Suction Machine; POCT equipment ultrasound, ECG, haemoglobinometer, glucometer	Solu sets; Glucometer strips; Medical gloves; Surgical face masks; IV cannulas; Syringes; Gauze; Adhesive tapes; Crepe bandages; Disposable aprons; Colour coded Bin liners; Alcohol swabs; IV fluids; Needles; Cotton wool; sharps containers
<b>Resuscitation Room</b>	Examination couch; Examination lamp; Radiant warmer/room heater; Chair; Table Emergency crash cart with Airway Laryngoscope (Paediatric & Neonatal Blades), Bag-Valve Mask (Ambu Bag) Breathing Portable Suction Machine, Oxygen Cylinders with Flowmeters, Nebulizer Machine, Portable ventilator with accessories Circulation Automated External Defibrillator (AED) or Manual Defibrillator	Airway -Endotracheal Tubes (sizes 2.5–6.5mm), Oxygen Masks (Infant & Child Sizes), Suction Catheters, Oropharyngeal Airways (OPA sizes 00–4), Nasopharyngeal Airways (NPA) Breathing - nasal prongs, Non-rebreather mask Circulation IV Cannulas (24G, 22G, 20G), Intraosseous Needles (for emergency access), Pressure Infusion Bags, Blood Glucose Monitor & Strips, Syringes & Needles (1mL, 3mL, 5mL, 10mL, 20mL),IV Fluids (Normal Saline, Ringer's Lactate, Dextrose 5%, Dextrose 10%)
<b>ORT Corner (General Ward)</b>	ORT Chairs, Oral Rehydration Solution (ORS) Dispenser,	ORS Packets, Disposable Cups, Hand Sanitizer
<b>Nutrition/Counselling Room</b>	Tables, Chairs, Stadiometer, Weighing Scales, Examination Couch	F75, F100, RUTF, MUAC Tapes
<b>Utility Rooms</b>	Linen Carts, Colour coded Waste Segregation Bins, Storage Cabinets	Disinfectants, Disposable Gloves, PPE Kits
<b>Nurse Station</b>	Computers, Communication System, Drug Storage Cabinets, Medication Fridge	Patient Charts, Medication Labels, Hand Sanitizer
<b>Staff Lounge</b>	Lockers, Chairs, Tables, Microwave, Refrigerator, Television	Tea/Coffee Supplies, Disposable Cups
<b>Family Support Area</b>	Seating, Private Counselling Space, Information Boards	Hand Sanitizer, Tissues

Service Area	Equipment	Consumables
<b>Washrooms</b>	Toilets, Sinks, soap dispenser Sanitary Disposal Bins	Toilet Paper, Soap, Hand Towels, Disinfectants
<b>Call Room</b>	Beds, Lockers, Chairs, Study Desk	Bedding, Hand Sanitizer
<b>Sluice Room</b>	Bedpan Washer, Sterilizer, Shelving for Clean & Dirty Equipment - Lockable Cupboards for Chemicals & Disinfectants, Mop Buckets & Cleaning Brushes Clinical Waste Bins (Sharps, Infectious Waste, General Waste)	High-Level Disinfectants;Detergents for Cleaning Surfaces; Spill Kits (Blood & Body Fluid Spill Kits) PPE Kits (Gloves, Aprons, Masks, Face Shields);Disposable Gowns; Waterproof Boots ;Biohazard Bags (Yellow, Red, Black)Needle & Syringe Disposal Containers
<b>Kitchenette</b>	Refrigerator, Microwave, Water Dispenser, Storage Shelves, cooker, kettle	Food Containers, Disposable Gloves, Cleaning Supplies

### 6.3.4 Minimum standards for Staffing of Paediatric Inpatient Department in a Level 6 Hospital

The minimum staffing standards for the Paediatric Inpatient Department in a Level 6 hospital ensure the provision of comprehensive, tertiary-level care through an adequately resourced multidisciplinary team tailored to the complex needs of critically ill Paediatric patients.

Table 35 outlines the Minimum staffing standards for Paediatric Inpatient Department in a Level 6 Hospital

Table 35: Minimum staffing standards for Paediatric Inpatient Department in a Level 6 Hospital

#### 1. Specialists/Medical officers/ clinical officers

Cadre	Number per Shift / Ratio	Description
<b>Paediatric subspecialists</b>	At least one on call per shift	The head of their respective subspecialty Lead mentors in their respective subspecialty One should be the head of the unit Conduct major ward rounds and sub Specialized clinics Lead in training and research
<b>Paediatrician</b>	2 per shift	The paediatrician should conduct daily ward rounds and support the sub specialty clinics A paediatrician must be available for emergency back-up 24 hours a day.
<b>Medical Officers</b>	1:10 per shift	Minimum in-house medical officer coverage for 24 hours
<b>Clinical Officer – Paediatrics</b>	1:10 per shift	Minimum in-house medical officer coverage for 24 hours

#### 2. Nurses

Cadre	Number per Shift / Ratio	Remarks
<b>Sub-specialty Nurses</b>	-	See annex
<b>Head nurse</b>	1 per unit	The head nurse should be a paediatric nurse with a degree or equivalent. Responsible for coordinating inpatient activities and multidisciplinary care
<b>Clinical nurse educator</b>	1 per unit	There should be at least 1 designated nurse for continuing education and training with specialised training in paediatric care

<b>Paediatric Nurses</b>	As per nurse- to-patient ratio described in this section, per shift	A sufficient number of nurses trained with the following nursing ratios Acute room: ratio of 1: 3 General paediatric ward 1:6 In addition, 1 extra nurse available per shift who is the team leader There must be 1 nurse dedicated to IPC/ equipment cleaning and sterilization 1 nurse can supervise only 2 nurses in training.
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### 3. Allied Health Professionals

Cadre	Number per Shift / Ratio	Remarks
Nutritionist	2	Dedicated
Play therapist	1	Dedicated
Laboratory Technician	1	Dedicated
Clinical Pharmacist	1	Dedicated
Pharmacist	1	Dedicated
Pharmaceutical Technologist	6	Dedicated
Health Records Information Officers	1	Dedicated
Radiologist	Consulting	Shared resource
Radiographer	1	Shared resource
Paediatric Dentist	1	Shared resource
Speech Therapist	1	Shared resource
ICT Support	1	Shared resource
Counsellor	1	Shared resource
Physiotherapist	1	Shared resource
Orthopaedic Technologist	1	Shared resource
Occupational Therapist	1	Shared resource
Medical Engineer	1	Shared resource
Medical Engineering Technologist	2	Shared resource
Medical Engineering Technician	2	Shared resource

### 4. Support Staff

Cadre	Number per Shift	Remarks
Porter	2	Dedicated
Clerks/Cashier	1	Dedicated
Cleaner	4	Dedicated
Security Officer	2	Dedicated
Spiritual Leader	1	Shared resource
Social Worker	1	Shared resource
Sign Language Expert	1	Shared resource

# Chapter 7: Standards for Paediatric Critical Care

## Standards for Paediatric Critical Care

### 7.1 Introduction

Paediatric Critical Care Units (PCCUs) play a pivotal role in healthcare by providing highly specialized care for critically ill infants, children, and adolescents. These units are designed to manage patients with life-threatening medical, surgical or trauma-related conditions that require close monitoring, advanced medical interventions and continuous support from a multidisciplinary team of healthcare professionals. The establishment of PCCUs is essential to reducing paediatric morbidity and mortality.

PCCUs are typically classified into three levels based on the complexity of care provided:

- **Acute rooms** offer basic critical care services, including monitoring and support for children who are seriously ill.
- **High dependency units** provide intermediate critical care for patients who require more intensive monitoring and intervention.
- **Paediatric intensive care units** provide advanced critical care services in managing children with life-threatening conditions requiring advanced medical interventions, including invasive mechanical ventilation, continuous dialysis, and complex surgical recovery.

This chapter outlines the standards for establishing and maintaining Paediatric Critical Care service and units, ensuring they are equipped to deliver the highest standard of care to critically ill children. The standards focus on the necessary service, infrastructure, health products and technologies, staffing, and protocols required for operating a thus supporting the survival and recovery of critically ill children in Kenya.

### 7.2. Standards for Paediatric Critical Care Services

The table 36 outlines the services offered in PCCUS

Table 36: Services offered in Paediatric Critical Care Units

Service	Basic Critical Care- Acute room	Intermediate Critical Care (Basic critical care plus) -PHDU	Advanced Critical Care (Intermediate critical care plus) - PICU
<b>Continuous Monitoring</b>	Monitoring of vital signs: heart rate, blood pressure, respiratory rate, temperature, and oxygen saturation.	Continuous monitoring of vital signs, 12-lead electro cardiography (ECG), and non-invasive end tidal Carbondioxide. (ETCO <sub>2</sub> )	Continuous invasive monitoring, including hemodynamic monitoring, intracranial pressure (ICP), constant EEG, and neurocritical care.
<b>Airway Management</b>	Basic manoeuvres to maintain a clear airway: head positioning, chin lift/jaw thrust, suctioning, nebulization, and medications.	Use of advanced airway adjuncts in emergencies (Nasopharyngeal and oralpharyngeal airway, Laryngeal mask airway, (NPA, OPA, LMA) and tracheostomy care.	Management of complex airway issues, including endotracheal intubation, cricothyroidotomy, and tracheostomy.
<b>Respiratory Support Services</b>	Provision of supplemental oxygen via nasal cannula, simple facemask, or non-rebreather mask; respiratory therapy services.	High-flow nasal cannula (HFNC) therapy, non-invasive ventilation, and chest tube insertion.	Mechanical ventilation with advanced modes, high-frequency oscillatory ventilation, Paediatric bronchoscopy, Nava.
<b>Cardiovascular Support</b>	Placement of peripheral intravenous catheters and intraosseous access for fluid resuscitation, blood product administration, and medication delivery.	Fluid resuscitation and Paediatric vasoactive medications for management of basic hemodynamic instability. Pericardiocentesis	Management of hemodynamic instability with Paediatric vasoactive medications and possible use of extracorporeal membrane oxygenation (ECMO).

Service	Basic Critical Care- Acute room	Intermediate Critical Care (Basic critical care plus) -PHDU	Advanced Critical Care (Intermediate critical care plus) - PICU
<b>Medication Administration</b>	Administration of basic medications such as analgesics, antipyretics, antiemetics, and antibiotics as prescribed.	Administration and titration of sedatives, analgesics, and other critical care medications.	Administration and titration of vasoactive medications, sedatives, analgesics, and critical care medications.
<b>Wound Care</b>	Basic wound assessment and dressing changes for minor wounds.	Advanced wound care, including management of complex wounds and burns.	Specialized care for chronic wounds, surgical wounds, and advanced burns management.
<b>Patient Education</b>	Basic education on condition and treatment.	Enhanced education, including self-care strategies and treatment plans.	Comprehensive education with multidisciplinary family conferences and long-term care planning.
<b>Nutritional Support</b>	Monitoring oral intake and enteral nutrition support.	Nutritional assessment and provision of enteral and parenteral nutrition as needed.	Comprehensive nutritional support, including specialized dietary management for complex cases.
<b>Mobility Assistance</b>	Basic assistance with daily living activities, physiotherapy and occupational therapy to support mobility and rehabilitation.	Physiotherapy and occupational therapy to support mobility and rehabilitation.	Advanced rehabilitation services with a focus on long-term mobility and functional outcomes.
<b>Basic Diagnostic Testing</b>	Basic sample collection for laboratory testing. Echocardiography and POCUS, Portable Xray.	Advanced diagnostic testing, including including CT, MRI echocardiography and POCUS.	Comprehensive diagnostic services, including CT, MRI, and other specialized tests.
<b>Pain Management</b>	Basic pain assessment and relief measures.	Multimodal pain management approaches for more complex cases.	Advanced pain management strategies, including sedation and multidisciplinary approaches for complex pain syndromes.
<b>Sedation Management</b>	Procedural sedation.	Intermittent sedation for procedures and interventions.	Continuous sedation management and monitoring for critically ill patients requiring advanced interventions.
<b>Psychosocial Support</b>	Emotional support for patients and families.	Structured psychosocial support programs for families dealing with acute illness.	Comprehensive psychosocial care, including access to counsellors and social workers.
<b>Communication and Coordination</b>	Basic communication with other healthcare providers.	Coordinated care with higher levels of expertise.	Robust communication systems to facilitate complex care management and referrals to specialized services.
<b>Renal Support</b>	Insertion of urinary catheters and fluid monitoring.	Management of acute kidney injury (AKI) peritoneal dialysis, hemodialysis, and management of electrolyte imbalances.	Comprehensive renal replacement therapy and management of complications of kidney disease.

Service	Basic Critical Care- Acute room	Intermediate Critical Care (Basic critical care plus) -PHDU	Advanced Critical Care (Intermediate critical care plus) - PICU
<b>Neurocritical Care</b>	Basic neuro-monitoring and management of emergencies (eg seizures).	Management of neurological emergencies with access to specialized consultations.(E.g Mild to moderate head trauma)	Advanced neurocritical care with continuous EEG monitoring and immediate access to neurosurgical services.( Status epilepticus, severe head trauma etc)
<b>Infection Control and Prevention</b>	Basic infection control protocols, including antimicrobial stewardship. (Care Bundles)	Enhanced infection prevention strategies, including antimicrobial stewardship.	Comprehensive infection control management, including isolation protocols and advanced infection prevention programs.
<b>Multidisciplinary Care</b>	Coordination among basic healthcare providers.	Enhanced coordination with specialized teams, including nutrition and rehabilitation specialists.	Integrated multidisciplinary care in teams for complex case management.

### 7.3. Standards for Design and Layout of a PCCU

A well-designed layout is crucial for the effective functioning of the Critical Care Departments. The following standards outline the essential components required for optimal patient care and staff efficiency: Refer to the on General standards for design and layout

#### 7.3.1. Standards for Design and Layout of an Acute Room

Table 37: Standards for Design and Layout of an Acute Room

Category	Details
<b>Plan</b>	The patient area will contain a combination of open and closed -plan areas.
<b>Size</b>	500-600 SQ FT FOR 5 BEDS
<b>Doors</b>	Main doors can open fully both ways for full visibility and accessibility. Bed space doors should have a minimum 1.4m clear opening.
<b>Bed Space Clearance</b>	Minimum 1.2m clearance around both sides and foot of the bed.
<b>Bedside Utilities</b>	Head of bed clearance: 0.3m, from fixed obstructions or walls. Wall oxygen outlets: 2 per bed space Medical Air outlet: 1 per bed space Suction outlet: 1 per bed space Electrical outlets: 5 per bed space Adequate lighting
<b>Nursing Station</b>	Centrally located for full visibility of patient areas. Equipped with computers, monitors, and storage for essential supplies. Direct access to medication storage and emergency equipment Centrally located for full visibility of patient areas. X ray viewing Box

### 7.3.2. Standards for Design and Layout of a Paediatric High Dependency Unit (PHDU)

Table 38: Design and layout of a Paediatric High Dependency Unit (PHDU)

Category	Details	Size in square ft
<b>General</b>	<ul style="list-style-type: none"> <li>Central Monitoring Station- Central whiteboard/chart area for on-call doctors/nurses</li> <li>Nursing station serving a maximum of 8 bed spaces for direct visibility</li> <li>Proximity of doctor on-call room and Intensivist/Paediatrician duty room</li> <li>Family waiting area for at least one visitor per patient, equipped with a washroom and telephone</li> <li>Medication room</li> </ul>	<p>1000</p> <p>300-400</p> <p>800-1000</p>
<b>Patient Bed Space &amp; Area</b>	<ul style="list-style-type: none"> <li>Combination of open-plan areas</li> <li>At least 1 isolation room per 6 beds</li> <li>Main doors can open fully both ways for visibility and accessibility</li> <li>Wall outlets: Oxygen (2), Air (1), Vacuum Suction (1), Electrical (10) per bed space</li> <li>Adequate lighting</li> <li>Bedrooms: 1.2m clearance around both sides and foot of the bed</li> <li>Head of bed clearance: 0.8m (Level 2)</li> <li>Door opening: Minimum 1.4m clear opening</li> <li>Beds space</li> <li>1 PHDU bed per 10–20 general ward beds</li> </ul>	100 per Bed
<b>Power Supply, Temperature Control, Internet &amp; Data Management</b>	<ul style="list-style-type: none"> <li>- Uninterrupted power supply with backup (inverters/generators)</li> <li>Implement electronic health records and data management</li> <li>Data entry for scripts and investigation requests</li> <li>Data and communication outlets with communication room</li> <li>Stable internet supply with optional Wi-Fi for staff, patients, and visitors</li> </ul>	
<b>Beds and Equipment</b>	<ul style="list-style-type: none"> <li>Secure monitors with wall-mounted brackets</li> <li>Respiratory support equipment 0.5m from bed, 0.3m from wall</li> <li>Space for bedside carts and personal belongings</li> <li>Bed railings to prevent falls</li> <li>Emergency alarm button for cardiac arrest or emergencies</li> <li>Bedside chair for parent/caregiver</li> </ul>	670
<b>Central Monitoring Station</b>	<ul style="list-style-type: none"> <li>Captures all bed spaces</li> <li>Space for staff functions, patient records, and communication tools</li> <li>X-ray Viewing Area with illuminated viewing boxes</li> <li>Telephone with a directly accessible line</li> </ul>	
<b>Storage</b>	<ul style="list-style-type: none"> <li>Space for large patient care equipment</li> <li>Medication Storage Rooms or unit-specific pharmacies</li> <li>Controlled access to medications per Ministry of Health regulations</li> <li>Refrigerators for temperature-sensitive medications</li> </ul>	100-200
<b>Clean &amp; Dirty Utility Room</b>	<ul style="list-style-type: none"> <li>Separate clean and dirty utility rooms</li> <li>Equipped with sinks and waste disposal bins</li> <li>Adequate sharps disposal bins</li> </ul>	100 - 150
<b>Waste Disposal</b>	<ul style="list-style-type: none"> <li>Proper disposal mechanisms for contaminated waste</li> <li>Compliance with pollution control guidelines for needles and sharps</li> </ul>	
<b>Fixtures, Finishing &amp; Fittings</b>	<ul style="list-style-type: none"> <li>Acoustic properties, durability, ease of cleaning, infection control, fire safety, and wheeled equipment resistance</li> <li>Off-white colors in critical patient observation areas</li> </ul>	
<b>Safety &amp; Security</b>	<ul style="list-style-type: none"> <li>CCTV within and outside the unit</li> <li>Separate entrances for staff and visitors/family</li> </ul>	

Category	Details	Size in square ft
<b>Infection Control</b>	<ul style="list-style-type: none"> <li>• Hand washing bays in patient rooms and open areas</li> <li>• Hand-sensitive taps and soap dispensers</li> <li>• Antiseptic hand rubs at points of care and patient beds</li> <li>• One hand washing bay per open PHDU area for every 4-bed bay at the four corners of PHDU spaces</li> </ul>	
<b>Nursing station</b>	Designated area where nurses coordinate care.	150 - 200
<b>ISOLATION ROOM 1</b>	Designated room for isolating patients with contagious conditions.	150 - 200
<b>ISOLATION ROOM 2</b>	Negative - Additional isolation room for infection control.	150 - 200
<b>STAFF CALL ROOM</b>	Room where staff can rest or respond to emergency calls.	150 - 200
<b>EQUIPMENT STORE</b>	Storage area for medical equipment and supplies.	150 - 200
<b>LAB AREA</b>	Space for conducting laboratory tests and sample processing.	200 - 300
<b>PROCEDURE ROOM</b>	Room for performing medical procedures and minor surgeries.	1150-200
<b>SLUICE</b>	Area for cleaning and disposing of medical waste.	100-150
<b>CONFERENCE ROOM</b>	Meeting space for staff discussions, training, and planning.	130- 150
<b>SERVICE LOBBY</b>	Entrance area for service-related activities.	150-200
<b>HOLDING ROOM</b>	Temporary patient holding area before procedures or transfers.	150-200
<b>UPS &amp; HVAC</b>	Room housing Uninterruptible Power Supply (UPS) and Heating, Ventilation, and Air Conditioning (HVAC) systems.	N/a
<b>LINEN STORE</b>	Storage space for clean linen used in patient care.	120-150
<b>DRUGS STORE</b>	Secure storage for medications and pharmaceuticals.	100-150
<b>IPC ROOM</b>	Infection Prevention and Control (IPC) room for managing infection risks.	120
<b>STAFF LOUNGE</b>	Rest area for hospital staff.	120-150
<b>DOCTOR'S ROOM</b>	Office space for doctors to review cases and perform administrative work.	150-200
<b>INCHARGE OFFICE</b>	Office for the person in charge of the unit or facility.	150-200
<b>NUTRITIONIST</b>	Office or consultation space for the hospital's nutritionist.	150-200
<b>VISITOR'S PREP. ROOM</b>	Room for visitors to prepare before entering patient areas.	150-200
<b>LOBBY</b>	Waiting and reception area for visitors and staff.	150-200
<b>SERVICE CORRIDOR</b>	Internal passageway for hospital staff and services.	600-800
<b>Bathroom – assisted</b>	A space equipped with special feature and devices to help patients with reduced mobility physical disability to maintain independence and dignity while using these facilities	100-150
<b>Male CHANGING ROOMS</b>	Dedicated changing area for male staff.	150-200
<b>Female CHANGING ROOMS</b>	Dedicated changing area for female staff.	150-200

For architectural design details, refer to Annex 4.

### 7.3.3. Standards for Design and Layout of a Paediatrics Intensive Care Unit (PICU)

#### i. Unit Design and Accessibility

**Separation from Other ICUs:** The PICU must be distinctly separated from neonatal and adult intensive care units to tailor care to the specific needs of Paediatric patients, enhancing safety and minimizing cross-contamination.

**Adaptability and Expansion:** Facilities should be designed for future adaptability and expansion, allowing them to evolve with advancements in Paediatric medicine without extensive renovations.

**Traffic Management:** Limiting traffic through the unit is essential to create a calm environment conducive to recovery, reducing distractions and stress for patients.

**Accessibility:** The PICU should ensure easy access to the emergency department, operating theatres, laboratories, radiology departments, and Paediatric wards. This accessibility is vital for timely interventions and ongoing care.

**Elevator and Ramp Access:** If located on an upper floor, the PICU must provide elevators and ramps to facilitate efficient transport of patients and staff, particularly during emergencies.

**ii. Paediatric Intensive Care Unit (PICU) Environmental Standards**

**1. Lighting**

- **Illumination Level:** Minimum of 100 lux per bed to ensure adequate visibility for patient monitoring and care while minimizing discomfort.
- **Lighting Type:** Concealed-type lighting (e.g., recessed or indirect fixtures) to reduce glare and create a calm, non-intrusive atmosphere.
- **Color Consideration:** Paired with soothing wall colors (e.g., soft pastels, muted greens, or blues) to promote a healing and restful environment.

**2. Air Quality**

- **Air Exchange Rate:** 14–16 air exchanges per hour to maintain a clean, sterile environment and reduce the risk of airborne infections.
- **Temperature:** Maintained between 21–24°C (70–75°F) to ensure patient comfort and support medical equipment functionality.
- **Humidity:** Controlled at 40–60% relative humidity to prevent dryness, support respiratory health, and inhibit microbial growth.

**3. Acoustics**

- **Sound Level:** Maximum of 45 decibels during normal operation to minimize stress and promote rest for patients and staff.
- **Sound Mitigation:** Walls and ceilings constructed with sound-absorbing materials (e.g., acoustic panels, noise-reducing insulation) to dampen echoes and external noise.

**iii. PICU size and Unit Layout**

**Optimal Bed Count:** The ideal PICU should aim for 6 to 12 beds. This size allows for effective patient management while ensuring staff can provide personalized care.

**Proportional Capacity:** A recommended standard is to maintain one PICU bed for every six general Paediatric beds.

Table 40: Design and Layout of a Paediatrics Intensive Care Unit (PICU)

Category	Details	Size in square ft
General	<ul style="list-style-type: none"> <li>• Central Monitoring Station- Central whiteboard/chart area for on-call doctors/ nurses</li> <li>• Nursing station serving a maximum of 8 bed spaces for direct visibility</li> <li>• Main doors can open fully both ways for visibility and accessibility</li> <li>• Access Control: Implement locks, keys, or codes for controlled access to sensitive areas within the unit</li> <li>• Proximity of doctor on-call room and Intensivist/Paediatrician duty room</li> <li>• Family waiting area for at least one visitor per patient, equipped with a washroom and telephone</li> <li>• Medication room</li> </ul>	

Category	Details	Size in square ft
<b>Patient bed space &amp; area</b>	<ul style="list-style-type: none"> <li>Blended open/closed plan</li> <li>Closed plan cubicles, will have glass doors that open both ways</li> <li>Wall outlets: Oxygen (4), Air (4), vacuum Suction (3), Nitrous oxide outlet (1 Electrical (10) per bed space</li> <li>Adequate lighting</li> <li>Waste Disposal at Bed Spaces</li> <li>Bedrooms: 1.2m clearance around both sides and foot of the bed</li> <li>Head of bed clearance: 0.3m (Level 1) and 0.8m (PHDU)</li> <li>Door opening: Minimum 1.4m clear opening</li> <li>Beds IN 670 square feet</li> <li>1picu bed per 6 general ward beds</li> </ul>	600-1000
<b>Power supply, temperature control, internet &amp; data management</b>	<ul style="list-style-type: none"> <li>Uninterrupted power supply with backup (inverters/generators)</li> <li>Implement electronic health records and data management</li> <li>Data entry for scripts and investigation requests</li> <li>Data and communication outlets with communication room</li> <li>Stable internet supply with optional Wi-Fi for staff, patients, and visitors</li> </ul>	
<b>Beds and equipment</b>	<ul style="list-style-type: none"> <li>Secure monitors with wall-mounted brackets</li> <li>Respiratory support equipment 0.5m from bed, 0.3m from wall</li> <li>Space for bedside carts and personal belongings</li> <li>Bed railings to prevent falls</li> <li>Emergency alarm button for cardiac arrest or emergencies</li> <li>Bedside chair for parent/caregiver</li> </ul>	
<b>Central monitoring station</b>	<ul style="list-style-type: none"> <li>Captures all bed spaces</li> <li>Space for staff functions, patient records, and communication tools</li> <li>X-ray Viewing Area with illuminated viewing boxes</li> <li>Telephone with a directly accessible line</li> </ul>	
<b>Storage</b>	<ul style="list-style-type: none"> <li>Space for large patient care equipment</li> <li>Medication Storage Rooms or unit-specific pharmacies</li> <li>Controlled access to medications per Ministry of Health regulations</li> <li>Refrigerators for temperature-sensitive medications</li> </ul>	
<b>Clean &amp; dirty utility room</b>	<ul style="list-style-type: none"> <li>Separate clean and dirty utility rooms</li> <li>Equipped with sinks and waste disposal bins</li> <li>Adequate sharps disposal bins</li> </ul>	100-150
<b>Waste disposal</b>	<ul style="list-style-type: none"> <li>Proper disposal mechanisms for contaminated waste</li> <li>Compliance with pollution control guidelines for needles and sharps</li> </ul>	
<b>Fixtures, finishing &amp; fittings</b>	<ul style="list-style-type: none"> <li>Acoustic properties, durability, ease of cleaning, infection control, fire safety, and wheeled equipment resistance</li> <li>Off-white colors in critical patient observation areas</li> </ul>	
<b>Safety &amp; security</b>	<ul style="list-style-type: none"> <li>CCTV within and outside the unit</li> <li>Separate entrances for staff and visitors/family</li> </ul>	
<b>Infection control</b>	<ul style="list-style-type: none"> <li>Hand washing bays in patient rooms and open areas</li> <li>Hand-sensitive taps and soap dispensers</li> <li>Antiseptic hand rubs at points of care and patient beds</li> <li>One hand washing bay per open PHDU area for every 4-bed bay at the four corners of PHDU spaces</li> </ul>	
<b>Nursing station</b>	Designated area where nurses coordinate care.	150 - 200
<b>Negative pressure isolation room 1</b>	Designated room for isolating patients with contagious conditions. 1 isolation room for every three beds	150 - 200
<b>Negative pressure isolation room 2</b>	Additional isolation room for infection control. 1 isolation room for every SIX beds	150 - 200

Category	Details	Size in square ft
<b>Staff call room</b>	Room where staff can rest or respond to emergency calls.	150 - 200
<b>Equipment store</b>	Large Storage area for medical equipment and supplies.	150 - 200
<b>Linen store</b>	Storage space for clean linen used in patient care.	200 - 300
<b>Drugs store</b>	<ul style="list-style-type: none"> <li>Secure storage for medications and pharmaceuticals.</li> <li>Refrigeration for Medications</li> </ul>	150-200
<b>Lab area</b>	Space for conducting laboratory tests and sample processing.	100-150
<b>Procedure room</b>	Room for performing medical procedures and minor surgeries.	130- 150
<b>Sluice</b>	Area for cleaning and disposing of medical waste.	150-200
<b>Conference room</b>	Meeting space for staff discussions, training, and planning.	150-200
<b>Service lobby</b>	Entrance area for service-related activities.	600-800
<b>Holding room</b>	Temporary patient holding area before procedures or transfers.	150 - 200
<b>UPS &amp; HVAC</b>	Room housing Uninterruptible Power Supply (UPS) and Heating, Ventilation, and Air Conditioning (HVAC) systems.	150-200
<b>Linen store</b>	Storage space for clean linen used in patient care.	150-200
<b>Drugs store</b>	Secure storage for medications and pharmaceuticals.	150-200
<b>IPC room</b>	Infection Prevention and Control (IPC) room for managing infection risks.	150-200
<b>Staff lounge</b>	Rest area for hospital staff.	150-200
<b>Doctor's room</b>	Office space for doctors to review cases and perform administrative work.	
<b>Incharge office</b>	Office for the person in charge of the unit or facility.	150-200
<b>Nutritionist office</b>	Office and consultation space for the hospital's nutritionist.	150-200
<b>Visitor's prep. Room</b>	Room for visitors to prepare before entering patient areas.	150-200
<b>Lobby</b>	Waiting and reception area for visitors and staff.	400-600
<b>Service corridor</b>	Internal passageway for hospital staff and services.	600-800
<b>Bathroom – assisted</b>	A space equipped with special feature and devices to elp patients with reduced mobility physical disability to maintain independence and dignity while using these facilities	150-200
<b>Male changing rooms</b>	Dedicated changing area for male staff.	150-200
<b>Female changing rooms</b>	Dedicated changing area for female staff.	150-200
<b>Ante room</b>	Designated space for donning and doffing used to contol contamination and maintain a sterile environment	150-200
<b>Central monitoring station</b>	Consolidates and displace real time patient vital signs and data from bedside monitors in a central location	150-200
<b>Central whiteboard/ chart area:</b>	An organized space for displaying essential information, such as the on-call doctor and nurse, to facilitate communication.	70-100
<b>Staff locker cabinets:</b>	Secure storage for staff belongings to promote hygiene and organization	150-200
<b>Medication room</b>	A secure and organized space for storing and preparing medications	150-200
<b>Nursing station</b>	One for every six bed spaces, ensure direct visibility of patients and promote efficient care.	150-200
<b>Simulation rooms</b>	Specialised training environment designated to replicate a real PICU setting	500-700
<b>Cme room</b>	Dedicated space for educational activities and workshops to support the ongoing professional development	

## 7.4. Standards for Paediatric Health Products and Technologies in a Paediatrics Intensive Care (PICU)

### 7.4.1. General Standards for Equipment and Health Technology in a Paediatrics Intensive Care (PICU)

The General Standards for Equipment and Health Technology in the Paediatric Critical Care Unit (PCCU) ensure the availability, functionality, and proper maintenance of essential medical devices to support high-quality patient care. Refer to the general specifications of technologies and Health products.

Table 41: Standards for Human Resources for Health in Paediatrics Intensive Care (PICU)

Equipment/ Technology	Basic Critical Care- Acute rooms	Intermediate Critical Care Basic Critical Care plus	Advanced Critical Care Intermediate Critical Care plus
<b>Patient Monitoring System</b>	<ul style="list-style-type: none"> <li>Cardiac monitor (ECG, heart rate, blood pressure, respiratory rate, temperature)</li> <li>Pulse oximeters</li> </ul>	<ul style="list-style-type: none"> <li>Non-invasive Capnography monitors</li> <li>5 - 6 Channel vital signs monitor</li> </ul>	5 - 6 Channel vital signs monitor with invasive monitoring capability, capnography, 24hr EEG, EMG, Transcranial doppler Invasive monitoring (e.g. arterial, CVP, Abdominal pressure, ICP, etc) Near - infrared spectroscopy (NIRS) monitors
<b>Airway Management</b>	<ul style="list-style-type: none"> <li>Suction apparatus</li> <li>Nebulization kits</li> </ul>	<ul style="list-style-type: none"> <li>Intubation equipment for emergencies (laryngoscopes, endotracheal tubes)</li> <li>NPA, OPA, LMA</li> <li>Paediatric tracheostomy kits and supplies for emergency</li> </ul>	laryngoscopes (Video if available) Paediatric bronchoscopes Paediatric tracheostomy kits and supplies with advanced airway adjuncts Cricothyroidotomy kits ET pressure monitor
<b>Respiratory Support</b>	<ul style="list-style-type: none"> <li>Bag-valve-mask (BVM) with reservoir bag.</li> <li>Oxygen source (oxygen concentrator, cylinder, or centralized oxygen supply).</li> <li>Oxygen delivery devices (nasal prongs, simple face mask, non-rebreather mask)</li> <li>Stethoscope</li> <li>Flow meters</li> <li>Oxygen blender</li> </ul>	<ul style="list-style-type: none"> <li>High-flow nasal cannula (HFNC) systems</li> <li>Non-invasive positive pressure ventilation (NIPPV) devices</li> <li>Non-invasive Continuous positive airway pressure (CPAP) machines</li> <li>Non-invasive Capnography</li> <li>Transport ventilator and trolley for emergency</li> <li>incentive spirometer</li> </ul>	Mechanical ventilators with advanced modes including pressure support ventilation APRV, HFOV, and Negative pressure ventilation. Extracorporeal membrane oxygenation (ECMO) Nitric oxide delivery Thoracotomy and chest tube kits Transport ventilators
<b>Cardiovascular Monitoring</b>	<ul style="list-style-type: none"> <li>Vital signs monitor (ECG, heart rate, blood pressure, respiratory rate, temperature)</li> <li>Pulse oximeters</li> </ul>	<ul style="list-style-type: none"> <li>Continuous electrocardiography (ECG) monitoring compatible with electronic health records</li> <li>Echocardiogram</li> <li>Colour Doppler with Paediatric probes</li> <li>Infusion/syringe pumps</li> <li>POCUS machine</li> <li>Portable monitor</li> <li>Defibrillator</li> </ul>	Invasive monitoring capability Transoesophageal echocardiography (TEE) IV Fluid/blood warmer Pressure infusion pump Transport Monitors

Equipment/ Technology	Basic Critical Care- Acute rooms	Intermediate Critical Care Basic Critical Care plus	Advanced Critical Care Intermediate Critical Care plus
<b>Renal Support</b>	<ul style="list-style-type: none"> <li>Urinary catheters and calibrated bags.</li> </ul>	<ul style="list-style-type: none"> <li>Peritoneal Dialysis</li> <li>Haemodialysis machine</li> </ul>	Continuous renal replacement therapy (CRRT) Sustained low efficiency dialysis (SLED)
<b>Temperature Management</b>	<ul style="list-style-type: none"> <li>Thermometer</li> <li>Heaters</li> <li>Radiant warmers</li> <li>Warming blankets</li> <li>Ice packs</li> </ul>	<ul style="list-style-type: none"> <li>Temperature modulating devices (Thermal blankets)</li> </ul>	Intravascular temperature management devices with multiple access ports Whole-body cooling and rewarming systems for temperature regulation
<b>Diagnostic Imaging</b>	<ul style="list-style-type: none"> <li>X-RAYS</li> </ul>	<ul style="list-style-type: none"> <li>Portable X-ray machines</li> <li>Portable ultrasound machines</li> </ul>	Portable ultrasound machines with advanced cardiac and vascular imaging capabilities Access to MRI and CT scanners
<b>Medication Delivery</b>	<ul style="list-style-type: none"> <li>Infusion set, NGT/OGT</li> <li>Medication carts</li> <li>Crash carts with emergency medications</li> </ul>	<ul style="list-style-type: none"> <li>Infusion pumps (syringe /volumetric pumps) compatible with electronic health records</li> </ul>	Automated medication dispensing systems with barcode verification and drug library integration Advanced medication reconciliation and allergy alert systems within the electronic health record (EHR)
<b>Point-of-Care Testing</b>	<ul style="list-style-type: none"> <li>Simple point-of- care lab(I stat devices for; CBC, UECr, Urinalysis, RBS, CRP, PCT.</li> </ul>	<ul style="list-style-type: none"> <li>Blood gas analysers</li> <li>POCT (Ketones, BNP, Lactate, sugar, PT, CRP, PCT)</li> <li>Serum Biochemistry analysis machines</li> </ul>	Comprehensive metabolic panels Ammonia,
<b>Wound Care and Dressings</b>	<ul style="list-style-type: none"> <li>Sterile dressings and wound care supplies</li> <li>Wound irrigation solutions</li> <li>Surgical strips, sutures and staples</li> </ul>	<ul style="list-style-type: none"> <li>Negative pressure wound therapy systems</li> <li>Surgical debridement kits with advanced wound assessment tools</li> </ul>	Advanced wound care products including biological dressings
<b>Mobility and Immobilization</b>	<ul style="list-style-type: none"> <li>Patient beds with side rails</li> <li>Stretcher</li> <li>Wheelchair</li> <li>Zimmer Frames and other mobilization systems.</li> </ul>	<ul style="list-style-type: none"> <li>Spinal immobilization devices</li> <li>Beds with movable heads and legs with side rails and detachable head and leg rails</li> </ul>	Advanced patient beds with integrated patient positioning systems, weighing, and therapeutic mattress overlays Advanced patient transfer equipment with automated lifting and positioning capabilities
<b>Emergency Resuscitation</b>	<ul style="list-style-type: none"> <li>Automated external defibrillators (AEDs)</li> <li>Resuscitation medications and equipment</li> <li>Access to an ambulance</li> <li>Emergency cart</li> </ul>	<ul style="list-style-type: none"> <li>Defibrillators with monitoring, cardioversion, and pacing capabilities.</li> <li>Advanced airway management</li> <li>Blood product transfusion devices.</li> </ul>	Advanced resuscitation medications and equipment

Equipment/ Technology	Basic Critical Care- Acute rooms	Intermediate Critical Care Basic Critical Care plus	Advanced Critical Care Intermediate Critical Care plus
<b>Documentation and HIT</b>	<ul style="list-style-type: none"> <li>Health management information systems [HMIS] with PACS including</li> <li>Electronic health record (EHR) systems</li> <li>Barcode medication administration (BCMA) systems</li> <li>Telemedicine and telemonitoring equipment</li> </ul>	<ul style="list-style-type: none"> <li>As in Basic Critical Care</li> </ul>	Telemedicine and telemonitoring equipment with high-definition video conferencing and remote monitoring capabilities, allowing for consultation with specialists and remote patient monitoring
<b>Miscellaneous</b>	<ul style="list-style-type: none"> <li>Beds, LED Phototherapy units, overhead warmer, bedside table, over bed table, IV Poles, Bedside chair, procedure stools, clocks, television, toys, breast pump, infant weighing machine, printer, Stationeries, Telephone.</li> </ul>		

Table 42: Pharmaceuticals and drugs for use in the Paediatric Critical Care Unit (PCCU)

Category	Pharmaceuticals
<b>Analgesics/Local Anaesthetics</b>	IV morphine (10 mg/mL) and oral morphine (1 mg/ml), Fentanyl 50mcg/ml (2ml amp) , Remifentanil 2mg/2ml, Paracetamol oral (120mg/5ml) and IV 10mg/ml, Lidocaine 2% Diclofenac 75mg inj Paracetamol 500mg tablet, Ibuprofen 200mg& 400mg tablets, Diclofenac 5mg & 10mg tablets, Dexketoprofen 25mg/mL (2mL amp), Lignocaine Topical spray 4% (as HCl)
<b>Antidotes</b>	Flumazenil injection 100 micrograms/mL (5mL amp), Protamine sulphate injection 10mg/mL (as sulphate) (5mL amp) Naloxone (400mcg/ml), acetylcysteine (200mg/ml)
<b>Sedatives</b>	Midazolam 1mg/ml (5mg), Propofol 10mg/ml (200mg), Dexmedetomidine 100mcg/ml, Diazepam 5mg/ml, Ketamine 50mg/ml, Remifentanil 2mg/2ml, Fentanyl 50mcg/ml, Chlorohydrate 100mg/ml
<b>Emergency Drugs</b>	Acetylsalicylic Acid 75mg, Aminophylline 250mg/10ml, 10% Calcium Chloride 1gm/10ml, Dexamethasone 4mg (as sodium phosphate)/1mL amp, Esomeprazole 40mg injection, Salbutamol inhaler 200mcg, Adrenaline (1mg/1ml), Adenosine (6mg/2ml), Alprostadil (500mcg/ml) Atropine 0.1mg/ml (1mg), Amiodarone 50mg/ml (300mg), Calcium Gluconate 10%, IV Chlorpheniramine 10mg/ml, , Dobutamine 12.5mg/ml (5 mg), Dopamine 40mg/ml, Glucagon 1mg, Glycopyrrolate 200mcg. Hydrocortisone 100mg, Ipratropium 500mcg, Lignocaine (preservative-free) 2% (as HCL), Magnesium Sulphate 4% (100ml bottle) or 500mg/mL (50%), (10mL amp/vial), Potassium Chloride 15%, Propranolol 1mg, IV Salbutamol 1mg/ml for hyperkalemia, Salbutamol Nebulizing Solution 5mg/ml, Sodium Bicarbonate 8.4%, Water for Injection (Sterile 10ml), Sodium Chloride 30%. Dinoprostone 1mg. Omeprazole injection 40mg (as sodium salt) vial

<b>Inotropes/ Vasopressors/ Vasodilators</b>	Phenylephrine 10mg/mL Hydrochloride 1mL; Labetalol 100mg & 200mg Tablets, Nitroprusside 50mg/2ml, Glyceryl trinitrate, Milrinone 10mg/10ml injection; Noradrenaline 1mg/ml, Ephedrine, Adrenaline, Phenylephrine, Milrinone, Dobutamine 12.5mg/5mg, Dopamine 40mg/ml, Vasopressin 20IU/ml; Digoxin 250mcg
<b>Lubricant</b>	Water Based Lubricant (Sterile) 42-50gm, Lignocaine gel 2% w/w
<b>Drugs relating to Coagulation</b>	Heparin 5000 i.u./ml, Enoxaparin 40mcg/0.4ml, Warfarin 3mg tab, Rivaroxaban 10mg, Vitamin K 2mg/0.2ml, Protamine sulphate 10mg/ml, Tranexamic acid 100mg/mL (5mL amp)
<b>Blood and Blood Products</b>	Whole blood, Packed red blood cells, Platelets, Fresh Frozen Plasma, cryoprecipitate
<b>Diuretics</b>	Acetazolamide 250mg & 500mg Tablets, Metolazone 5mg tablets, Mannitol 500ml, Furosemide 10mg/ml, Spironolactone 25mg, Hydrochlorothiazide 25mg.
<b>IV Fluids</b>	Albumin 5%, 20%, Normal Saline 0.9% 500ml, Ringers Lactate Solution 500ml, Dextrose 10% 500ml, Dextrose 50% 50ml, Dextrose/Normal Saline 500ml, 30% Sodium Chloride, 3% hypertonic saline
<b>Muscle Relaxants</b>	Suxamethonium, Atracurium, Cisatracurium, Rocuronium
<b>Antimicrobials</b>	<p><b>First line antibiotics:</b> Benzylpenicillin (250000iu/ vial), Gentamicin(20mg/ml), Flucloxacillin 250mg, Amoxicillin DT 250mg, Metronidazole IV 5mg/mL (100mL vial), Amoxicillin powder for oral liquid 125mg/5mL (as trihydrate) Metronidazole oral liquid 200mg/5mL (as benzoate)</p> <p><b>Second line antibiotics:</b> Ceftazidime 250mg vial, Cefotaxime 500mg, Amoxicillin-clavulanic acid 125/31.25mg- PFOR &amp; 250/62.5mg PFOR &amp; 500/125mg tablet, Cefuroxime 200mg &amp; 400mg tablets, Vancomycin 500mg per vial, Amikacin (250 125mg/ml) &amp; 500mg injection, ceftriaxone 500mg/ml, Cefepime 1g/50mL, meropenem 500mg, Piperacillin/tazobactam 4mg/500mg.</p> <p><b>Topical antibiotic:</b> TEO 1%, Mupirocin cream 2%</p> <p><b>Cord Care:</b> Chlorhexidine 7.1% (as digluconate) (20 g tube)</p> <p><b>Antifungals:</b> IV Fluconazole 2mg/ml, Oral Fluconazole 2mg/ml, Nystatin oral drops 100,000 IU/ml. Voriconazole 200mg tablet, Amphotericin B (Liposomal) 50mg via</p> <p><b>Antivirals:</b> IV Acyclovir 250mg vial (as sodium salt), Ganciclovir 500mg/vial, Valganciclovir 50/ml, Palivizumab 100mg/ml.</p> <p><b>Anti- malarials:</b> Artemether / lumefantrine 20mg/120mg dispersible tab, Artesunate injection 30mg/ml</p> <p><b>Anti-retroviral:</b> As per national ART guidelines</p> <p><b>Anti- TBs:</b> Isoniazid 50mg tab,100mg, Rifampicin/Isoniazid/Pyrazinamide (75/50/150), Anti-Hepatitis B immunoglobulin 100 IU/mL and Hepatitis B Vaccine IV immunoglobulin (single or multidose)</p>
<b>Anticonvulsants</b>	I.V/ I.M Phenobarbital (30mg/ml) and Oral phenobarbital (30mg tab), IV levetiracetam 500mg (100mg/ml) and Oral levetiracetam 500mg (100mg/ml), IV Phenytoin 50mg/mL (5mL vial).
<b>Antihypertensives</b>	Enalapril 5mg, 10mg & 20mg Tablets, Lisinopril 20mg tablet, Nifedipine 20mg Tablet, Hydrochlorothiazide 25mg tablet

<p><b>Nutrition Supplements</b></p>	<p><b>Pabrinex (I &amp; II), Total parenteral nutrition:</b> Vaminolact, Intralipids, Peditrace, Soluvit; Enteral nutrition: Fresubin, F75, F100, Infant formula</p> <p>IV Ascorbic Acid 500mg Nicotinamide 160mg Anhydrous Glucose 1g,</p> <p>IV Thiamine Hydrochloride 250mg Riboflavine (as Phosphate Sodium BP) 4mg Pyridoxine Hydrochloride 50mg</p> <p><b>Total parenteral nutrition:</b> Vaminolact, Intralipids, Peditrace, Soluvit,</p> <p><b>Enteral nutrition:</b> F75, F100, Ready to Use Therapeutic Food (RUFT) Infant breast milk substitutes 0-6 months (preterm and term, partially hydrolysed, extensively hydrolysed) 6-8 months, 8-10 months, 10-12 months ≥ 1year; Expressed Breast Milk fortifiers, Cholecalciferol(VIT D3)400iu, Oral Ferrous sulphate (50mg/5ml of elemental iron), Calcium 50mg/ml, Folate 5mg, Multivitamin Drop for infants 0.5ml, 1ml &amp; Multivitamin syrups ( that contains Vitamin A, Vitamin B1, Vitamin B2, Vitamin B3, Vitamin B5, Vitamin B6, Vitamin C, Vitamin D and Vitamin E. ) parenteral nutrition (lipids) 50g bottle, parenteral nutrition (amino acids) 250 bottle.</p>
<p><b>Antiseptics</b></p>	<p>Chlorhexidine Solution for dilution 5% (as gluconate/digluconate), Methylated Spirit/ Ethanol Denatured (Alcohol Content 94%-96%), Disinfectant Tablet contains 2.5g of sodium dichloroisocyanurate (Presept Tablets), Alcohol Based Hand Rub (70% Isopropyl Alcohol), Hand Scrub, Povidone Iodine Solution 10% (equiv. to Iodine 1%).</p>
<p><b>Disinfectants</b></p>	<p>Enzymatic Detergent, Chlorhexidine Solution for dilution 5% (as gluconate/digluconate, Sodium Hypochlorite Solution (Jik) 4-6% chlorine, Glutaraldehyde 2% Solution</p>
<p><b>Others</b></p>	<p>Prostaglandin E2 1mg/mL &amp; 10mcg/ml injection solution()</p> <p>IV sildenafil 10mg/12.5ml and oral/Sildenafil powder for oral liquid 10mg/mL</p> <p>Lactulose oral liquid 3.1-3.7g/5mL;</p>

Table 43: List of Equipment for a 12-bed paediatric Intensive Care Unit (PICU)

Equipment	Quantity	Training	Installation
Motorized ICU Bed	12	√	
ripple Mattress	12	√	√
Bedside Locker Overbed Table	12	√	
IV Stand with SS Rod and Castor Base	12	√	
Bedside Stool	12	√	
Biomedical Waste Bin -20 LITERS -	40 – RED 12, YELLOW, 12 BLACK 12, WHITE 4	√	
Cardiac Monitors	12	√	√
Central monitoring Station -	1		
ICU Ventilator	12	√	√
Syringe Pump Infusion Pump	60	√	
Laryngoscope with assorted blade size	10	√	
Thermometer - Infrared Type	20	√	
Ambu Bag and mask in assorted sizes	30	√	
Aneroid BP Apparatus	20	√	
Ophthalmoscope	20	√	
ECG Machine 12 lead Channel	2		
Portable Ventilator	5	√	
Portable X-Ray with lead aprons, lead screens	1	√	
Portable Ultrasound( With Paediatric probes, Linear, cardiac )	1	√	
Biphasic Defibrillator	4	√	
ABG Machine with ISE	5	√	
Electronic Weighing Scale	2	√	
Electrical Suction Apparatus	20	√	
Patient Stretcher (Fully SS)	5	√	
Wheel Chair - Foldable	5	√	
Crash Cart	4	√	
Dressing Trolley	20	√	
Drug Trolley/Medicine Cart	5	√	
ECG Machine Trolley	2	√	
Instrument Trolley	10	√	
Oxygen Cylinder Trolley	10	√	
Glucometer	10	√	
Stethoscope assorted	24	√	
Blood Fluid Warmer	2	√	
Instrument Set	4	√	
CRRT machine	5	√	
Haemodialysis machines	6	√	
Foot Step - Double	20	√	
Radiant Warmer	12	√	

Table 44: List of Consumables for Paediatric Critical Care Units (PCCUs)

Equipment / Tech	Consumable	Typical specification (what to require in procurement / clinical guidance)
<b>Patient Monitoring Systems</b>	ECG electrodes	Disposable or reusable; adhesive hydrogel pads; shelf life $\geq 12$ mo; low-noise lead wires; compatible connector (pin size) with monitor; Adolescent/paediatric/neonate sizes.
	BP cuffs	Sizes: neonatal, infant, child, Adolescent, large Adolescent; cuff bladder widths per patient arm circumference (ensure bladder width $\approx 40\%$ of mid-arm circumference); reusable with washable covers or single-use disposable.
	Temperature probes	Types: esophageal, rectal, skin; connector compatibility (thermistor/thermocouple); single-use probe covers.
	SpO <sub>2</sub> sensors	Reusable and single-use finger/clip/tape sensors; neonatal/paediatric/Adolescent sizes; specify cable length and connector type; accuracy $\pm 2\%$ SpO <sub>2</sub> for 70–100% range (vendor spec).
	NIRS sensors	Neonatal/paediatric/Adolescent pads; adhesive life hours; cable/connector matching monitor.
	Capnography sampling lines	Water-trap, 15/22 mm fittings or Luer sampling adaptors; specify sampling flow and HME compatibility.
	EEG / EMG electrodes	Adhesive cup/strip types; neonatal and paediatric sizes; lead lengths and connector type.
	Printer/thermal paper	Width matching device; thermal grade; roll length.
<b>Airway Management</b>	Suction catheters	Single-use; French size range (neonate 6–8 Fr, infant 6–10 Fr, child 8–12 Fr, Adolescent 12–18 Fr); sterile packaging.
	Suction tubing & Yankauer tips	2–3 m tubing; connector to wall suction; disposable Yankauer.
	Nebuliser masks/kits	Jet and mesh nebuliser adapters; 15/22 mm ISO connectors; single-use nebuliser ampoules (saline/meds).
	Endotracheal tubes (ETT)	Sizes: neonatal -Adolescent (ID 2.5 mm upward). Paediatric sizing: Uncuffed ETT (mm) $\approx (\text{age}/4)+4$ , Cuffed $\approx (\text{age}/4)+3$ ; have $\pm 0.5$ mm sizes available; radiopaque line; cuffed/uncuffed options; recommend cuff pressure manometer use.
	Laryngoscope blades	Reusable stainless and disposable blades; sizes neonatal-Adolescent; LED/video options; spare batterieschargers.
	OPA / NPA / LMA	Multiple sizes; specify material, single-use or autoclavable; LMA with manufacturer IFU for paediatric use.
	Tracheostomy tubes & kits	Paediatric sizes; inner cannula option; obturator, flange and securement ties, sterile tracheostomy dressings.
	Bronchoscope accessories	Sterile single-use biopsy forceps, suction channels, sterile disposable covers (if required).
	ET tube ties/tapes & lubricants	Non-allergenic tapes; tube holders; water-based lubricant sachets.
	ETCO <sub>2</sub> adapters	15/22 mm ISO connectors; mainstream or sidestream sampling adaptors per capnograph.
	Cricothyroidotomy sets	Scalpel, bougie, cannula sizes; sterile single-use kits.
<b>Respiratory Support (incl. Ventilators)</b>	BVM & masks	BVMs with 15/22 mm connectors; paediatric/neonatal/Adolescent masks sized to patient weight; reservoir bag (1–2 L Adolescent, 500 mL paediatric).
	Oxygen tubing, masks, prongs	Standard oxygen tubing (1.8–2 m), nasal cannula sizes, simple/non-rebreather masks (with reservoir), HFNC cannulas sized to weight (specify flow ranges).
	HFNC consumables	Cannula sizes for neonate/infant/child/Adolescent; maximum recommended flow per size; compatible heated humidifier water (sterile).

	Ventilator circuits (disposable)	ISO 5356 connector compliance (15/22 mm ends); lengths 1.0–2.5 m; material: medical grade PVC/silicone/EVA; single-limb or dual-limb per ventilator model. (Require vendor compatibility certificate.) ISO
	Bacterial / Viral filters (patient & expiratory limb)	Require declared BFE/VFE ≥99.9–99.99% and vendor pressure-drop at specified flows (e.g., ≤8–10 mmH <sub>2</sub> O at 30–60 L/min); internal volume (dead space) specified — important for paediatrics. Include ISO connector sizes. AirLife Connect+1
	HME / HMEF	Adolescent dead space typically up to ~90 mL; paediatric HMEs target <25–30 mL dead space for small children/neonates; specify recommended tidal volume ranges and replacement interval (often ≤24 hrs). zollwebstore.com+1
	Closed suction systems	Catheter French sizes matched to ETT (e.g., 5–10 Fr for smaller ETTs), connector compatibility with circuit (15/22 mm), catheter length (30–40 cm paediatric); specify suction pressure limits.
	Inline nebulizer adapters / humidifier chambers	15/22 mm ISO fittings; reservoir volume; heated humidifier interface compatibility; sterile water for humidifiers.
	End-tidal CO <sub>2</sub> sensors / connectors	Sidestream sample flow rate, compatible Luer/15 mm adaptors, disposables for sidestream modules.
	Ventilator bacterial/viral filter resistance & dead space	Require vendor pressure-drop curve (pressure at 30 L/min and 60 L/min) and internal volume (mL). sunsethcs.com
	Transport ventilator consumables	Shorter, lightweight circuits; transport filter with low resistance; spare batteries and mounting straps.
	ECMO consumables (Advanced)	Oxygenator model & priming volume; tubing sets sterile, cannula sizes; anticoagulation syringes & monitoring consumables.
<b>Cardiovascular Monitoring</b>	ECG leads / disposable electrodes	Lead wire type, snap/pin connector compatibility, adhesive gel matrix; shelf life and storage.
	Pressure transducers & kits	Disposable pressure transducer sets; flush system, 0.9% NaCl with heparin as per protocol; transducer calibration date.
	Defibrillator pads	Adolescent/paediatric pads; adhesive gel, single-use; impedance range and shelf life.
	Ultrasound gel/probe covers	Sterile probe covers for invasive/sterile procedures; gel bottles (non-sterile & sterile).
<b>Renal Support</b>	Urinary catheters & urine bags	Catheter sizes neonatal-Adolescent (e.g., 6–14 Fr paediatric), sterile collection bags with anti-reflux valves.
	Peritoneal dialysis sets	Catheter kits, dialysate bag sizes, transfer sets, airtight connectors.
	Haemodialysis & CRRT consumables	Dialyser/filter cartridges (specify membrane type), tubing sets, anticoagulant (heparin) concentrations, priming fluid volumes.
<b>Temperature Management</b>	Thermometer probe covers	Single-use probe covers; probe compatibility with monitor.
	Warming blankets & cover sets	Disposable covers sized to mattress/baby; warming blanket control connectors.
	Intravascular cooling catheters	Single-use catheter kits sized per patient; multi-access ports as specified by vendor.
<b>Diagnostic Imaging</b>	Ultrasound probe covers & gel	Sterile probe covers; gel sachets for sterile procedures.
	Contrast media consumables	IV contrast vials, power injector syringes (specify viscosity & injection rates), IV cannula sizes for CT/MRI contrast injection.
	X-ray consumables	If not PACS: film sizes; otherwise DICOM printer paper/ink/thermal rolls.

<b>Medication Delivery</b>	IV cannulas & IV sets	Cannula gauge range (24G–14G), needleless connectors, microbore extension sets, infusion set lengths; Luer lock compatibility.
	Syringes & needles	Syringes 1 mL to 50 mL; Luer lock syringes for pumps; compatible pump syringe brands/models.
	NG/OG tubes	Size chart (e.g., 6–18 Fr), radio-opaque marker, guidewire if needed.
	Infusion pump consumables	Syringes for syringe pumps (specify brand/model), IV tubing sets with anti-free flow, alarmed pump compatibility.
<b>Point-of-Care Testing (POCT)</b>	Test cartridges / strips	Manufacturer lot & expiry checks; storage temperature; patient sample volume; control/calibration cartridges; device-specific cartridge types (e.g., blood gas cartridge brand like Radiometer / ABL).
	Lancets & capillary tubes	Sterile single-use lancets; capillary tube volumes and anticoagulant type if required.
<b>Wound Care &amp; Dressings</b>	Sterile dressings & sutures	Sterile packs, suture types (absorbable/non-absorbable), staple cartridges, negative pressure therapy canisters (single-use canisters compatible with VAC systems).
<b>Mobility &amp; Immobilization</b>	Disposable sheets & slings	Weight rating for slings; washable/sterile options; mattress protectors.
<b>Emergency Resuscitation</b>	Defib pads & consumable drug kits	Adolescent and paediatric sizes; single-use intraosseous needles by size (e.g., 15 mm–45 mm depending on patient age/weight); pre-filled syringes if used.
<b>Documentation &amp; HIT</b>	Barcode wristbands & printer supplies	Thermal wristband rolls (patient ID), label printer ribbons/thermal paper, spare batteries for portable scanners.
<b>Miscellaneous</b>	Phototherapy eye shields, breast pump kits, scales	Device-specific consumables and single-use hygiene items.

**Note:** for connector-related items require ISO-compliant connectors (ISO 5356 family: neonatal/paediatric sizes plus 15 mm and 22 mm for general use).

**Procurement / specification recommendations (short)**

Insist on ISO connector compliance (ISO 5356 family) for any breathing system part to ensure interoperability. ISO+1  
 For filters and HMEs require manufacturer data sheets with: BFE/VFE numbers, dead-space (mL), pressure-drop at 30 L/min and 60 L/min, and connector sizes. Demand the pressure-drop curve. sunsethcs.com+1

For paediatrics explicitly specify low-dead-space HME (<25–30 mL) and confirm recommended tidal volume ranges. zollwebstore.com+1

ETT sizing: include both cuffed & uncuffed sets and require radiopaque tubing + depth markers; supply ±0.5 mm sizes around calculated size using age formula. PMC

Ask vendors for compatibility certificates (which ventilator models the circuits/filters/HMEs are validated with) and for IFU (instructions for use) including recommended change intervals and infection-control guidance.

Table 45: Renal Care Equipment required for Paediatric Patients

Category	Equipment	Specifications
<b>Hemodialysis</b>	<b>Hemodialysis Machine</b>	<ul style="list-style-type: none"> <li>Blood flow rate: 20–300 mL/min,- Ultrafiltration: <math>\pm 10</math> mL/h,- Circuit volume: <math>\leq 100</math>–200 mL,- Temp: 35–39°C,- Weight: <math>\geq 10</math> kg</li> </ul>
	<b>Dialyzers</b>	<ul style="list-style-type: none"> <li>Surface area: 0.2–1.6 m<sup>2</sup>,- Priming volume: 15–100 mL,- Biocompatible membrane,- Clearance: 10–200 mL/min</li> </ul>
	<b>Vascular Access (CVCs)</b>	<ul style="list-style-type: none"> <li>Sizes: 4–12 Fr, 5–20 cm,- Dual-lumen,- Material: Polyurethane/silicone,- Flow: 20–300 mL/min</li> </ul>
	<b>Blood Tubing Sets</b>	<ul style="list-style-type: none"> <li>Volume: 20–80 mL,- Small bore,- Material: PVC, biocompatible</li> </ul>
	<b>Dialysate Solution</b>	<ul style="list-style-type: none"> <li>Sodium: 130–145 mEq/L,- Potassium: 0–4 mEq/L,- Bicarbonate-based,- Ultra-pure</li> </ul>
<b>Peritoneal Dialysis</b>	<b>PD Cycler</b>	<ul style="list-style-type: none"> <li>Fill volume: 10–50 mL/kg,- Cycles: 6–12 over 8–12 h,- Weight: <math>\geq 2</math> kg,- Alarms included</li> </ul>
	<b>PD Catheter</b>	<ul style="list-style-type: none"> <li>Sizes: 5–10 Fr, 15–40 cm,- Tenckhoff design,- Material: Silicone</li> </ul>
	<b>PD Fluid (Dialysate)</b>	<ul style="list-style-type: none"> <li>Glucose: 1.5%, 2.5%, 4.25%,- Volume: 250 mL–2 L,- Lactate/bicarbonate buffer</li> </ul>
	<b>Transfer Set/ Accessories</b>	<ul style="list-style-type: none"> <li>Sterile, single-use,- Length: 10–20 cm,- Clamps for manual control</li> </ul>
<b>CRRT</b>	<b>CRRT Machine</b>	<ul style="list-style-type: none"> <li>Blood flow: 10–150 mL/min,- Fluid removal: 0–200 mL/h,- Circuit volume: 30–100 mL,- Weight: <math>\geq 3</math> kg</li> </ul>
	<b>Hemofilter</b>	<ul style="list-style-type: none"> <li>Surface area: 0.1–0.9 m<sup>2</sup>,- Priming volume: 10–60 mL,- High-flux membrane (e.g., AN69)</li> </ul>
	<b>Replacement Fluid/ Dialysate</b>	<ul style="list-style-type: none"> <li>- Bicarbonate-based,- Adjustable electrolytes,- Volume: 1–5 L,- Sterile, pyrogen-free</li> </ul>
	<b>Vascular Access</b>	<ul style="list-style-type: none"> <li>- Sizes: 5–11 Fr, 5–15 cm,- Dual/triple-lumen,- Heparin-coated options</li> </ul>

## 7.5. Minimum Standards for Staffing ACUTE ROOM, PHDU AND PICU

### 7.5.1 Minimum Standards for Staffing in an acute room

Basic Paediatric Critical Care Units (PCCUs) Should have an adequate number of well trained staff to provide optimal care for Paediatric patients requiring acute attention. This staffing framework ensures that qualified medical professionals are available around the clock to handle the complexities of Paediatric care, from basic medical interventions to specialized nursing support.

Table 46: Standards for Human Resources for Health in an Acute Room

Staff Category	Roles and Requirements	No. of Staff (per shift)
<b>Medical Staff</b>		
Head of Unit – Paediatrician	<ul style="list-style-type: none"> <li>Registered with the Kenya Medical Practitioners Board</li> <li>Oversees clinical and administrative duties</li> </ul>	1
Medical Officers	<ul style="list-style-type: none"> <li>Must have active ETAT+/APLS/PALS/EPALS certifications</li> <li>Annual license renewal required</li> <li>Participate in 4 practical emergency skill sessions yearly</li> </ul>	Ratio: 1 per 10 patients
<b>Nursing Staff</b>		
In-Charge Nursing Officer/ Paediatric Nurse	<ul style="list-style-type: none"> <li>Must hold a BScN and be registered with the Nursing Council of Kenya</li> </ul>	1
Nurses	<ul style="list-style-type: none"> <li>Nurses trained in ETAT+/APLS/PALS/EPALS</li> <li>Nurse-to-patient ratio of 1:3.</li> <li>Each shift includes a Nurse in Charge, Team Leader Nurse, CPE and additional nurses based on patient numbers</li> </ul>	Ratio: 1:3 patients
<b>Auxiliary Staff</b>	<b>Shared services as per the paediatric inpatient minimum standards for staffng</b>	

**7.5.2. Standards for Human Resources for Health in an Paediatric High Dependency Unit (PHDU)**

The effectiveness of the Intermediate Critical Dependency Unit is heavily reliant on appropriate staffing levels and qualifications. Table 47 outlines the staffing norms necessary for optimal functioning in a INTERMEDIATE PCCU (PHDU).

Table 47: Minimum Staffing Standards for Paediatric High Dependency Unit (PHDU)

Staff Category	Roles and Requirements	No. of Staff (per shift)
<b>Medical Staff</b>		
<b>Head of Unit - Paediatric Intensivist</b>	<ul style="list-style-type: none"> <li>Paediatric Critical Care Consultants should be registered with the Kenya Medical Practitioners Council as Paediatric intensivists.</li> <li>Must have active ETAT+/APLS/PALS/EPALS certifications</li> <li>Carries out both clinical and administrative duties</li> <li>Ensure training, protocols, policies, guidelines, and audits are in place.</li> <li>Participate in 4 practical emergency skill sessions per year</li> </ul>	1
<b>Paediatrician</b>	<ul style="list-style-type: none"> <li>Registered with the Kenya Medical Practitioners Council as Paediatrician</li> <li>Must have active ETAT+/APLS/PALS/EPALS certifications</li> <li>Annual license renewal required</li> <li>Participate in 4 practical emergency skill sessions per year</li> </ul>	1
<b>Medical Officers</b>	<ul style="list-style-type: none"> <li>Must have active ETAT+/APLS/PALS/EPALS certifications</li> <li>Annual license renewal required</li> <li>Participate in 4 practical emergency skill sessions yearly.</li> </ul>	1 per 10 patients
<b>Nursing Staff</b>		
<b>In-Charge - Nursing Officer/Paediatric Nurse</b>	<ul style="list-style-type: none"> <li>Paediatric nurse/Paediatric critical care or equivalent</li> <li>The nursing staff should have a higher diploma in Paediatric nursing/ Paediatric critical care nursing and be registered with the Nursing Council of Kenya.</li> <li>Participate in 4 practical emergency skill sessions per year</li> </ul>	1
<b>PCCN</b>	<ul style="list-style-type: none"> <li>Training in advanced life support (ETAT+/APLS/PALS/EPALS)</li> <li>Nurse-to-patient ratio 1:2. This allows nurses to provide close observation and timely interventions.</li> <li>The nursing staff should be Paediatric critical care nurses.</li> <li>Each shift should have a Nurse in charge, a Team Lead Nurse, and nurses (the Number depends on the number of patients).</li> <li>Participate in 4 practical emergency skill sessions per year</li> </ul>	Ratio: 1:2 patients
<b>Auxiliary Staff</b>	<b>Shared as per Paediatric Intensive Care Unit minimum standards for staffing</b>	

### 7.5.3 Standards for Human Resources for Health in a Paediatric Intensive Care Unit (PICU)

The Paediatric Intensive Care Unit (PICU) plays a crucial role in providing advanced care for critically ill children, necessitating a set of comprehensive standards to ensure high-quality medical intervention.

Table 48: Minimum Staffing Standards for Paediatric Intensive Care Unit (PICU)

Staff Category	Roles and Requirements	Number per Shift
<b>Medical Staff</b>		
<b>Head of Unit - Paediatric Intensivist</b>	<ul style="list-style-type: none"> <li>Paediatric Critical Care Consultants should be registered with the Kenya Medical Practitioners and Dentist Council as Paediatric intensivists.</li> <li>Must have active ETAT+/APLS/PALS/EPALS certifications</li> <li>Lead mentor</li> <li>Carries out both clinical and administrative duties</li> <li>Ensure training, protocols, policies, guidelines and audits are in place.</li> <li>Participate in 4 practical emergency skill sessions per year</li> </ul>	1
<b>Paediatric Intensivists</b>	<ul style="list-style-type: none"> <li>Paediatric Critical Care Consultants should be registered with the Kenya Medical Practitioners and Dentist Council as Paediatric intensivists.</li> <li>Assists with training and development of unit protocols, policies, and guideline.</li> <li>One Intensivist is available to the unit for every 8 beds during daytime and one is on-call during night hours.</li> <li>Multi-disciplinary day shift rounds headed by a Paediatric Intensivist.</li> <li>The consultant should have 3-4 day working blocks – continuity of care</li> <li>Participate in 4 practical emergency skill sessions per year</li> </ul>	1 per 10 patients
<b>Paediatricians</b>	<ul style="list-style-type: none"> <li>Registered/licenced annually with the Kenya Medical Practitioners and Dentist Council.</li> <li>Must possess active advanced life support certification</li> <li>Participate in 4 practical emergency skill sessions per year</li> </ul>	1 per 10 patients
<b>Medical Officers</b>	<ul style="list-style-type: none"> <li>The medical staff should have advanced life support skills (ETAT+/APLS/PALS/EPALS) which should be active.                             <ul style="list-style-type: none"> <li>Active EPALS/PALS certification</li> <li>Active medical practice license</li> </ul> </li> <li>Participate in 4 practical emergency skill sessions per year</li> </ul>	1 per 4 patients
<b>Paediatric Emergency and Critical Care Clinical Officer</b>	<ul style="list-style-type: none"> <li>The medical staff should have advanced life support skills (ETAT+/APLS/PALS/EPALS) which should be active.                             <ul style="list-style-type: none"> <li>Active EPALS/PALS certification</li> <li>Active medical practice license</li> </ul> </li> <li>Participate in 4 practical emergency skill sessions per year</li> </ul>	1 per 4 patients
<b>Nursing Staff</b>		
<b>Nurse In-Charge</b>	<ul style="list-style-type: none"> <li>Must hold a BScN degree and be registered with the Nursing Council of Kenya.</li> <li>Higher diploma in Paediatric critical care</li> <li>MScN – Critical care</li> <li>Must possess active advanced life support certification (APLS/PALS/EPALS).</li> <li>Participate in 4 practical emergency skill sessions per year</li> </ul>	1
<b>Clinical Nurse Educator</b>	<ul style="list-style-type: none"> <li>Atleast 1 dedicated nurse for continuing education and training with specialiesd training in Paediatric Care</li> </ul>	1

Staff Category	Roles and Requirements	Number per Shift
<b>Nurses</b>	<ul style="list-style-type: none"> <li>• Must hold a BScN degree/diploma and be registered with the Nursing Council of Kenya.</li> <li>• Must possess active advanced life support certification (APLS/PALS/EPALS).</li> <li>• The nursing staff should be a Paediatric critical care nurse.</li> <li>• A very unstable patient (post-op cardiac patient/patient on renal replacement therapy) may require two nurses by the bedside (2:1).</li> <li>• Each shift should have a Nurse in charge, a Team Leader Nurse, Shift leader, and PCCN (the number depends on the number of patients).</li> <li>• There should be atleast 1 Nurse dedicated to IPC</li> <li>• There should be a Team Leader for every shift</li> </ul>	Ratio 1: 1 patients
<b>Paediatric Clinical Pharmacist</b>	<ul style="list-style-type: none"> <li>• Should be involved in ward rounds and conduct treatment sheet audits to guide treatment plans to check for drug interactions ad medication errors</li> <li>• Conduct therapeutic drug monitoring</li> <li>• Ensure antimicrobial stewardship</li> <li>• Adverse drug surveillance monitoring</li> <li>• Extemporeniou preparation of paediatric drug dosaging</li> <li>• Promort teaching mentorship, clinical trials and research to facilitate development of new pharmaceutical medical molecule vaccines and medical devices</li> </ul>	1:10
<b>Pharmacist</b>		2
<b>Auxiliary Staff</b>		
<b>Nutritionist</b>		1
<b>Patient Attendants</b>		2
<b>Laboratory Technician</b>		2
<b>Biomedical Engineer</b>		2
<b>Housekeeping Staff</b>		2
<b>Social Worker</b>		2
<b>Clerk/Records Person</b>		2
<b>IPC/Public Health Officer</b>		2
<b>Porter</b>		2
<b>Physiotherapist</b>		2
<b>Occupational Therapist</b>		2
<b>Security</b>		2
<b>Counsellor</b>		2
<b>ICT</b>		1
<b>Spiritual leader</b>		1
<b>Store Attendant</b>		2
<b>Accountant</b>		2

# **List of Policies, Guidelines, Protocols, Standard Operating Procedures (SOPs) for Establishing a Paediatric Care Unit**

# List of Policies, Guidelines, Protocols, Standard Operating Procedures (SOPs) for Establishing a Paediatric Care Unit

This chapter presents a list of minimum policies that should be in place in a healthcare facility to ensure optimal care of sick children. These SOPs serve as frameworks that guide clinical practice, promote patient safety, and enhance the overall quality of care for children and adolescents.

## 8.1. General Paediatric Care

### 1. Infection prevention and Control SOP

- Procedures for hand hygiene, use of personal protective equipment (PPE), and disinfection of equipment and surfaces.
- Guidelines for isolation precautions and handling of infectious diseases.

### 2. Medication Management SOPs

- Procedures for prescribing, dispensing, administering, and monitoring medications.
- Guidelines for handling medication errors and adverse drug reactions.

### 3. Pain Management SOPs

- Assessment and management strategies for Paediatric pain, including the use of age-appropriate scales and non-pharmacological interventions.

### 4. Emergency Response SOPs

- Protocols for handling medical emergencies, including resuscitation guidelines (PALS), and specific procedures for rapid response teams.

### 5. Patient Safety SOPs

- Procedures aimed at minimizing risks, including fall prevention strategies and the use of identification bands.

### 6. Nutritional Care SOPs

- Guidelines for the assessment of nutritional needs and management of feeding (e.g., enteral nutrition protocols).

### 7. Child Protection SOPs

- Procedures for identifying and reporting suspected child abuse or neglect, including training for staff on recognizing signs of abuse.

### 8. Consent SOPs

- Guidelines for obtaining informed consent from parents or guardians, including special considerations for minors.

### 9. Discharge Planning SOPs

- Procedures for planning and implementing safe transitions from hospital to home, including follow-up care and education for families.

### 10. Patient and Family Education SOPs

- Guidelines for providing education to patients and families regarding health conditions, treatments, and self-care management.

### 11. Data Management and Privacy SOPs

- Procedures for maintaining the confidentiality of patient information in accordance with HIPAA or local privacy regulations.

### 12. Staff Training and Competency SOPs

- Requirements for ongoing education and training of staff in Paediatric care best practices and protocols.

## 8.2. Paediatric Critical Care Policies

### 1. Admission and Discharge SOPs

Defines criteria for admitting and discharging patients from the Paediatric Intensive Care Unit (PICU) based on clinical status, ensuring appropriate utilization of critical care resources and patient safety.

### 2. Medical Records SOP

Establishes guidelines for maintaining accurate, timely, and confidential patient records, including digital documentation to ensure clear communication among the care team.

### 3. PICU Visitation SOPs

Outlines rules for family and visitor access to the PICU, balancing the need for patient privacy, infection control, and emotional support from family members.

### 4. Advance Directive SOPs

Provides guidance on respecting and documenting advance care decisions made by the family or guardians, including do-not-resuscitate (DNR) orders.

### 5. SOPs for Death Confirmation in PICU

Details the legal and clinical steps required for confirming death in Paediatric patients, including documentation and family communication.

### 6. Referral and Transfer SOPs

Defines the process for referring and transferring critically ill Paediatric patients to or from the PICU, ensuring continuity of care and communication between facilities.

### 7. Therapeutic SOPs

Governs the administration of medications and therapeutic interventions in the PICU, including dosing guidelines and monitoring protocols for critically ill children.

### 8. Investigation SOPs

Covers procedures for conducting medical investigations (such as lab tests and imaging) efficiently and safely, ensuring that diagnostic processes align with best practices.

### 9. Infection Control and Antimicrobial Stewardship SOPs

Provides strategies for minimizing healthcare-associated infections (HAIs) in the PICU and promoting responsible antibiotic use to prevent resistance.

### 10. Critical Incident Management SOPs

Establishes protocols for managing and reporting critical incidents, including medical errors, equipment failures, or unexpected patient outcomes.

### 11. SOPs for Contingency Plans

Outlines emergency evacuation procedures and plans for mass casualty events affecting the physical infrastructure of the PICU, ensuring patient and staff safety during crises.

### 12. Child Protection SOPs

Provides guidelines for identifying and responding to signs of abuse or neglect, ensuring that vulnerable children receive protection and appropriate intervention.

### 13. Parent's counselling SOPs

Details procedures for offering psychological and emotional support to parents and guardians of critically ill children, addressing their concerns and enhancing coping mechanisms.

**14. Safe Transportation of Critically Ill Children SOPs**

Defines protocols for the secure transfer of critically ill Paediatric patients within the hospital or to external facilities, ensuring the safe handling of equipment and continuous care.

**15. Handoff Protocol SOPs**

Establishes a standardized approach for transferring patient care responsibilities between healthcare professionals, ensuring clear communication and minimizing errors during transitions.

**8.3 Infection Prevention and Control Guidelines****Infection Prevention and Control (IPC) Guideline for Paediatric Care**

Applicable to Levels 2–6 Healthcare Facilities: Paediatric Outpatient Department, Inpatient (PID), Acute Rooms, PHDU, and PICU

**Purpose**

To establish a comprehensive framework for preventing and controlling infections in Paediatric healthcare settings, ensuring patient safety, staff protection, and compliance with national and international standards across Levels 2 to 6 facilities.

**Scope**

This guideline applies to:

1. Level 2 and 3 Facilities: Dispensaries, medical clinics, and health centers (Paediatric Outpatient Department and limited Paediatric inpatient Department at Level 3).
2. Level 4 Facilities: Primary sub county/county hospitals (Paediatric Outpatient Department and Paediatric inpatient Department).
3. Level 5 Facilities: Secondary county/regional hospitals (Paediatric Outpatient Department, Paediatric inpatient Department, and critical care units).
4. Level 6 Facilities: Tertiary national referral hospitals (Paediatric Outpatient Department, Paediatric inpatient Department, and advanced critical care units including PICU).

Critical Care Units: Acute rooms, High Dependency Units, and Paediatric Intensive Care Units.

**General Principles**

1. Child-Centric Approach: IPC measures must accommodate the unique vulnerabilities of Paediatric patients (e.g., immature immune systems, frequent caregiver contact).
2. Tiered Implementation: Standards escalate with facility level and care intensity (outpatient to critical care).
3. Compliance: Adherence to Kenya's National Infection Control Guidelines (2010), WHO IPC standards, and facility-specific SOPs.
4. Multidisciplinary Responsibility: All staff (clinical, auxiliary, and support) are accountable for IPC implementation.

**IPC Standards across Levels****1. Hand Hygiene**

**Objective:** Reduce pathogen transmission via hands.

**Requirements:**

1. Handwashing stations at every entry point, waiting area, consultation room, treatment room, and bedside (Levels 2–6).
2. Touch-free faucets and soap dispensers in Levels 4–6 and all critical care units.
3. Antiseptic hand rubs (alcohol-based,  $\geq 70\%$  ethanol) at points of care (e.g., patient beds, nursing stations) in Levels 4–6 and PCCUs.
4. One handwashing bay per 4-bed bay in PHDU and PICU open areas.

**Procedure:**

- WHO 5 Moments of Hand Hygiene: Before patient contact, before aseptic tasks, after body fluid exposure, after patient contact, and after contact with patient surroundings.
- Minimum 40-second handwashing with soap and water or 20-second hand rub application.
- Levels 2–3: Soap and water stations; hand rubs.

- Levels 4–6 & PCCUs: Mandatory hand rubs plus soap and water availability.

## 2. Personal Protective Equipment (PPE)

**Objective:** Protect staff and patients from infectious agents.

### Requirements:

- Gloves, surgical masks, and disposable aprons for procedures, gowns for contact precautions; N95 masks for airborne diseases, masks, eye protection for splash risk, face shields.

### Procedure:

- Don PPE before entering patient areas; doff after leaving, followed by hand hygiene.
- Training on PPE use mandatory for all staff (Levels 2–6).

**Stock:** Minimum 2-week supply at all levels; Levels 5–6 and PICU maintain 1-month buffer.

## 3. Environmental Cleaning and Disinfection

**Objective:** Maintain a safe, pathogen-free environment.

### Procedure:

- Use color-coded cleaning tools (e.g., red for infectious areas, green for general areas).
- Sluice rooms for waste disposal in Levels 2–6 Health Facilities

## 4. Waste Management

**Objective:** Ensure safe disposal of infectious and non-infectious waste.

### Requirements:

- **Levels 2–3:** Color-coded bins (yellow for infectious, black for general, red for sharps); sharps containers in treatment and procedure rooms.
- **Levels 4–6 & PCCUs:** Add biohazard bins in isolation rooms; incineration or autoclaving for infectious waste per MOH guidelines.

## 5. Isolation Precautions

**Objective:** Prevent spread of infectious diseases.

### Requirements:

1. **Levels 2–3 Paediatric Outpatient Department:** Designated isolation room (100–130 sq ft) with ventilation for contagious patients (e.g., measles).
2. **Levels 4–6 Paediatric inpatient Department:** Isolation room with negative pressure ventilation for airborne diseases (e.g., TB); 1 per 6 beds in PHDU/PICU.
3. **PCCUs:**
  - Acute Room: 1 isolation area per unit.
  - PHDU: 1 isolation room per 6 beds.
  - PICU: 1 negative pressure isolation room per 3 beds, additional room per 6 beds (Chapter 7, Section 7.4.2).

### Procedure:

- Use contact, droplet, or airborne precautions as per disease (e.g., gowns for MRSA, N95 for TB).
- Signage indicating isolation status at room entry.

## 6. Equipment Sterilization and Reprocessing

**Objective:** Ensure reusable equipment is pathogen-free.

### Requirements:

- **Levels 2–3:** Manual cleaning and high-level disinfection (e.g., 2% glutaraldehyde) for reusable tools (e.g., stethoscopes,

otoscopes).

- **Levels 4–6 & PCCUs:** Autoclaves or sterilization units for surgical instruments; single-use items (e.g., IV cannulas) preferred.

**Procedure:**

- Clean, disinfect, and sterilize per manufacturer instructions; store in sterile conditions.
- Daily checks of sterilization logs in Levels 4–6 and PCCUs.

**7. Staff Projection, Training and Monitorship**

**8. Visitor Management**

**Objective:** Limit pathogen introduction by visitors.

**Requirements:**

- **Levels 2–3:** Visitor education on hand hygiene at entry.
- **Levels 4–6 Paediatric inpatient Department:** Restricted hours; PPE for visitors in isolation areas.
- **PCCUs:** Visitor prep room (150–200 sq ft) with hand hygiene and gowning facilities (Annex 9).

**Procedure:**

- Screen visitors for symptoms; limit to 1–2 per patient in critical care.

**9. Level-Specific IPC Considerations**

Level/Area	Key IPC Features
<b>Level 2 POD</b>	Basic hand hygiene, gloves/masks, daily cleaning, 1 isolation room.
<b>Level 3 POD/PID</b>	Add sharps containers, twice-daily cleaning, limited inpatient waste management.
<b>Level 4 POD/PID</b>	Negative pressure isolation, autoclaves, N95 masks, antimicrobial stewardship initiation.
<b>Level 5 POD/PID</b>	Enhanced HVAC with HEPA filters, full PPE for aerosol procedures, advanced sterilization units.
<b>Level 6 POD/PID</b>	Comprehensive stewardship, CCTV for IPC compliance, advanced waste incineration.
<b>Acute Room</b>	Hand rubs at bedsides, terminal cleaning, basic respiratory support hygiene (e.g., BVM cleaning).
<b>PHDU</b>	1 isolation room per 6 beds, HEPA filtration, full PPE for NIPPV/CPAP, 4-hourly surface cleaning.
<b>PICU</b>	1 negative pressure room per 3 beds, ECMO/ventilator sterilization, 14–16 air exchanges/hour, CCTV. Care Bundles

**10. Monitoring and Evaluation**

**Indicators:**

1. HAI incidence rate (target: <5% in Levels 2–3, <2% in PCCUs).
2. Hand hygiene compliance (target: >90%).
3. Antibiotic appropriateness (target: >80% based on culture results in Levels 4–6).

**Tools:**

1. IPC checklists
2. HMIS reporting for HAIs.

**Frequency:** Monthly reviews in Levels 2–3; weekly in Levels 4–6 and PCCUs.

## 8.4 Referral Guideline for Paediatric Care in Kenya

### Objective

To establish a standardized process for referring Paediatric patients across healthcare levels (Level 2 to Level 6) and within critical care units (Acute Rooms to PHDU to PICU), ensuring timely access to appropriate care while maintaining patient safety, continuity of care, and efficient resource utilization.

### Part 1: Referral from Level 2 to Level 6 Healthcare Facilities

#### Principles

1. Early Identification: Recognize cases requiring advanced diagnostics, specialized care, or inpatient services beyond the capacity of the current level.
2. Stabilization: Provide initial stabilization before transfer to minimize risks during transportation.
3. Communication: Ensure clear, documented communication between referring and receiving facilities.
4. Transport: Use safe transportation methods adhering to the "Safe Transportation of Critically Ill Children" policy.

#### Referral Process

##### Level 2 (Dispensary/Medical Clinic) to Level 3 (Health Centre)

#### Criteria for Referral:

1. Uncomplicated conditions requiring inpatient care (e.g., moderate dehydration, uncomplicated pneumonia) (Based on PEWs).
2. Need for basic laboratory services or care beyond Level 2 capacity.

#### Process:

1. Assessment: Triage using IMCI/ETAT guidelines (Table 2) to identify referral needs.
2. Stabilization: Administer emergency care (e.g., oxygen, IV fluids, antibiotics) in the Emergency/Resuscitation Area (Table 2).
3. Documentation: Complete referral form with patient details, clinical findings, and interventions provided.
4. Communication: Contact Level 3 facility (e.g., via phone) to confirm bed availability and staff readiness.
5. Transport: Arrange ambulatory transport with a trained escort (e.g., nurse or clinical officer).

**Staff Involved:** Clinical Officer (1:10 ratio), Nurse (1:30 ratio)

##### Level 3 (Health Centre) to Level 4 (Primary Subcounty/County Hospital)

#### Criteria for Referral:

1. Need for surgical intervention, advanced diagnostics (e.g., X-rays), or specialized outpatient clinics (e.g., orthopedics)
2. Conditions requiring inpatient management beyond Level 3 capacity.

#### Process:

1. Assessment: Evaluate in Triage Area using vital signs monitors and diagnostic tools.
2. Stabilization: Provide resuscitation (e.g., nebulization, oxygen therapy) in the Emergency Room.
3. Documentation: Update patient records and referral form with clinical status and treatment history.
4. Communication: Notify Level 4 facility's Nursing Station or Doctor's Room for coordination.
5. Transport: Use an ambulance with portable oxygen and a nurse escort

**Staff Involved:** Paediatric Clinical Officer (1:10 ratio), Paediatric Nurse (1:8 ratio).

##### Level 4 (Primary Sub county/County Hospital) to Level 5 (Secondary County/Regional Hospital)

#### Criteria for Referral:

1. Complex cases requiring advanced imaging (e.g., CT scans), specialized care (e.g., cardiology), or PHDU.
2. Failure to stabilize after initial management.

#### Process:

1. **Assessment:** Conduct detailed evaluation in Consultation Rooms or Emergency Room.
2. **Stabilization:** Use advanced equipment (e.g., defibrillator, infusion pumps) for stabilization.

3. **Documentation:** Include lab results, imaging, and treatment details in referral documentation.
4. **Communication:** Contact Level 5 facility via Nursing Station or EHR system.
5. **Transport:** Deploy an ambulance with a medical officer and portable monitoring equipment.

**Staff Involved:** Paediatrician (as required), Medical Officer (1 per shift), Nurse (1:20 ratio).

### Level 5 (Secondary County/Regional Hospital) to Level 6 (Tertiary National Referral Hospital)

• **Criteria for Referral:**

1. Need for subspecialized care (e.g., neurosurgery, ECMO), Advanced critical care (PICU), or advanced diagnostics (e.g., MRI).
2. Life-threatening conditions unresponsive to Level 5 interventions.

**Process:**

1. **Assessment:** Perform comprehensive assessment in Emergency Unit or Paediatric Outpatient Department.
2. **Stabilization:** Utilize ventilators, HFNC, or renal support as needed.
3. **Documentation:** Compile detailed records, including multidisciplinary inputs.
4. **Communication:** Coordinate with Level 6 Central Monitoring Station via telemedicine or phone.
5. **Transport:** Arrange advanced transport with a Paediatric intensivist or critical care nurse, equipped with ventilators and monitors.

**Staff Involved:** Paediatrician (1 per shift), Nurse (1:6 ratio), Intensivist (as required).

## Part 2: Referral from Acute Rooms to PHDU to PICU

### Principles

1. **Escalation of Care:** Transfer patients to higher levels of critical care based on clinical deterioration or resource needs.
2. **Monitoring:** Ensure continuous monitoring during transitions using portable equipment.
3. **Handoff:** Follow the “Handoff Policy” for seamless care transfer.
4. **Infection Control:** Adhere to isolation protocols during transfers

### Referral Process

#### Acute Room to High Dependency Unit

**Criteria for Referral:**

1. Need for advanced monitoring (e.g., capnography, NIPPV) or interventions beyond PHDU capacity.
2. Conditions such as respiratory failure requiring HFNC or AKI needing peritoneal dialysis.

**Process:**

1. **Assessment:** Monitor vital signs and escalate based on PEWS or clinical judgment (Table 31).
2. **Stabilization:** Provide oxygen, BVM ventilation, or emergency drugs from the resuscitation cart.
3. **Documentation:** Record vital signs, interventions, and reason for escalation in EHR.
4. **Communication:** Notify PHDU Nursing Station or In-Charge Nurse for bed availability.
5. **Transport:** Use a stretcher with portable oxygen and pulse oximeter, escorted by a nurse.

**Staff Involved:** Medical Officer (1:10 ratio), Nurse (1:4 ratio).

#### High Dependency Unit to Paediatric Intensive Care Unit

**Criteria for Referral:**

1. Requirement for mechanical ventilation, ECMO, or invasive monitoring (e.g., ICP, CVP).
2. Severe conditions like status epilepticus, severe trauma, or multi-organ failure.

**Process:**

3. **Assessment:** Use advanced monitoring (e.g., EEG, NIRS) to confirm deterioration.
4. **Stabilization:** Initiate NIPPV, infusion pumps, or dialysis as a bridge to PICU.

5. Documentation: Update EHR with detailed clinical status and critical care needs.
6. Communication: Contact PICU Central Monitoring Station or Intensivist for coordination.
7. Transport: Deploy a transport ventilator, crash cart, and critical care team (e.g., intensivist, nurse) .

**Staff Involved:** Paediatrician (1:10 ratio), Critical Care Nurse (1:2 ratio) .

### General Guidelines

#### 1. Referral Documentation:

- Include patient demographics, clinical history, vital signs, interventions, and reason for referral.
- Use standardized forms per the “Medical Records Policy”.

#### 2. Transport Protocols:

- Adhere to “Safe Transportation of Critically Ill Children” ensuring equipment functionality and trained personnel.

#### 3. Infection Control:

- Follow “Infection Control and Antimicrobial Stewardship Policy” for isolation cases.

#### 4. Family Communication:

- Inform parents per the “Parent’s Counselling Policy” about the referral process and destination care level.

#### 5. Post-Referral Follow-Up:

- Receiving facility provides feedback to the referring facility within 24 hours to ensure continuity.

## References

1. American Academy of Paediatrics. (2016). Guidelines for Paediatric intensive care units. Elk Grove Village, IL: Author.
2. World Federation of Paediatric Intensive and Critical Care Societies. (2019). Standards for Paediatric critical care. Geneva, Switzerland: Author.
3. Jenkins, I. A., & Goh, A. Y. (Eds.). (2018). Paediatric critical care: Current controversies. Cham, Switzerland: Springer.
4. Paediatric Intensive Care Society. (2020). Standards for Paediatric critical care services. London, UK: Author.
5. Thompson, J. E., & Dodek, P. (Eds.). (2017). Paediatric critical care medicine: Volume 1: Care of the critically ill or injured child. Cham, Switzerland: Springer.
6. American College of Critical Care Medicine. (2015). Guidelines for Paediatric critical care medicine. Philadelphia, PA: Society of Critical Care Medicine.
7. Odetola, F. O., & Shanley, T. P. (Eds.). (2018). Paediatric critical care: A comprehensive approach. New York, NY: McGraw-Hill Education.
8. Maffei, F. A., & Carcillo, J. A. (Eds.). (2019). Paediatric critical care study guide: Text and review. Cham, Switzerland: Springer.
9. Royal College of Paediatrics and Child Health. (2017). Standards for Paediatric critical care transport. London, UK: Author.
10. Society of Critical Care Nurses. (2016). Core curriculum for Paediatric critical care nursing. St. Louis, MO: Author.
11. World Health Organization. (2017). Standards for Paediatric critical care services. Retrieved from <https://www.who.int/publications/i/item/standards-for-Paediatric-critical-care-services>
12. Indian Society of Critical Care Medicine. (2018). Guidelines for Paediatric critical care units. Retrieved from <http://isccm.org/pdf/Paediatric-ICU-guideline-final-approved.pdf>
13. Saudi Ministry of Health. (2016). Standards for Paediatric intensive care units in Saudi Arabia. Retrieved from <https://www.moh.gov.sa/en/Ministry/MediaCenter/Publications/Pages/Publications-2016-03-31-001.aspx>
14. Gupta, P., Patel, D., Kesarwani, V., & Maheshwari, S. (2019). Paediatric critical care in India: A narrative review. *Indian Journal of Critical Care Medicine*, 23(1), S56–S62. <https://doi.org/10.5005/jp-journals-10071-23181>
15. Alotaibi, S. (2018). Paediatric critical care in Saudi Arabia: A review. *Saudi Critical Care Journal*, 2(2), 38–44.
16. National Health Mission. (2019). Guidelines for Paediatric intensive care units in India. Retrieved from <https://nhm.gov.in/index1.php?lang=1&level=2&sublinkid=1117&lid=618>
17. Saudi Association of Paediatrics. (2017). Standards of care for critically ill children in Saudi Arabia. Retrieved from <https://www.saudijgastro.com/article.asp?issn=1319-3767;year=2017;volume=23;issue=1;spage=1;epage=8;aulast=Habib>
18. Ministry of Health, Government of India. (2018). National Guidelines for Paediatric Intensive Care Units. Retrieved from <https://MOH.kerala.gov.in/wp-content/uploads/2020/06/National-Guidelines-for-Paediatric-Intensive-Care-Units.pdf>
19. Al-Matary, A. (2016). Standards of Paediatric critical care medicine in Saudi Arabia: Where are we now? *Saudi Journal of Medicine and Medical Sciences*, 4(3), 162–166. <https://doi.org/10.4103/1658-631X.190810>
20. Standard Operating Procedures for the Safe Transportation of Clinically Ill Children. Second Edition 2021. Sultanate of Oman, Ministry of Health, Directorate General Primary Health care Department of Woman and Child Health.
21. Guidelines for child protection case management and referral in Kenya. First edition 2019. Ministry of Labour and Social Protection, Kenya.
22. Joint Commission International. (2014). Joint Commission International Accreditation Standards for Hospitals 5th Edition, Oakbrook Terrace, IL USA.
23. <https://indexmedicus.afro.who.int/iah/fulltext/Kenya-National-Infection-Prevention2021-2025.pd> (Accessed: 14 September 2025). Ministry of Health, Kenya. (2023) National Infection Prevention and Control Guidelines for Health Care Services. 3rd ed. Nairobi: Ministry of Health. Available at: [https://www.prescribingcompanion.com/media/1736/national-infection-prevention-and-control-guidelines\\_final.pdf](https://www.prescribingcompanion.com/media/1736/national-infection-prevention-and-control-guidelines_final.pdf) (Accessed: 14 September 2025).
24. A Compendium of Strategies to Prevent Healthcare Associated Infections in Acute Care Hospitals: Agyeman-Duah, J., et al. (2021). Staffing norms in Paediatric healthcare facilities in Ghana. *Journal of Paediatric Nursing*, 58, 45-52. <https://doi.org/10.1016/j.pedn.2020.11.003>
25. American Academy of Paediatrics. (2020). Standards for Paediatric care in hospitals. *Paediatrics*, 145(3), Article e20193456. <https://doi.org/10.1542/peds.2019-3456>
26. Bhutta, Z. A., et al. (2019). Human resources for Paediatric care in India: Gaps and standards. *The Lancet Child & Adolescent Health*, 3(6), 401-410. [https://doi.org/10.1016/S2352-4642\(19\)30085-4](https://doi.org/10.1016/S2352-4642(19)30085-4)
27. English, M., et al. (2017). Health systems and Paediatric care in Kenya: A mixed-methods study. *The Lancet Global Health*, 5(1), e96-e105. [https://doi.org/10.1016/S2214-109X\(16\)30302-8](https://doi.org/10.1016/S2214-109X(16)30302-8)
28. Gupta, S., et al. (2019). Quality of Paediatric healthcare services in India: A systematic review. *Indian Journal of Paediatrics*,

- 86(5), 432-440. <https://doi.org/10.1007/s12098-019-02888-8>
29. Ismail, M., et al. (2020). Paediatric staffing standards in Egyptian public hospitals. *Eastern Mediterranean Health Journal*, 26(8), 965-972. <https://doi.org/10.26719/emhj.20.074>
30. Lygidakis, C., et al. (2021). Designing child-friendly hospital spaces: Evidence from European Paediatric units. *European Journal of Paediatrics*, 180(4), 1123-1132. <https://doi.org/10.1007/s00431-020-03856-4>
31. Manji, K., et al. (2018). Paediatric equipment availability in Tanzanian health facilities. *BMC Health Services Research*, 18(1), Article 392. <https://doi.org/10.1186/s12913-018-3201-3>
32. Naude, A., et al. (2018). Spatial design of Paediatric wards in South African hospitals. *South African Medical Journal*, 108(10), 845-850. <https://doi.org/10.7196/SAMJ.2018.v108i10.13123>
33. Ogunlesi, T. A., et al. (2020). Availability of essential equipment in Nigerian Paediatric units. *African Health Sciences*, 20(2), 678-685. <https://doi.org/10.4314/ahs.v20i2.18>
34. Parshuram, C. S., et al. (2019). Equipment standards for Paediatric intensive care units in Canada. *Canadian Journal of Critical Care*, 33(4), 245-253.
35. 36. Zhang, L., et al. (2022). Optimizing Paediatric ward layouts in Chinese urban hospitals. *Journal of Healthcare Engineering*, 2022, 1-12. <https://doi.org/10.1155/2022/1234567>

### Books and Book Chapters

36. Buchan, J., & Aiken, L. (Eds.). (2018). *Global nursing workforce challenges*. Oxford University Press.
37. Chapter citation: Buchan, J., & Aiken, L. (2018). Staffing Paediatric units in low-resource settings. In J. Buchan & L. Aiken (Eds.), *Global nursing workforce challenges* (pp. 145-160). Oxford University Press.
38. Li, J., & Chen, W. (Eds.). (2022). *Paediatric healthcare in China: Technology and resources*. Springer.
39. Chapter citation: Li, J., & Chen, W. (2022). Equipment standards in Paediatric care. In J. Li & W. Chen (Eds.), *Paediatric healthcare in China: Technology and resources* (pp. 123-140). Springer.
40. Nelson, R., & Staggers, N. (Eds.). (2020). *Health informatics: An interprofessional approach* (3rd ed.). Elsevier.
41. Chapter citation: Nelson, R., & Staggers, N. (2020). Paediatric care standards in high-income countries. In R. Nelson & N. Staggers (Eds.), *Health informatics: An interprofessional approach* (3rd ed., pp. 245-260). Elsevier.
42. Paul, V. K., & Bagga, A. (Eds.). (2018). *Essential Paediatrics* (9th ed.). Jaypee Brothers Medical Publishers.
43. Rautenbach, P. (2019). Child-centric hospital design. In *Healthcare architecture in Africa* (pp. 145-170). University of Cape Town Press.
44. Ulrich, R. S., et al. (Eds.). (2021). *Designing healthcare facilities for children*. Springer.
45. Chapter citation: Ulrich, R. S. (2021). Paediatric department layouts: North American perspectives. In R. S. Ulrich et al. (Eds.), *Designing healthcare facilities for children* (pp. 85-110). Springer.
46. World Health Organization. (2020). *Pocket book of hospital care for children* (2nd ed.). World Health Organization.

### Websites

47. Canadian Paediatric Society. (n.d.). Paediatric staffing guidelines. <https://cps.ca>
48. Egyptian Ministry of Health. (n.d.). Essential medicines and equipment list. <https://health.gov.eg>
49. European Association for Children in Hospital. (n.d.). European standards for Paediatric hospital design. <https://each-for-sick-children.org>
50. Facility Guidelines Institute. (n.d.). Facility guidelines institute – Paediatric design standards. <https://fgiguidelines.org>
51. Ghana Health Service. (n.d.). Health workforce policies. <https://www.ghanahealthservice.org>
52. Ministry of Health and Family Welfare, India. (n.d.). National health mission guidelines. <https://nhm.gov.in>
53. Nigerian Ministry of Health. (n.d.). Essential medicines and equipment list. <https://health.gov.ng>
54. South African Department of Health. (n.d.). Health equipment standards. <https://www.health.gov.za>
55. World Health Organization. (n.d.). Child health standards. <https://www.who.int/child-health/standards>

### Data Sources

56. DHS Program. (n.d.). Service provision assessment (SPA) surveys. <https://dhsprogram.com>
57. International Institute for Population Sciences (IIPS). (n.d.). National Family Health Survey (NFHS-5). <https://rchiips.org/nfhs>
58. Agency for Healthcare Research and Quality (AHRQ). (n.d.). Healthcare cost and utilization project (HCUP). <https://hcup-us.ahrq.gov>
59. World Bank. (n.d.). Service delivery indicators (SDI). <https://www.sdindicators.org>
60. World Health Organization. (n.d.). Health workforce statistics. WHO Global Health Observatory. <https://www.who.int/data/gho>

**Reports**

61. Egyptian Ministry of Health. (2020). National health equipment standards report. Egyptian Ministry of Health.
62. European Health Property Network. (2022). Child-friendly hospital design: Conference proceedings. European Health Property Network.
63. Health Canada. (2019). Paediatric facility design standards. Health Canada.
64. Kenyan Ministry of Health. (2019). Human resources for health strategic plan 2019-2023. Kenyan Ministry of Health.
65. National Health Commission of China. (2021). National standards for Paediatric healthcare services. National Health Commission of China.
66. Nigerian Federal Ministry of Health. (2021). National health workforce report. Nigerian Federal Ministry of Health.
67. South African National Department of Health. (2020). Paediatric service delivery framework. South African National Department of Health.
68. Tanzanian Ministry of Health. (2019). Healthcare Facility assessment report. Tanzanian Ministry of Health

## Annex 1: List of Specialists

Table XX: Paediatric Subspecialists

1. Paediatric Dentist
2. Paediatrics Endocrinologist
3. Paediatric Pulmonologist
4. Paediatric Surgeon
5. Paediatrics Nephrologist
6. Paediatric Cardiologist
7. Paediatric Hemato-oncologist
8. Radiologist
9. Paediatric gastroenterologist
10. Paediatric Neurologist
11. Paediatric Dermatologist
12. Paediatric infectious disease Specialist
13. Paediatric Intensivist
14. Child Psychiatrist
15. Paediatric Ophthalmologist
16. Paediatric ENT specialist

Table xx: Nurse Specialists

1. Masters in Paediatric Health Nursing
2. Kenya Registered Neonatal Nurse
3. Kenya Registered Paediatric Nurse
4. Kenya Registered Paediatric Critical Care Nurse
5. Kenya Registered Paediatric Oncology Nurse
6. Kenya Registered Accident and Emergency Nurse
7. Kenya Registered Critical Care Nurse
8. Kenya Registered Nephrology Nurse
9. Kenya Registered Mental Health & Psychiatric Nurse
10. Kenya Registered Palliative Care Nurse

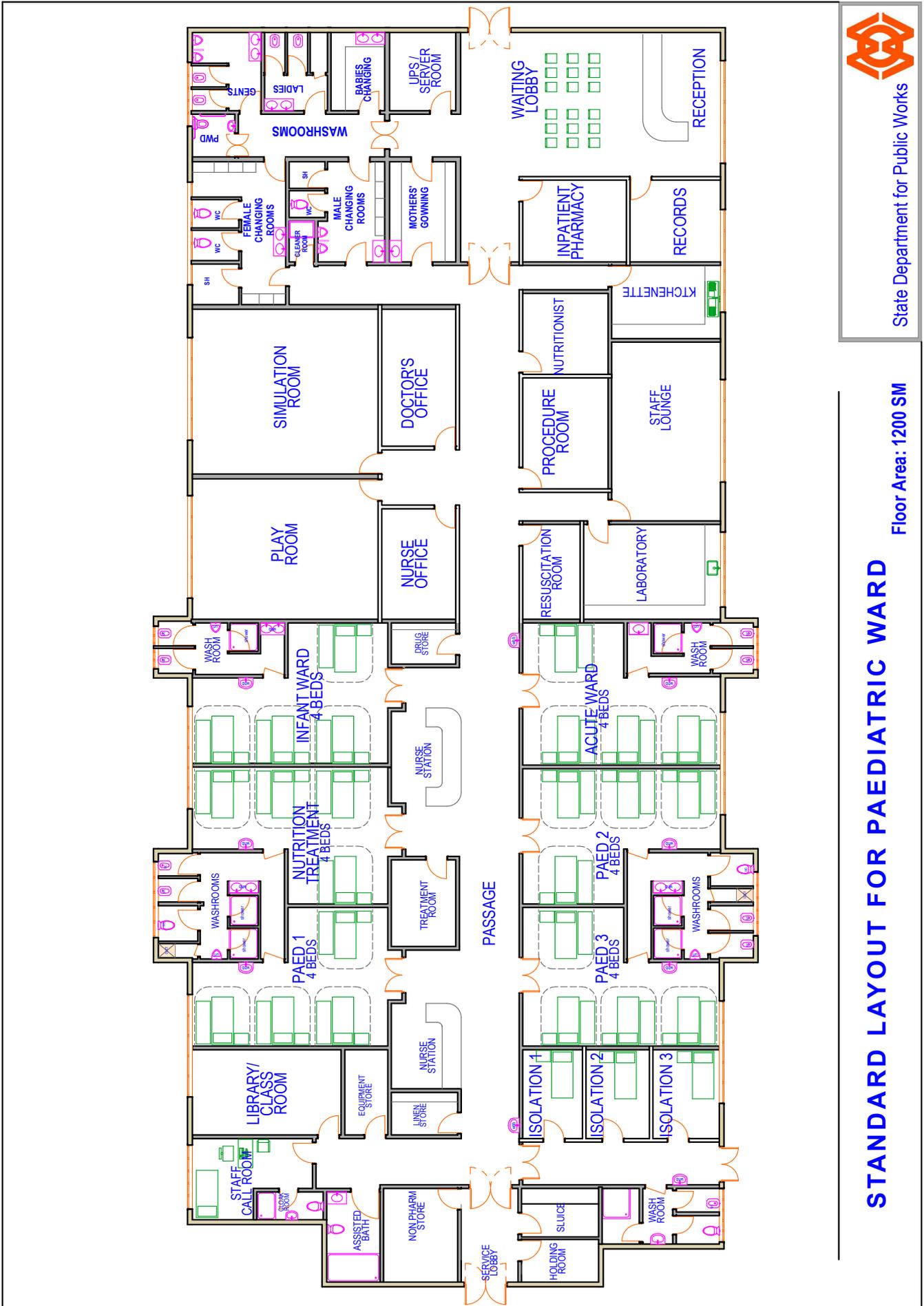
## Annex 2: Paediatric OPD layout



Floor Area: 750 SM

### STANDARD LAYOUT FOR PAEDIATRIC OPD

# Annex 3: Paediatric in patient department layout

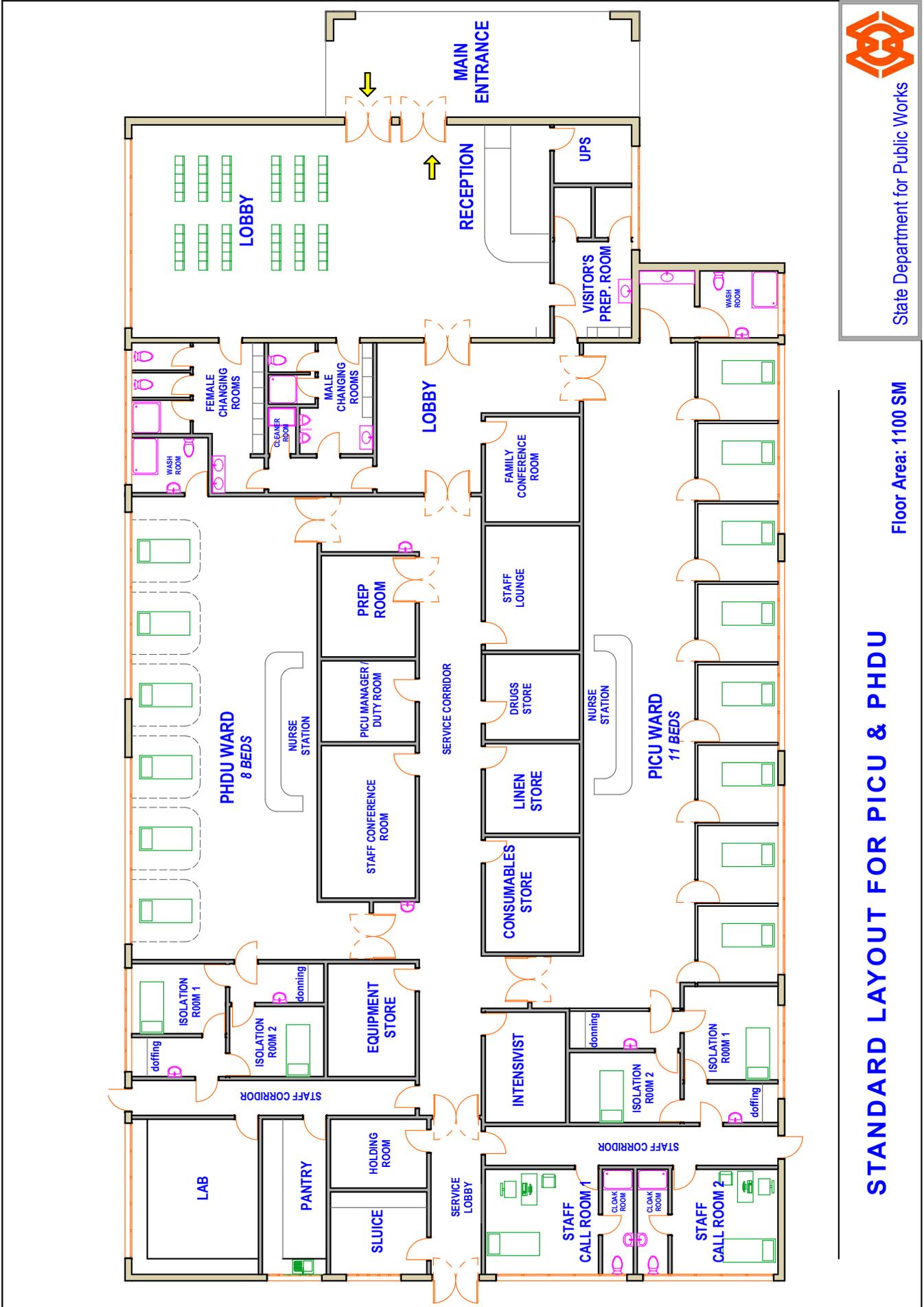


State Department for Public Works

## STANDARD LAYOUT FOR PAEDIATRIC WARD

Floor Area: 1200 SM

# Annex 4: PICU PHDU combined Layout



State Department for Public Works

Floor Area: 1100 SM

## STANDARD LAYOUT FOR PICU & PHDU

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REPUBLIC OF KENYA

# MINISTRY OF HEALTH