

## How do we care for neonatal infections? A Toolkit Guide

There are various tools and resources for the assessment, investigation and intervention involved in the care of newborns with infection available in the [IPC Tools](#) section. Some of the tools are here as a navigational guide to key resources. These are divided into levels of newborn care provided at facilities. For the purpose of this toolkit, most tools included are intended for use at all facilities (i.e. all levels of newborn care - including the most resource-limited facilities (Level 1)). Tools requiring greater resources can be observed within the higher levels of newborn care sections (Level 2-3).

*NOTE: This is not a complete list of all tools in the toolkit. The complete tool list can be accessed via the [Tools Tab](#).*

*NOTE: This guide was last updated on 17/10/2022*

### All levels of care

These tools are aimed at all levels of newborn care (Level 1-3).

<b>Tool type</b>	<b>Tools and Intended Purpose</b>	<b>Target Audience</b>
Resources useful for informing policy guidelines	<a href="#">WHO Standards for improving the quality of care for small and sick newborns in health facilities</a> - Guide for countries in caring for this vulnerable population and support the quality of care of newborns in the context of universal health coverage.	Policy-makers, health care professionals, health service planners, programme managers, regulators, professional bodies and technical partners involved in care
Resources useful for informing policy guidelines	<a href="#">WHO Recommendations on Newborn Health: Guidelines Approved By The WHO Guidelines Review Committee (2017 revised edition)</a> - Summarises WHO recommendations on key newborn health	WHO staff, policy-makers, programme managers, and health professionals

	components relevant to all levels of newborn care.	
<p>Practical manuals - LMIC focus</p> <p>The manuals in this section were designed for low-resource settings</p>	<p><a href="#">The Saving Newborn Lives Care of the Newborn - Reference Manual, supplemented by the Care of the Newborn - Training Guide</a> - To guide the training of all health care workers in the best practices for the health and survival of newborn infants</p>	<p>Essential for those caring for all newborns in the first 28 days of life, whether community-based health workers, nurses, midwives, or physicians</p>
<p>Practical manuals - LMIC focus</p> <p>The manuals in this section were designed for low-resource settings</p>	<p>The <a href="#">WHO Early essential newborn care: clinical practice pocket guide</a> guides health workers through the standard precautions for <b>essential newborn care practices, beginning at the intrapartum period with the process of preparing the delivery area, and emphasizing care practices in the first hours</b> and days of a newborn's life.</p>	<p>Newborn health workers in LMIC settings.</p>
<p>Practical manuals - LMIC focus</p> <p>The manuals in this section were designed for low-resource settings</p>	<p>The <a href="#">USAID Improving Care of Mothers and Babies: A guide for improvement teams</a> <b>describes six steps to improve care and tells a story of how staff in a facility followed these six steps to provide better care.</b></p>	<p>Local care or quality improvement teams/committees.</p>

<p>Practical manuals - LMIC focus</p> <p>The manuals in this section were designed for low-resource settings</p>	<p><a href="#">Helping Babies Survive: Parent's Guide and associated materials</a> is a new <b>training program on essential newborn care based on latest WHO guidelines.</b> Developed by the American Academy of Pediatrics, the curriculum begins after birth throughout the first day of the newborn's life, until the time of discharge.</p>	<p>Information for parents and carers.</p>
<p>Practical manuals - HIC focus</p> <p>The manuals in this section were designed for high-resource settings</p>	<p>The <a href="#">NHS Toolkit for high-quality neonatal services</a> aims to facilitate the delivery of equitable, transparent and auditable neonatal care. The <b>aim of the toolkit is to ensure that premature and sick newborn babies receive the care necessary to produce the best long-term outcomes for them</b> and for their families.</p>	<p>Used by healthcare managers, committees, allied health professionals, neonatal services, clinical staff.</p>
<p>Practical manuals - HIC focus</p> <p>The manuals in this section were designed for high-resource settings</p>	<p><a href="#">MoH British Columbia: Coronavirus COVID-19 Management Considerations for an Unwell and/or Premature Newborn</a> informs the <b>management of newborns in contact, under clinical investigation or confirmed care of COVID-19</b>, including on PPE precautions,</p>	<p>This is used by healthcare professionals responsible for caring for newborns (including midwives, doctors, and nurses).</p>

	isolation, investigations, skin-to-skin, management and transfers relating to.	
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## Tools by level of care

Tool type	Tools and intended purpose	Target audience
<b>Level 1 – Immediate &amp; Essential Newborn Care</b>		
The tools included in this section have an intended focus on facilities aiming to provide Level 1 newborn care. However, facilities providing Level 2 and Level 3 newborn care are expected to be able to provide the components of Level 1 newborn care.		
Practical manuals with an LMIC focus – designed for low-resource settings	The <a href="#">WHO Essential Newborn Care Course</a> aims to ensure health workers have the skills and knowledge to provide appropriate care at the most vulnerable period in a baby’s life. Health workers are taught to use <b>WHO’s Pregnancy, Childbirth, Postpartum and Newborn Care: A guide for essential practice (the PCPNC Guide)</b> – and particularly the sections concerned with newborn care – that <b>provides up-to-date evidence-based information and management of babies with a range of needs in the initial newborn period.</b>	All recommendations are for <b>skilled attendants working at the primary level of health care</b> , either at the facility or in the community
Practical manuals with an LMIC focus –	The <b>Integrated Management of Childhood Illness</b>	IMCI is intended to be <b>applied by both health workers and</b>

<p>designed for low-resource settings</p>	<p><b>(IMCI)</b> is a strategy that integrates all available measures for disease prevention and health problems during childhood, for their early detection and effective treatment, and for promoting healthy habits within the family and community. Section two of the <a href="#">WHO Integrated Management of Childhood Illness (IMCI) Chart Booklet</a> provides step-by-step primary level management for sick young infants up to the age of two months. It is particularly useful as a guide for when to refer a newborn for more specialised care.</p>	<p><b>other people responsible for the care of children under five years of age</b>, i.e. their parents and those who care for them.</p>
<p>Practical manuals with an LMIC focus - designed for low-resource settings</p>	<p>The <a href="#">WHO Caring for the sick child in the community: a training course for community health workers</a>, supported by the <b>WHO Caring for the sick child in the community: photo book</b> is an adaption of the IMCI guidelines.</p>	<p>Intended for use by clinical health workers (CHWs) in high HIV or TB settings.</p>
<p>Practical manuals with an LMIC focus - designed for low-resource settings</p>	<p>The <a href="#">WHO Guideline - Managing possible serious bacterial infection in young infants when referral is not feasible</a> is intended <b>for use in resource-limited settings in situations when families do not</b></p>	<p>The target audience for this guideline includes: 1) national policy-makers in health ministries; 2) programme managers working in child health, essential drugs and health worker training; 3) health care providers</p>

	<p><b>accept or cannot access referral care.</b> The goal of the guideline is to provide clinical guidance on the simplest antibiotic regimens that are both safe and effective for outpatient treatment of clinical severe infections and fast breathing (pneumonia) in children 0–59 days old.</p>	<p>and clinicians managing sick children at various levels of healthcare, including public and private practitioners; and 4) development partners providing financial and/or technical support for child health programmes.</p>
<p>Practical manuals with an LMIC focus - designed for low-resource settings</p>	<p><a href="#">USAID Basic Maternal and Newborn Care: A Guide for Skilled Providers</a> - Basic care can be given in a variety of sites, including the woman’s home, the peripheral health center, and the district referral hospital. It is assumed that the skilled provider will furnish all basic care services, identify and manage common complications, and stabilize (if necessary) and refer/transfer women and newborns needing additional interventions.</p>	<p>Intended for use by skilled providers (including midwives, doctors, and nurses) who care for women and newborns in low-resource settings</p>
<p>Practical manuals with an LMIC focus - designed for low-resource settings</p>	<p>The <a href="#">Save the Children/UNICEF: Newborn Health in Humanitarian Settings</a> is a Field Guide providing information related specifically to newborn care during the neonatal period (days 0–28 of life). It is designed as an</p>	<p><b>Its use is encouraged for advocacy and strengthening efforts of existing country programs for newborn care, regardless of whether such programs were developed in response to humanitarian crises or</b></p>

	<p>enhancement to national strategies and programs aimed at improving the lives of newborns and their mothers, and to strategies such as the Every Newborn Action Plan (ENAP).. The ultimate aim is to improve the survival and wellbeing of newborns in humanitarian settings.</p>	<p><b>as permanent systems during times of stability.</b> The Field Guide can also be used for the development of the neonatal component of national emergency preparedness and response plans.</p>
<p>Investigations</p> <p>The tools provided here provide implementation guidance on performing procedures, such as phlebotomy, on newborns</p>	<p><a href="#">WHO Guidelines on drawing blood: best practices in phlebotomy</a> - These guidelines were produced to improve the quality of blood specimens and the safety of phlebotomy for health workers and patients, by promoting best practices in phlebotomy.</p>	<p>Health workers responsible for specimen collection from newborns.</p>
<p>Targeted Interventions - Prophylactic therapy</p>	<p>The South African Department of Health provide a comprehensive <a href="#">Guideline for the Prevention of Mother to Child Transmission of Communicable Infections</a>, including HIV and TB.</p>	<p>Used in health care facilities, and by doctors, nurses and allied health workers at primary, secondary and tertiary care levels where clients may require uncomplicated PMTCT care.</p>
<p>Targeted Interventions - Prophylactic therapy</p>	<p>The WHO <a href="#">Guidance for national tuberculosis programmes on the management of tuberculosis in children: 2nd edition</a> document is targeted at national TB</p>	<p>The purpose of this document is to provide guidance to NTPs, paediatricians and other health workers, including the private-for-profit sector, as well as to</p>

	<p>programmes, paediatricians and other health workers in low- and middle-income countries; it does not aim to outline recommendations for high-income countries with low TB prevalence.</p>	<p>nongovernmental organizations and other civil society organizations, on the implementation and scaling-up of childhood TB prevention, care and control activities.</p>
<p>Supportive Interventions - Monitoring</p>	<p>The <a href="#">Royal College of Nursing – Standards for Assessing, Measuring and Monitoring Vital Signs in Infants, Children and Young People</a> is a <b>useful general resource for newborn monitoring</b>. Each topic covered in this publication includes the standard itself, a set of practice criteria and information on underpinning literature. The standards provide criteria for practitioners in achieving high quality nursing care. They will be of help in guiding local policies and procedures in relation to vital sign monitoring, performance improvement programmes and education programmes for registered nurses, nurses in training and health care assistants.</p>	<p>All registered nurses, students, health care support workers, and assistant practitioners who observe and monitor infants, children and young people.</p>
<p>Supportive Interventions - <a href="#">Kangaroo Mother Care (KMC)</a></p>	<p>The <a href="#">USAID Kangaroo Mother Care: Implementation Guide</a> brings together</p>	<p>Guidance primarily for national-level policymakers and managers of maternal</p>



	<p>the knowledge and experience of people and organisations from many countries in the world who have introduced KMC services in health systems. The ultimate aim is to introduce, expand and strengthen KMC practices to improve survival of low birth weight and preterm babies.</p>	<p>and newborn health programs.</p>
<p>Supportive Interventions - Kangaroo Mother Care (KMC)</p>	<p>The <a href="#">MRC Implementation Workbook for Kangaroo Mother Care</a> was originally developed as part of the MKC implementation package. The aim of this workbook is to help to avoid many of the pitfalls encountered when a new intervention is introduced.</p>	<p>The <b>target users are mainly the staff of healthcare facilities.</b></p>
<p>Supportive Interventions - Kangaroo Mother Care (KMC)</p>	<p>The <a href="#">WHO Kangaroo Mother Care - A Practical Guide</a> refers to KMC initiated at a health facility and continued at home under the supervision of the health facility (domiciliary KMC). KMC as described in this document recommends continuous skin-to-skin contact acknowledging that it might not be possible in all settings and under all circumstances. The principles and practice</p>	<p>The <b>target users are mainly the staff of healthcare facilities.</b></p>

	<p>of KMC outlined in this document are also valid for intermittent skin-to-skin contact, provided adequate care is offered to LBW and preterm newborn infants when they are separated from their mothers.</p>	
<p>Supportive Interventions - Kangaroo Mother Care (KMC)</p>	<p>The <a href="#">SNL KMC Monitoring Indicators</a> document includes a minimum set of indicators to monitor and evaluate facility-based Kangaroo Mother Care (KMC). There are two different types of indicators – core indicators and supplementary indicators.</p>	<p>Any healthcare worker implementing a KMC programme in the facility in which they work.</p>
<p>Supportive Interventions - Breastfeeding/Feeding</p>	<p><a href="#">UNICEF/WHO Protecting, promoting and supporting breastfeeding in facilities providing maternity and newborn services: implementing the revised Baby-friendly Hospital Initiative 2018</a> – This updated implementation guidance is intended for all those who set policy for, or offer care to, pregnant women, families and infants: governments; national managers of maternal and child health programmes in general, and of breastfeeding- and BFHI-related</p>	<p>The intended audience of this document includes all those who set policy for, or offer care to, pregnant women, families and infants: governments; national managers of maternal and child health programmes in general, and of breastfeeding- and BFHI-related programmes in particular; and health-facility managers at different levels (facility directors, medical directors, chiefs of maternity and neonatal wards).</p>

	<p>programmes in particular; and health-facility managers at different levels (facility directors, medical directors, chiefs of maternity and neonatal wards).</p>	
<p>Supportive Interventions - Breastfeeding/Feeding</p>	<p><a href="#">WHO Guidelines: Optimal feeding of low birth-weight infants in low-and middle-income countries</a> – The objective of these guidelines is to improve the quality of care received by LBW infants in developing countries through improved capacity of health workers. These guidelines focus on the feeding of clinically stable LBW infants in low-and middle- income countries. They do not specifically address the feeding of infants with a birth weight less than 1.0 kg (known as extremely LBW, ELBW), who are often clinically unstable and may require parenteral nutrition.</p>	<p>The primary audience for these guidelines is intended to be health-care workers in first-level health facilities and referral hospitals. However, the guidelines are expected to be used by policy-makers, programme managers and health-facility managers to set up a system for optimal care of LBW infants.</p>
<p>Supportive Interventions- Jaundice/Phototherapy</p>	<p><a href="#">NHS Neonatal Jaundice Clinical Guideline</a> – This clinical guideline concerns the management of neonatal jaundice in babies from birth up to 28 days of age.</p>	<p>Essential for those caring for newborns, whether nurses, midwives, or physicians etc.</p>

Supportive Interventions- Jaundice/Phototherapy	<a href="#">Queensland Health Neonatal Jaundice Clinical Guidelines</a> - This guide contains clinical guidelines for the management of neonatal jaundice.	Essential for those caring for newborns, whether nurses, midwives, or physicians etc.
Supportive Interventions- Jaundice/Phototherapy	<a href="#">NHS Neonatal Jaundice Treatment Threshold Graphs</a> accompanied by editable <a href="#">Microsoft Excel spreadsheet copies</a> - These documents provide worksheets to capture jaundice treatment threshold graphs.	Intended for midwives, doctors, and nurses, who care for newborns.
Supportive Interventions- Jaundice/Phototherapy	<a href="#">Ontario Clinical Pathway Handbook for Hyperbilirubinemia in Term and Late Preterm Infants (≥35 weeks)</a> - This clinical handbook has been created to serve as a compendium of the evidence-based rationale and clinical consensus for Hyperbilirubinemia in Term and Late-Preterm Infants (≥ 35 weeks).	Intended for use by skilled providers (including midwives, doctors, and nurses) who care for newborns.
Supportive Interventions - Thermal Care	<a href="#">The WHO Thermal Protection of the Newborn: A Practical Guide</a> provides a basis on which managers and health care providers can develop their own strategies and procedures for thermal protection and management of	Information for healthcare managers and care providers.

	hypothermia and hyperthermia of newborn babies.	
Supportive Interventions - Thermal Care	<a href="#">Thermal Protection of the Premature Infant</a> - This brief summary reviews the thermal physiology in the premature infant, mechanisms of heat loss, and provide a review of the way we control the thermal environment of the premature infant.	Intended for use by skilled providers (including midwives, doctors, and nurses) who care for premature newborns.
Supportive Interventions - Thermal Care	<a href="#">Newborn Thermoregulation : A Self-Learning Package</a> This document provides information relating to sign, prevention and treatment of hypo- and hyperthermia.	Intended for use by skilled providers (including midwives, doctors, and nurses) who care for newborns.
Supportive Interventions - Thermal Care	<a href="#">NHS Thermal care of the Neonate - Document Control</a> - The purpose of this document is to give guidance on: How to create and maintain a neutral thermal environment for the baby. Minimizing the risks associated with hypothermia and hyperthermia	This guideline applies to midwives and clinical staff on special care unit.
Supportive Interventions - Thermal Care	<a href="#">Thermoregulation in the High Risk Infant</a> - The aim of thermal management is to identify the correct goal of thermal management (normothermia or hypothermia) and to	This is used by healthcare professionals responsible for caring for newborns (including midwives, doctors, and nurses).

	<p>maintain the infant within an appropriate thermal environment for their birth weight, gestation and postnatal age. In order to achieve this, an understanding of the principles of thermoregulation is needed, which is explained in this manual, along with <b>guidelines on temperature management and monitoring of the newborn.</b></p>	
<p>Supportive Interventions - Thermal Care</p>	<p><a href="#">Management of Thermal Care in Newborn Babies</a> - This guideline relates to the care of any baby, especially those at risk of hypothermia (any baby whose temperature is below 36.50 for more than 1 hour at any time who is more than 28 weeks gestation).</p>	<p>This is used by healthcare professionals responsible for caring for newborns (including midwives, doctors, and nurses).</p>
<p>Supportive Interventions - Respiratory Care</p>	<p>The <a href="#">Helping Babies Breathe: Provider Guide</a> teaches birth attendants how to care for newborns at birth. All babies need to be kept clean, warm, and helped to breastfeed. Babies who do not breathe need extra help in the first minute after birth. Helping Babies Breathe focuses on The Golden Minute when stimulation to breathe and</p>	<p>Intended for birth attendants/clinical staff.</p>

	ventilation with bag and mask can save a life. At least one person skilled in helping a baby breathe should be present at every birth.	
Supportive Interventions - Respiratory Care	<a href="#">Oxygen therapy for children</a> - The manual is part of a series of resources for improving the quality of care for severely ill children in health facilities. It supports the improved use and availability of oxygen therapy in low resource settings. The manual addresses the need for appropriate detection of hypoxaemia and use of pulse oximetry, oxygen delivery systems and monitoring of patients on oxygen therapy.	This manual is intended primarily for use by health care providers, policy makers, biomedical engineers, child health programme managers, health facility administrators, and other paramedical professional staff involved in the care of children.
Supportive Interventions - Respiratory Care	<a href="#">Manual of neonatal respiratory care</a> - This book covers the “how-to” of respiratory care of newborns. Chapters reflect the evolving worldwide approaches to neonatal respiratory failure, such as sustained inflation, optimization of lung volume, and the use of volumetric capnography, aerosol therapy, and management of chylothorax.	Intended for use by skilled providers (including midwives, doctors, and nurses) who care for newborns.

<p>Outbreak Propagation</p>	<p><a href="#">Neonates born to confirmed or suspected COVID-19 mothers</a> - This guideline focuses on the clinical care of neonates with suspected or confirmed COVID-19 disease.</p>	<p>Intended for use by skilled providers (including midwives, doctors, and nurses) who care for newborns.</p>
<p>Medical Records</p>	<p><a href="#">MPS Essential Guide to Medical Records (UK)</a> - Though not relevant in all areas due to differing national laws on medical records, this guide provides information on: content, presentation and confidentiality. Similarly, the <a href="#">PRSB Standards for the Structure and Content of Health and Care Records</a> offers draft examples of admission, handover, discharge and referral records.</p>	<p>Information for regional health directors, health care providers, data departments and collectors.</p>
<p><b>Level 2 – Special Newborn Care</b></p>		
<p>Practical manuals with an LMIC focus</p>	<p><a href="#">WHO Pocket Book of Hospital Care for Children</a> – This document presents up-to-date clinical guidelines which are based on a review of the available published evidence by subject experts, for both inpatient and outpatient care in small hospitals where basic laboratory facilities and essential</p>	<p>This pocket book is for use by doctors, senior nurses and other senior health workers who are responsible for the care of young children at the first referral level in developing countries.</p>



	drugs and inexpensive medicines are available.	
Practical manuals with an LMIC focus	<p>The <a href="#">WHO Managing newborn problems: a guide for doctors, nurses, and midwives</a> guide was produced to assist countries with limited resources in their efforts to reduce neonatal mortality and to ensure care for newborn babies with problems due to complications of pregnancy and childbirth, such as asphyxia, sepsis, and low birth weight or preterm birth. It is a large resource, divided into three sections: (1) assessment, findings and management, (2) principles of newborn baby care, (3) procedures. It also includes an appendix with guidelines on record keeping and essential equipment, supplies and drugs.</p>	A guide for doctors, nurses and midwives.
Investigations	<p>The <a href="#">MRCG Study Specific Procedure: Blood, Nasopharyngeal Swab, Rectal, Genital Swab &amp; Cerebrospinal Fluid Collection</a> document describes the collection of blood, NPS, RVS, RS and CSF samples from patients and the transportation of these</p>	Essential for those caring for preterm newborns, whether nurses, midwives, or physicians in LMIC settings.

	samples to the relevant laboratories.	
Targeted Interventions - Antibiotic treatment	<p>The <a href="#">WHO Step-by-step approach for development and implementation of hospital antibiotic policy and standard treatment guidelines</a> document focuses on the mechanism to develop a practically applicable hospital antibiotic policy and standard treatment guidelines (STG). In addition, the document contains information on various effective strategies for implementation of STG. It also discusses various activities and information required for the development of the antibiogram, antibiotic policy and standard treatment guidelines, such as surveillance programmes, the cause and controlling strategies for AMR and HAI; performance measures of antibiogram, antibiotic policy and standard treatment guidelines.</p>	Hospital management staff responsible for developing policies and standard treatment guidelines (STG) - particularly pertaining to antibiotic guidelines.
Targeted Interventions - Antibiotic treatment	<p><a href="#">NICE Neonatal infection: antibiotics for prevention and treatment guidelines</a> - This guideline covers preventing bacterial infection in healthy</p>	Intended for use by skilled providers (including midwives, doctors, and nurses) who care for newborns.

	<p>babies of up to and including 28 days corrected gestational age, treating pregnant women whose unborn baby is at risk of infection, and caring for babies of up to and including 28 days corrected gestational age with a suspected or confirmed bacterial infection. It aims to reduce delays in recognising and treating infection and prevent unnecessary use of antibiotics. The guideline does not cover viral infections.</p>	
<p>Targeted Interventions – Antibiotic stewardship programmes</p>	<p><a href="#">The CDC The Core Elements of Human Antibiotic Stewardship Programs in Resource-Limited Settings: National and Hospital Levels</a> – This document seeks to provide a framework for thinking about implementation of antibiotic stewardship programs in such settings and the approach outlined here is based on expert opinion and experiences in implementing ASPs in the United States and globally. The document includes both national and facility-level activities, as the former</p>	<p>This guide is intended primarily for use by national and facility-level health care managers, policy makers, clinical teams, and other paramedical professional staff.</p>

	are a critical compliment to the activities that are undertaken in hospitals and other health care facilities.	
Targeted Interventions - Antibiotic stewardship programmes	<p><a href="#">The WISH Global Core Standards for Hospital Antimicrobial Stewardship Program</a> is an evidence-based checklist through a comprehensive literature search and review by a group of independent experts – the Checklist for Hospital Antimicrobial Stewardship Programming (CHASP). While CHASP has significant overlap with other high-quality ASP checklists – such as the US Centers for Disease Control’s (CDC’s) Checklist for Core Elements of Hospital Antibiotic Stewardship – it was designed to be applicable globally for both low- and high-resource settings.</p>	Hospital-level antimicrobial stewardship committees and clinical staff.
Targeted Interventions - Antibiotic stewardship programmes	<p><a href="#">The GLASS Methodology for surveillance of national antimicrobial consumption</a> - WHO GLASS component on surveillance of national antimicrobial consumption (GLASS-AMC) aims to provide a common and standardized</p>	This document is aimed at government/national agencies, committees and units focused on pharmaceutical supply chain systems, AMR and health data surveillance and management. national AMR committee.

	<p>methodology for monitoring the consumption of antimicrobial agents at country level. The standardization allows the follow-up of data trends over time, facilitates comparisons between countries, and informs policy and practice on how to optimize the use of antimicrobials at national, regional and global levels.</p>	
<p>Targeted Interventions - Antibiotic stewardship programmes</p>	<p><a href="#">The WHO Practical Toolkit: Antimicrobial stewardship programmes in health-care facilities in low- and middle-income countries</a> aims to support countries in implementing Objective 4 of the Global Action Plan – “optimize the use of antimicrobial medicines” – by providing practical guidance on how to implement antimicrobial stewardship (AMS) programmes in the human health sector at the national and health-care facility level in low- and middle-income countries (LMICs).</p>	<p>The target audience for this guideline includes: 1) national policy-makers in health ministries; 2) programme managers working in quality-assured medical care and access to and rational use of medicines; 3) health care providers, AMR committees and clinicians and 4) development partners providing financial and/or technical support.</p>
<p>Supportive Interventions - Feeding</p>	<p>The California Perinatal Quality Care Collaborative (CPQCC)</p>	<p>Information for clinical staff.</p>

	<p>have revised their <a href="#">Nutritional Support of the Very Low Birth Weight (VLBW) Infant Toolkit</a> which is intended <b>to promote rapid assessment of current nutritional practices for small newborns</b>. The revisions outline potentially better practices, enable rapid multidisciplinary improvement cycles to improve nutritional outcomes for premature newborns by adding important new references, streamline recommendations, and target the best resources.</p>	
<p>Supportive Interventions - Respiratory Support</p>	<p><a href="#">Continuous Positive Airway Pressure (CPAP) Manual</a> This manual provides a brief overview of the use of CPAP including indications, contraindications and types of CPAP.</p>	<p>Intended for use by skilled providers (including midwives, doctors, and nurses) who care for newborns.</p>
<p>Supportive Interventions - Jaundice</p>	<p><a href="#">Neonatal exchange transfusion</a> - This guidance focuses on exchange transfusion of newborns, providing information relating to indications, preparation, setup and procedure.</p>	<p>Used by healthcare professionals responsible for caring for newborns (including midwives, doctors, and nurses).</p>
<p>Supportive Interventions - Jaundice</p>	<p>Kalafong Hospital in South Africa provides a <a href="#">Neonatal Jaundice Management Flow</a></p>	<p>Clinical staff of neonatal units in LMIC settings.</p>

	<a href="#">Chart</a> which provides information on bilirubin assessment, phototherapy and exchange transfusion.	
Supportive Interventions - Medical Devices	PATH & USAID Guide to Selection - Medical Devices - In 2009, PATH convened a panel of neonatologists to review the most important characteristics for devices in low-resource settings. This guide contains commercialized devices that are available on the market today (focused on CPAP, Fetal Monitor, thermoregulatory devices, Birthing and Cesarean Section Simulators, Portable Ultrasound, Rechargeable Lighting).	Healthcare managers, procurement departments, clinical staff and biotech engineers.
Supportive Interventions - Medical Devices	<a href="#">Oxford Newborn Care Unit: Neonatal Equipment</a> - This document provides information to parents and carers on ward devices, explaining what they are, and how they are used to care for babies.	Information for parents and carers.
<b>Level 3 - Intensive Newborn Care</b>		
Supportive Interventions - Respiratory Support	<a href="#">NHS Neonatal Ventilation</a> - This document provides information on additional respiratory support, when	Intended for use by skilled providers (including midwives, doctors, and nurses)

	<p>babies are unable to achieve satisfactory gas exchange by themselves. Whilst we now commonly use non-invasive techniques (CPAP / Hi-flow), a good understanding of how and when to use mechanical ventilation is a key part of neonatal care.</p>	<p>who care for newborns in NICU settings.</p>
<p>Supportive Interventions - Respiratory Support</p>	<p><a href="#">NICE Guidelines: Specialist neonatal respiratory care for babies born preterm</a> – This guideline covers specific aspects of respiratory support (for example, oxygen supplementation, assisted ventilation, treatment of some respiratory disorders, and aspects of monitoring) for preterm babies in hospital.</p>	<p>Essential for those caring for preterm newborns, whether nurses, midwives, or physicians in NICU settings.</p>
<p>Health Service Considerations</p>		
<p><a href="#">Infrastructure and space</a></p>	<p><a href="#">UNICEF Toolkit for Setting Up Special Care Newborn Units, Stabilisation Units and Newborn Care Corners</a> – The purpose of this toolkit is to support the efforts of state and district health administrators, health care entrepreneurs and others involved in planning and managing Facility Based Care for Newborns at various</p>	<p>Purpose of this toolkit is to support the efforts of state and district health administrators, health care entrepreneurs and others involved in planning and managing Facility Based Care for Newborns at various levels.</p>



	<p>levels. It provides recommendations on setting up Special Care Newborn Units (SCNUs), Stabilisation Units and Newborn Care Corners at different levels of healthcare organisation. The recommendations relate to the services, design, infrastructure, equipment, supplies and human resource requirements for providing newborn care at these levels. The document also provides detailed specifications of the equipments and tips for maintenance and use of the equipments.</p>	
<p>Infrastructure and space</p>	<p><a href="#"><u>Consensus Committee on Recommended Design Standards for Advanced Neonatal Care - Newborn ICU Design</u></a> - It is our hope this document will continue to provide the basis for a consistent set of standards that can be used by all states and endorsed by appropriate national organizations and that it will continue to be useful in the international arena. While many of these standards are minimums, the intent is to optimize design within the constraints of</p>	<p>This document is intended primarily for use by health care providers, policy makers, biomedical engineers, laboratory managers, health facility administrators, and government/state decision makers.</p>

	<p>available resources and to facilitate excellent health care for the infant in a setting that supports the central role of the family and the needs of the staff. Decision makers may find these standards do not go far enough, and resources may be available to push further toward the ideal.</p>	
<p><a href="#">Human Resources</a></p>	<p>Understaffing in NICUs has been associated with increased risk of HCAs. This is a challenge even in HICs. In the UK, 54% of nursing shifts failed to meet the <a href="#">British Association of Perinatal Medicine (BAPM) Service Standards for hospitals providing neonatal care (3rd edition)</a>. See <b>section 4.9, page 9</b> for staffing recommendations). Updated findings to this resource, with regards to NICU staffing needs, can be found in the <a href="#">BAPM Optimal Arrangements for Neonatal Intensive Care Units in the UK including guidance on their Medical Staffing</a>. Further information can be found on the HR HSBB.</p>	<p>Staff of Special Care Units (SCU), Local Neonatal Units (LNU) and Neonatal Intensive Care Units (NICU).</p>
<p><a href="#">Data</a></p>	<p>The <a href="#">WHO Operational guide for facility-based audit and review of paediatric</a></p>	<p>The guide also provides guidance for establishing and conducting child death</p>

	<p><a href="#">mortality</a> describes the <b>processes and steps in setting up a national and a health facility system for reviewing or auditing child deaths, near misses, cases and adverse events in health facilities</b>. The guide outlines the conduct of child deaths audits and reviews in order to improve the quality of care and prevent future deaths by systematic, critical analysis of the quality of care received in a “no-blame”, multidisciplinary setting. The guide provides examples of tools that can be used or adapted for collecting data for death reviews, analysis and response to the results of audits.</p>	<p>audits for policy-makers at national and subnational levels, clinicians, nurses, local health administrators, mortality and morbidity review committees and quality improvement teams in hospitals.</p>
Data	<p>The <a href="#">WHO Application of ICD-10 to deaths during the perinatal period: ICD-PM</a> document presents a brief summary of the development of this guide; a grouping system for identification of perinatal deaths using existing ICD-10 codes, which countries can immediately implement.</p>	<p>Those who assist health-care providers and those charged with death certification.</p>
<a href="#">Family-Centred Care</a>	<p>The Baby Friendly Initiative is a global programme of UNICEF and the WHO introduced</p>	<p>Staff of neonatal units that want to aim for Baby Friendly standards.</p>

	<p>to improve infant feeding and skin-to-skin care in healthcare settings.</p> <p>The <a href="#">Baby Friendly Initiative - Guidance for Neonatal Units</a> <b>outlines the stages of accreditation for neonatal units wanting to be recognised as Baby Friendly units.</b></p>	
Family-Centred Care	<p><a href="#">Bliss Baby Charter Audit Tool</a> - The new Bliss Baby Charter Audit Tool has been specifically designed to provide a framework for units to examine key aspects of their unit's service provision, and to help staff make family-centred care a reality.</p>	Neonatal unit clinical staff and quality improvement teams.
Family-Centred Care	<p><a href="#">CHKD NICU: Essential Guide for CHKD NICU Parents</a> - This is an example document providing important information to parents whose newborn is admitted into a NICU.</p>	Information for parents and carers, whose newborn is admitted.