MINISTRY OF HEALTH

REPUBLIC OF KENYA



Safeguarding Newborns:

Urgent Call to Address Neonatal Sepsis-Related Deaths

Policy Brief

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NPHI

KEMRI

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CALL TO ACTION

1 THE KILLER WE CAN STOP

1 in 5

neonatal deaths caused by sepsis



of hospitalised newborns affected[1]

Of the three leading killers of newborns in Kenya, sepsis is the most amenable to health system intervention.

2 OUR ANTIBIOTICS ARE LOSING

60–83%

resistance in *Klebsiella pneumoniae*, the dominant pathogen in deceased neonates[2]

Pathogens identified in deceased neonates with confirmed bacterial infections showed resistance to the most commonly used hospital antibiotics.

3 SIMPLE FIXES, BIG WINS

↓ 24%

reduction in hospital-associated neonatal mortality from low-cost IPC measures[3]

Simple infection prevention & control (IPC) measures (hand hygiene supplies, environmental cleaning, staff training, and chlorhexidine bathing) deliver rapid impact.

THIS CALLS FOR:

- **Ring-fenced funding for IPC supplies**
- **Standardised sepsis management protocols**
- **Stronger lab capacity for culture & sensitivity**
- **Institutionalised antimicrobial stewardship**
- **Clear leadership at national & county levels**

PROTECT KENYA'S NEWBORNS • ACT NOW • SAVE LIVES

EXECUTIVE SUMMARY



Neonatal sepsis is a bloodstream infection in newborns within the first 28 days of life. It is a leading cause of illness and death, especially in low and middle-income settings. It is classified as early-onset sepsis (EOS), occurring within 72 hours of birth, or late-onset sepsis, occurring at or after 72 hours.

Every day, 92 newborns die in Kenya: Neonatal sepsis, which is preventable, accounts for 16-20% of neonatal deaths in Kenya. Successful treatment is further complicated by rising antimicrobial resistance. Despite improvements in skilled birth attendance and newborn care, Kenya's neonatal mortality rate remains at 21 deaths per 1,000 live births, far exceeding the Sustainable Development Goal target of 12 or fewer deaths per 1,000.

This policy brief calls for coordinated action to prevent, detect, and manage neonatal sepsis across all levels of the health system. Six priority interventions are recommended: (a) implementation of the Every Woman Every Newborn Everywhere (EWENE) Acceleration Plan for Kenya[6]; (b) prioritise funding and procurement of adequate infection prevention and control supplies for newborn units, where most neonatal sepsis occurs; (c) advocate for the implementation of the standard operating procedures for neonatal sepsis management; (d) strengthen healthcare worker capacity through systematic training on infection prevention, antimicrobial resistance, and evidence-based treatment; (e) institutionalise antimicrobial stewardship programmes; and (f) enhance laboratory infrastructure for bacterial culture and antimicrobial sensitivity testing.

To confront the high burden of neonatal sepsis in Kenya, this policy brief aims to: (i) mobilise policymakers and health authorities to confront the unacceptably high burden of neonatal sepsis and its contribution to preventable newborn deaths in Kenya; (ii) present evidence on the role of healthcare-associated infections in neonatal sepsis, including causative pathogens, antimicrobial resistance patterns, and implications for current treatment protocols; and (iii) recommend evidence-based interventions to reduce neonatal sepsis mortality by closing gaps in infection prevention and control, antimicrobial stewardship, and health-system capacity.

Sustained political commitment, adequate resource allocation, strong leadership from the Ministry of Health's Newborn and Child Health Section and the County Departments of Health, active engagement by the Kenya National Public Health Institute, and effective partnerships across all stakeholders will be essential to accelerate progress and protect Kenya's most vulnerable citizens, newborns in their first days of life.



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CONTEXT AND SCOPE OF THE PROBLEM

1. An alarmingly high number of neonates die from preventable neonatal sepsis in Kenya

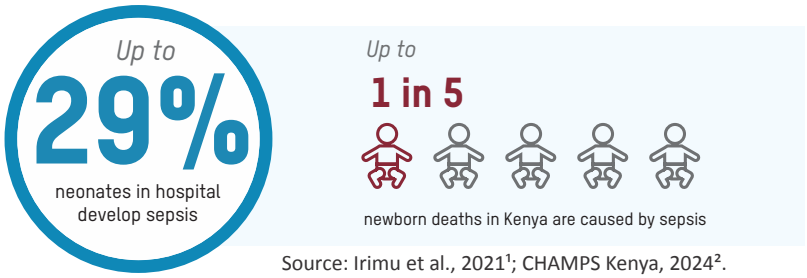
92 newborns die in Kenya every day
≈ one newborn every 16 minutes

Kenya vs. SDG 2030 target (per 1,000 live births)



Kenya must reduce neonatal mortality by 43% to meet the SDG target.
Sources: Kenya Demographic and Health Survey 2022

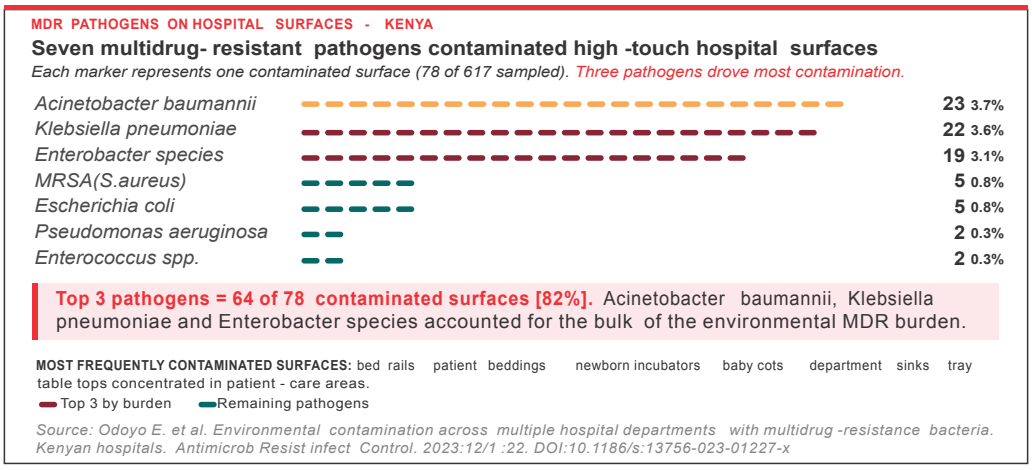
Neonatal sepsis affects up to 29% (range: 15–29%) of newborns admitted to hospitals in Kenya.[1] Mortality rates among these neonates range from 9% to 25%[7],[8], with mortality particularly elevated among preterm neonates at 44%.[9] Data from the Child Health and Mortality Prevention Surveillance (CHAMPS) network (2017–2024), a population-based health and demographic surveillance system, showed that sepsis accounts for 20% of neonatal deaths in the study counties.[2]



Source: Irimu et al., 2021[1]; CHAMPS Kenya, 2024[2].

2. Healthcare-associated infections are a leading driver of neonatal sepsis in Kenya

Most cases of hospital-associated infections (HAI) among neonates are late-onset infections (occurring after 72 hours of hospital admission). Hospital environments in Kenya harbour harmful pathogens, many of which are highly resistant to available antimicrobials. Research on the risk factors for HAIs in Kenyan hospitals reveals that 13% of sampled high-touch surfaces harbour multidrug-resistant (MDR) ESKAPEE pathogens — Enterococcus faecium/faecalis, Staphylococcus aureus, Klebsiella pneumoniae, Acinetobacter baumannii, Pseudomonas aeruginosa, Enterobacter species, and Escherichia coli — which are the leading causes of HAIs globally and in Kenya. These ESKAPEE pathogens, found contaminating high-touch surfaces across Kenyan hospital departments — including newborn units — pose an elevated risk of healthcare-associated infection: A. baumannii, 23/617 (3.7%), K. pneumoniae, 22/617 (3.6%), Enterobacter species, 19/617 (3.1%), methicillin-resistant S. aureus (MRSA), 5/617 (0.8%), E. coli, 5/617 (0.8%), P. aeruginosa, 2/617 (0.3%), and E. faecalis and faecium, 2/617 (0.3%).[10]



A prospective surveillance study at a Kenyan hospital revealed that the incidence of HAI neonatal sepsis among admitted children was about 40 times higher than the rate of neonatal sepsis acquired in community settings. About half (53%) of children who develop hospital-associated infections die, compared to 24% when the infection is caught in the community before admission.[11]

Half of neonates admitted in a hospital in Kenya developed HAI in just 3 days of admission due to overcrowding, high patient-to-staff ratios, limited space to separate neonates with drug-resistant infections, malnutrition, caesarean section, inadequate handwashing, and shortages of essential supplies.[11],[12] The most common organisms causing neonatal sepsis in hospital settings in Kenya are Klebsiella pneumoniae and Escherichia coli, both of which demonstrate resistance to commonly used antibiotics. These findings collectively underscore the urgent need for strengthened infection prevention and control (IPC) programmes. Hospitals can implement four practical actions to protect vulnerable neonates from hospital-associated infections (HAI).

First, nutritional support: because malnourished children are 2.5 times more likely to develop HAI. Hospitals should screen for malnutrition on admission.

Second, safe blood transfusions: Children who receive unnecessary transfusions are nearly 5 times more likely to develop HAIs.[11]

Third, decongesting neonatal wards: HAIs spread easily between neonates when beds are closely packed together. National neonatal care standards are clear that crowded units endanger babies. Kenya's Ministry of Health calls for one neonate per cot and one meter (1M) spacing between cots to curb the cross-infection that is driven by overcrowding.[13]

Fourth, routine screening and separation: neonates arriving with antibiotic-resistant bacteria should be identified through admission screening and nursed separately from uninfected ones to prevent transmission.[11]



More space, fewer infections. Cot spacing (at least one metre) and decongestion are low-cost, high-impact tools for preventing cross-infection in newborn units.[14] (Photo courtesy of CHAMPS Kenya, 2026)

3. Antimicrobial resistance poses a critical threat to neonatal sepsis treatment in Kenya

KEY FINDING

First-line empiric antibiotic regimens are largely ineffective, necessitating urgent revision of treatment guidelines and strengthening of antimicrobial stewardship programmes.

Among 229 neonates who died between 2021 and 2024 in Western Kenya, one in three had a bacterial infection identified from blood samples. Klebsiella pneumoniae (43%) and Escherichia coli (14%) were the most isolated organisms.[2] Alarmingly, K. pneumoniae showed 60% resistance to gentamicin, 83% resistance to cefotaxime, and 76% resistance to ceftriaxone, the most used hospital antibiotics. Other research corroborates these CHAMPS findings.[15]

The bacteria behind fatal neonatal bloodstream infections in Kenya

Pathogen	% of bloodstream isolates
Klebsiella pneumoniae	43%
Escherichia coli	14%
Staphylococcus aureus	7%
Streptococcus agalactiae	7%
Streptococcus pneumoniae	7%
Acinetobacter baumannii	5%
Streptococcus pyogenes	5%
Other	12%

Klebsiella pneumoniae drove 43% of fatal bloodstream infections, more than the next three pathogens combined.[2]

The AWaRe (Access, Watch, Reserve) first-line regimen for neonatal sepsis, gentamicin combined with crystalline penicillin (or ampicillin), both Access class antibiotics, is reflected in Kenya's national pediatric protocols and is generally available in neonatal care units.[16],[17] However, clinicians also prescribe broad-spectrum Watch-class cephalosporins (e.g., cefotaxime, ceftriaxone).[18]

It is imperative to strengthen blood culture and antimicrobial susceptibility testing capacity in neonatal units and to build the capacity of local surveillance systems needed to track resistance patterns, so that empiric and definitive antibiotic use is guided by evidence rather than by what is available in stock.[19]

Prescription of antibiotics that is informed by antimicrobial susceptibility testing (AST), supported by a reliable supply of first and second-line antibiotics, is essential for ensuring timely and effective treatment for neonates, while containing the spread of antimicrobial resistance.

4. Prevention of neonatal sepsis in hospital settings

Infection prevention and control (IPC) measures in neonatal care settings, such as hand hygiene, waste management, adequate staffing, ward decongestion, and staff sensitization on IPC, among others, are essential for preventing transmission of pathogens among hospitalised neonates.



Sustained hand hygiene in neonatal units can reduce neonatal sepsis by up to 50%[20]
(Photo courtesy of CHAMPS Kenya, 2026)

5. Situational Analysis and Policy Alternatives

Implementation of global and national policy guidance for prevention, control, and treatment of neonatal infections remains suboptimal in Kenya due to several factors. Below, we present current policies, highlight implementation shortcomings, and suggest policy alternatives to address existing gaps.

Kenya has built a robust framework to prevent and treat neonatal sepsis, spanning IPC standards, newborn care protocols, and structured mentorship packages. Yet weak IPC compliance, overcrowded newborn units, persistent commodity shortages, and the chronic underuse of blood culture testing are driving avoidable newborn deaths and fuelling antimicrobial resistance. Saving newborn lives now depends on financing, equipping, and enforcing the standards Kenya has already set.

Current Policies and Strategies	Gaps in Policy and Implementation	Recommended Policy Actions
Prevention of Neonatal Sepsis		
National Standards for Improving the Quality of Care for Children Including Small and Sick Newborns, 2023 *Establishes nine national quality-of-care standards that all health facilities must meet when caring for children and small or sick newborns to reduce neonatal and under-five mortality.* **National Infection Prevention and Control Guidelines for Healthcare Services in Kenya, 2023** *Standardises infection prevention and control practices across all levels of Kenya's health system to reduce healthcare-associated infections, combat antimicrobial resistance, strengthen antimicrobial stewardship, and protect patients and healthcare workers from infection.* **A Guideline for the Use of Chlorhexidine for Newborn Umbilical Cord Care in Kenya, 2022** *Guides health workers, community health promoters, and caregivers in applying 7.1% chlorhexidine digluconate to the newborn umbilical cord to prevent omphalitis and reduce neonatal sepsis.* **Newborn Mentorship Package, 2025** *Provides a structured, on-the-job mentorship curriculum that equips nurses and clinicians with the clinical skills, confidence, and consistent practice needed to deliver high-quality newborn care in Kenyan facilities.* **Guidelines for Establishing Newborn Care Services, 2025** *Sets the national norms and standards for designing, staffing, and equipping newborn care units in health facilities, ensuring that each county has functional services capable of delivering essential and lifesaving care to small and sick newborns.*	**IPC implementation gaps:** Insufficient healthcare worker training, limited facility-level access to policy documents, non-adherence to standard operating procedures, and high turnover of trained staff. **Inadequate IPC supplies and commodities:** Persistent shortages of essential IPC materials in newborn units. **Guideline limitations:** Current IPC guidelines do not adequately address the specific requirements of newborn unit settings. **Newborn unit overcrowding:** Excessive foot traffic, congestion, and sharing of cots and incubators increase cross-infection risk.	**1.** Digitise and disseminate national IPC guidelines to ensure healthcare worker access at all facility levels. **2.** Update standard operating procedures to include traffic management and visitor restriction protocols for newborn units. **3.** Prioritise ring-fenced budgeting and procurement of IPC commodities and supplies specifically for newborn units. **4.** Establish and operationalise IPC committees at each health facility to monitor and enforce compliance with standard operating procedures. **5.** Conduct routine health facility assessments at national, county, sub-county, and facility levels, with systematic sharing of assessment reports and corrective action plans. **6.** Strengthen healthcare worker capacity through structured, ongoing IPC training and mentorship programmes with competency-based evaluation. **7.** Implement routine environmental surveillance in newborn units, including periodic surface swabbing and reporting of results.

Current Policies and Strategies	Gaps in Policy and Implementation	Recommended Policy Actions
Treatment of Neonatal Sepsis		
Basic Paediatric Protocol, 2022 *Guides health workers through step-by-step algorithms for the triage, assessment, classification, and inpatient management of seriously ill children up to five years; focused on the first 24–48 hours after a child arrives at a health facility.* **Comprehensive Newborn Care Protocol, 2022** *Standardises the management of small and sick newborns in Level 2 newborn units by integrating clinical care pathways with standard operating procedures for essential equipment, e.g., continuous positive airway pressure (CPAP), phototherapy, oxygen concentrators, and pulse oximeters.* **Integrated Management of Neonatal and Childhood Illness Guidelines, 2025** *Equips health workers with a simplified, six-step approach to assess, classify, treat, refer, and follow up sick young infants and children under five for the leading causes of childhood mortality.*	**Inadequate blood culture and antimicrobial sensitivity testing:** Blood culture and antimicrobial sensitivity testing are underutilised in guiding antibiotic selection for neonatal sepsis. Contributing factors include management guidelines that inadequately address the need for culture and sensitivity testing; insufficient laboratory capacity to perform these tests; and prolonged laboratory turnaround times for culture and sensitivity results.	**Policy and protocol updates:** **1.** Review and revise the Basic Paediatric Protocol and Comprehensive Newborn Care Protocol to mandate culture and sensitivity testing for both non-severe and severe neonatal sepsis before initiating antibiotic treatment. **2.** Develop standardised operating procedures for the end-to-end management of neonatal sepsis, from initial assessment through laboratory confirmation to treatment adjustment. **Infrastructure, capacity building, and quality improvement:** **1.** Equip Level 2 newborn units with functional laboratory capacity for bacterial culture and antimicrobial sensitivity testing. **2.** Build healthcare worker competency through mentorship on the collection, interpretation, and clinical application of blood culture and antimicrobial sensitivity results. **3.** Institute regular clinical audit and feedback sessions to strengthen communication between clinicians and laboratory staff on antimicrobial resistance patterns. **4.** Establish rapid feedback systems to relay culture and sensitivity results to treating clinicians within defined turnaround targets. **5.** Identify and address facility-specific barriers to guideline adherence through periodic compliance assessments.



Early and exclusive breastfeeding protects fragile newborns from infection and helps prevent the bloodstream infections that drive neonatal deaths[5] (Photo courtesy of CHAMPS Kenya, 2026)



Kangaroo Mother Care, when combined with exclusive breastfeeding, reduces neonatal sepsis, particularly in low-birthweight and preterm infants[21],[22] (Photo courtesy of CHAMPS Kenya, 2026)

6. Call to Action: Policy Recommendations

Recommendation	Lead Implementers
Fund allocation and budgeting: Prioritise dedicated funding, budgeting, and procurement of adequate IPC supplies and commodities for newborn units, with ring-fenced budget lines at both national and county levels.	Ministry of Health National referral hospitals County Departments of Health
Standard operating procedures: Develop and disseminate standardised operating procedures for the prevention, diagnosis, and management of neonatal sepsis across all levels of the health system.	Ministry of Health - Division of Reproductive, Maternal, Newborn, Child and Adolescent Health (Newborn and Child Health Section)
Capacity building: Implement structured, competency-based training programmes for healthcare workers on IPC, antimicrobial resistance, and evidence-based management of neonatal sepsis, with annual refresher training.	Ministry of Health - Division of Reproductive, Maternal, Newborn, Child and Adolescent Health (Newborn and Child Health Section) National referral hospitals County Departments of Health
Antimicrobial stewardship: Institutionalise and strengthen antimicrobial stewardship programmes in maternity and newborn care settings by establishing facility-level stewardship committees, integrating antimicrobial stewardship into routine capacity-building, and ensuring systematic documentation of antibiotic indications, dosing, and duration.	Ministry of Health - Division of Reproductive, Maternal, Newborn, Child and Adolescent Health County Departments of Health Kenya National Public Health Institute - AMR and IPC Division
Laboratory infrastructure: Enhance laboratory infrastructure and equip Level 2 newborn units with functional capacity for bacterial culture and antimicrobial sensitivity testing, including trained laboratory personnel and quality-assured reagent supply chains.	Ministry of Health - Division of Reproductive, Maternal, Newborn, Child and Adolescent Health Kenya National Public Health Institute - National Public Health Laboratory Services County Departments of Health
Decongest neonatal units: Reduce admissions through Kangaroo Mother Care scale-up and early breastfeeding; reduce length of stay through standardised discharge criteria and transitional care; reduce physical congestion by designating separate acuity zones and meeting minimum space-per-cot standards.	Ministry of Health - Division of Reproductive, Maternal, Newborn, Child and Adolescent Health County Departments of Health Kenya National Public Health Institute - AMR and IPC Division

This policy brief was developed through triangulation of multiple data sources and expert consultation. It draws on surveillance data from the Kenya Health Information System and the Child Health and Mortality Prevention Surveillance (CHAMPS) programme; peer-reviewed and grey literature; and relevant national, continental, and global policies and guidelines. Current and documented best practices were also assessed. Expert panel discussions were convened with officers from the Ministry of Health, the Kenya National Public Health Institute (NPHI), and CHAMPS to contextualise the evidence and prioritise actionable policy recommendations aimed at reducing neonatal sepsis mortality in Kenya.

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