



**OPERATIONAL
RESEARCH
SNAPSHOT**

Klebsiella Outbreak Central African Republic

In Bangui, Central African Republic, Médecins Sans Frontières (MSF) has been tackling recurring outbreaks of drug-resistant infections in newborns at the Centre Hospitalier Communautaire Universitaire (CHUC).

Since 2017, MSF has monitored outbreaks of *Klebsiella pneumoniae*, a bacterium resistant to multiple antibiotics. A recent outbreak of ESBL-KP, resistant to beta-lactam antibiotics, occurred in the Neonatal Intensive Care Unit from October 2023 to January 2024.

These infections are especially dangerous for newborns with underdeveloped immune systems and pose serious challenges in contexts where limited resources make infection prevention and control (IPC) measures even more critical to reduce neonatal mortality.



Control

- Newborns with signs of infection but tested negative
- Newborns who never showed symptoms

Cases

- Newborns with a lab-confirmed infection with ESBL-KP

Data from October 25th, 2023, to January 14th, 2024, from the CHUC NICU were reviewed as part of a case-control study to understand risk factors for ESBL-KP infection. The study revealed a high rate of ESBL-KP infections (29.7 cases per 1000 patient-days) and increased mortality among confirmed cases. Risk factors to the infection included:

- Maternal factors: pre-existing infectious disease risk
- Neonatal factors: gestational age <31 weeks and need for resuscitation



While transmission from mother to neonate was likely the initial source of transmission in October 2023, spread between neonates was also a major contributor, largely due to limited infection control and and hygiene practices.

- Implement water-free care to maintain hygiene without relying on water. 
- Use a peripheral IV access bundle to ensure safe IV line management. 
- Isolate suspected cases early and provide personal kits until test results are confirmed. 
- Assign dedicated staff and equipment to minimize cross-contamination. 
- Strengthen IPC leadership through regular surveillance and audits. 
- Limit staff movement and activities within the NICU to reduce infection risk. 
- Create a separate admission room for new NICU patients. 
- Reinforce hand hygiene practices consistently among all staff. 
- Reduce bed numbers to increase spacing between patients. 
- Conduct thorough cleaning after each patient discharge. 

TOP 10 list of IPC measures to implement

Original Study: Ongoing publication

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