



Assessment of the newborn respiratory ecosystem from public health facilities in the Northern and Upper West Regions in Ghana

WHO National Oxygen Scale-Up Framework Meeting: Road to Oxygen Access Dakar, 14 to 16 May 2024

Objectives

Over the years, Ghana has made progress in reducing neonatal mortality rates. A 2018 statistical survey showed a 14% reduction in the neonatal mortality rate, from 29 to 25 per 1,000 live births between 2014 and 2017. However, neonatal mortality rates in Ghana remain high.

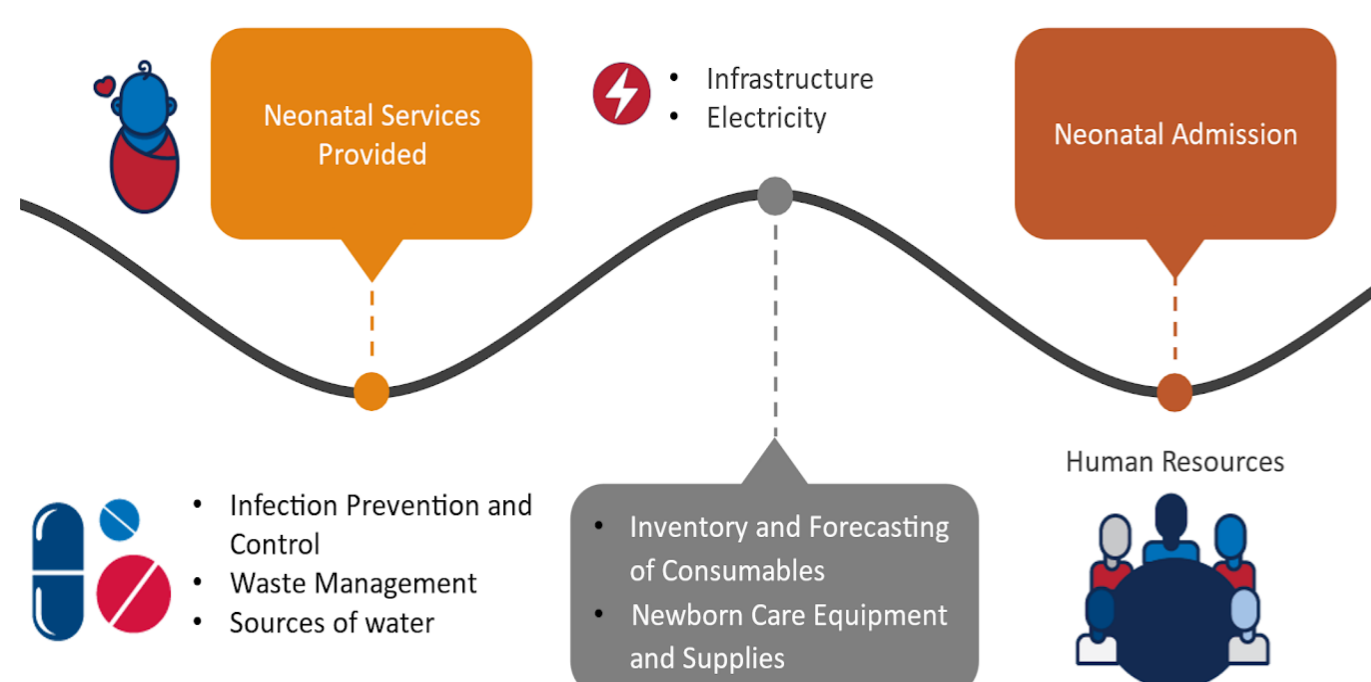
The main objective of the activity was to assess availability and functionality of newborn medical devices, associated consumables, and provider capacity with a focus on a comprehensive review of the respiratory ecosystem.

Specific objectives were to:

- Conduct a situational analysis of the prevalence of improvised bubble continuous positive airway pressure (bCPAP) therapy, 100 percent oxygen use, and pulse oximetry monitoring use
- Identify data gaps in the respiratory support and oxygen ecosystem for the care of small and sick newborns (SSNBs)
- Investigate health staff capacity to manage and maintain devices critical to ensuring adequate respiratory support for SSNBs
- Evaluate maintenance protocols for medical devices for newborn care

Methods

A mixed-method design was adopted, using a quantitative and qualitative data collection technique. 51 health facilities that recorded at least 300 deliveries in 2022 were selected across the Northern and Upper West Regions. The final sample included 24 hospitals, 5 polyclinics, 19 health centers, and 3 community-based health planning and services (CHPS) compounds.



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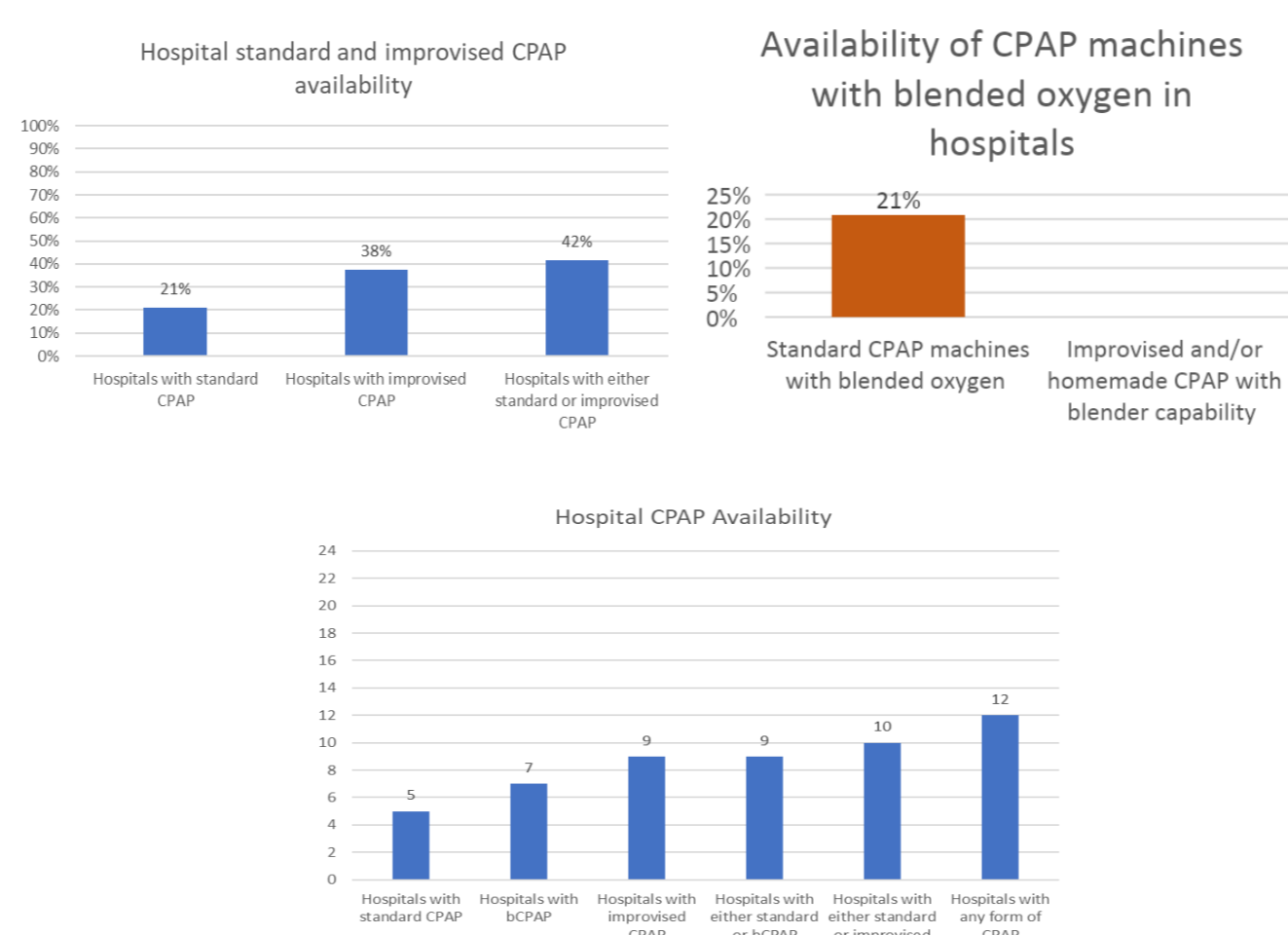
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Results

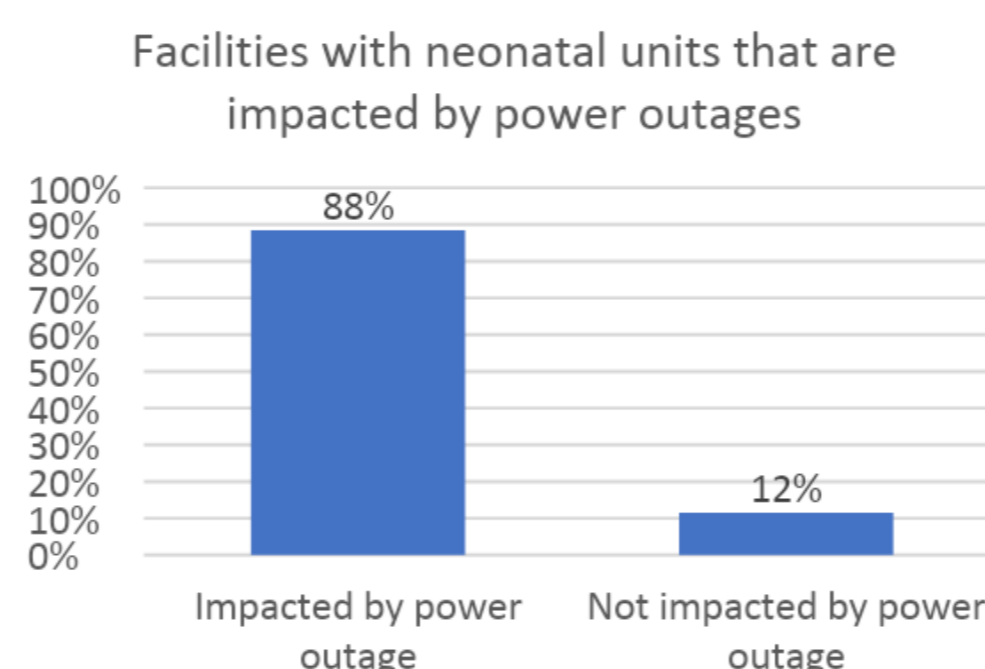
Continuous positive airway pressure (CPAP)

CPAP machines were available and functional only in hospitals. However, none of the hospitals had sufficient CPAP devices and accessories to cover all babies that require respiratory support.



Neonatal unit electricity supply

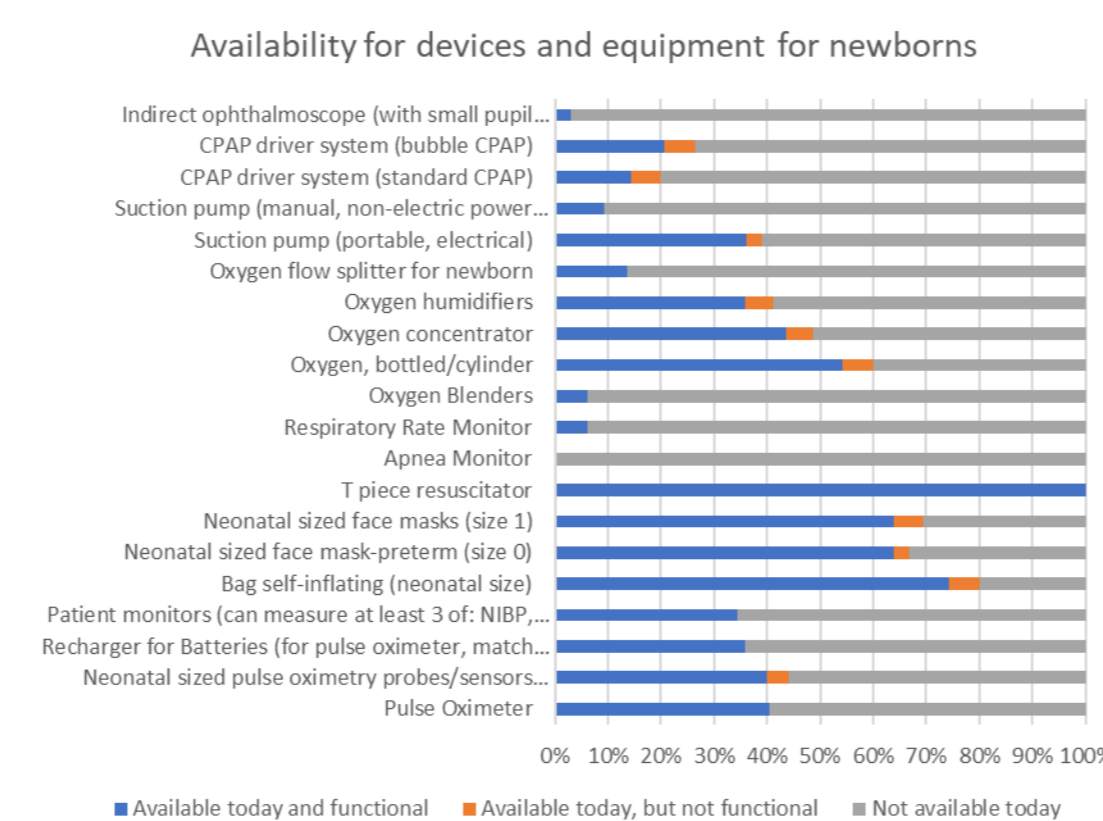
41% of facilities reported not having any back-up electrical power, despite 88% of facilities being impacted by power outages. Back-up power sources were used for a variety of equipment, including vaccine refrigerators, phototherapy lights, radiant warmers, oxygen concentrators, incubators, and suction pumps. Only 8% of facilities had electrical load certification conducted within the past 12 months.



Inventory and forecasting of consumables at the neonatal unit

Almost half of facilities place orders for consumables at least one week prior to running out of stock. This raises concern about consumable availability, and the potential impact on the quality of newborn care in the neonatal unit.

Availability of newborn care equipment and supplies



Maintenance

44% of facilities reported that none of the assessed maintenance tools were available.

Conclusions

The study brought to light several challenges health facilities face that impact effective management and provision of care for all newborns, especially SSNBs. Key challenges include:

- The prevalence of bCPAP devices at level I health facilities was low with the majority being improvised with the inability to provide blended oxygen.
- Non-availability of newborn medical equipment and their limited numbers including oxygen equipment.
- Inadequate staff capacity and lack of training to use and manage oxygen equipment.
- Inadequate forecasting and procurement of medical equipment.
- Lack of effective maintenance protocol for medical equipment, leading to poor maintenance.
- Lack of availability of appropriate CPAP devices resulting in inability to provide safe and effective oxygen.
- Lack of funding and inadequate management of limited resources available for newborn care were key drivers of these challenges.

Overarching conclusion

We are 6 years away from SDGs as the paradigm for SSNBs shifts from surviving to thriving, strengthening the respiratory ecosystem must also have a focus on provision of safe and effective oxygen.

Recommendations

- The Ghanaian Ministry of Health (MOH) and Ghana Health Service (GHS) should expand infrastructure for maternal and newborn care (NICU, postnatal unit, maternal theatre, KMC unit and special baby care unit) in both new and existing health facilities to ensure equitable access to all levels of services critical for protecting the health of small and sick newborns as well as women seeking maternal health services.
- GHS should support health facilities to acquire and ensure effective usage of newborn care devices and equipment including CPAP, pulse oximeters, oxygen analyzers, and safe oxygen sources that are recommended for use in NICU.
- GHS should review and implement a standardized referral and feedback system for small and sick newborns to ensure continuity of care in situations where facilities lack human resources, devices and equipment that are needed for effective clinical management outcomes.
- GHS should budget and acquire funding for the procurement of back-up power supply for health facilities to prevent disruption in newborn care and related health services that rely on uninterrupted electricity supply.
- GHS should identify and build the capacity of health facilities that lack the resources or knowledge to effectively forecast and apply standard inventory management procedures for newborn medical devices.
- GHS should establish a strong maintenance culture for newborn care devices and oxygen equipment by bridging capacity gaps, carrying out routine monitoring and supervision to promote adherence to standard protocols and planned preventive maintenance schedules, and acquiring basic tools and equipment needed for routine management.
- The MOH's Family Health Division should conduct regular in-service training and supervision for midwives and general nurses as part of efforts to improve and sustain the delivery of high-quality care for SSNBs.

