From Outbreak to Hand Rub Production; the Cameroon Local Hand Rub Project

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CAMEROON BAPTIST CONVENTION
HEALTH SERVICES
Objectives

- To share CBCHS experience
- To promote local alcohol hand rub production
Outline

- Introduction
- Background
- Problem
- Interventions/outcome
- CBCHS hand rub project
Conflict of Interest

- None
- We are not promoting the CBCHS hand rub
Introduction

- Of the 4 million neonatal deaths worldwide annually, 22.5% (900,000) caused by sepsis (Li Zhang et al, 2016)
- 40% sepsis-related neonatal deaths in LMIC (Li Zhang et al, 2016)
- Hands are the most common mode of spread (Bauer-Savage et al, 2013)
- Associated with poor infection prevention or unhygienic practices during delivery and postnatal care.
- Preventable with relatively basic and cheap interventions
Background of BBH

- Tertiary, referral, mission hospital
- 250 beds
- Created in 1949
- 800 staff
- Wide range of services
- 30 bed OB unit, with one sink (2002)
The problem/outbreak

- Multiple outbreaks of neonatal sepsis in the OB unit in Banso Baptist Hospital (BBH), NWR, Cameroon, affecting many neonates, leading to additional treatments, hospital stay and cost.
- No surveillance, no data before 2002
- 86/1000 cases in 2002
Clinical Presentation/lab findings

- Skin sepsis (pustules)
- Septic knee
- *Staph aureus* and *Pseudomonas aeruginosa* from samples
Contributing factors

- Inadequate hand hygiene
- Common-use items (petroleum jelly, soap, diaper etc.)
- Poor disinfection
Inadequate hand hygiene facilities

Only one sink in a 30-bed postpartum ward, reserved only for drinking.

Many clinical procedures performed without washing hands

Ignorance of the importance of hand hygiene
Common-use items (from baby to another)

- Single petroleum jelly dispenser for multiple uses; babies’, staff hands and lips
- A single bar soap for multiple babies
- Few bath basins for many babies
- Single diaper on the scale
0.05% chlorine was used to disinfect bath basins for 20 minutes before cleaning, instead of the recommended 0.5% for 10 minutes which was proven to be effective against viruses.
Multimodal Interventions

- The common-use petroleum jelly removed.
- Moms allowed to apply petroleum jelly at bed side
- Sharing with neighbors
- Individual bar soap, diaper introduced
- Single bath basin per baby per day
Multimodal strategies/intervention cont.

- Bath basins decontaminated with 0.5% chlorine for 10 minutes before cleaning
- Case definition and case register established
- Case conferences and hand hygiene workshops organized
- Three potable hand washing facilities added
- Alcohol hand rub produced locally and distributed to staff
Hand hygiene interventions

Alcohol hand rub

Portable hand washing facility

Portable Hand Washing Point

Receiver

Stand
Incidence of sepsis from 2002-2006

Figure 1. Septic spots per 1000 live births
Motivated by the multiple neonatal sepsis outbreaks and insufficient hand hygiene facilities

Started in Banso Baptist Hospital in 2003

The propose was to promote hand hygiene compliance

Piloted in four large facilities in 2012

Scaled up to 37 facilities in 2017
Modified WHO Formulation 2

- Isopropyl alcohol-99.8%
- Hydrogen peroxide-3%
- Glycerol -98%
- Sterile water
- Catalyst to form gel
Quality control

- Microbiological test
- pH/concentration
- Efficacy
Distribution

100 ml for staff pockets

500ml for tables

Locally fabricated Hand rub dispensers
Indicators

- Quality of hand rub produced
- Demand for hand rub by staff
- Quantity of alcohol hand rub used per facility
- Number of staff refilling personal hand rub within 14-19 days
- Number of staff with personal hand rub during on the spot checks
Volume of Alcohol Hand Rub Produced and Distributed increased steadily.

Volume Per Month (Litres)

- 2012 (April-Dec): 47
- 2013: 47
- 2014: 60
- 2015: 87
- 2016: 87
- 2017: 133
- 2018: 214
Volume of hand rub used also increased steadily.

**ABHR CONSUMPTION IN FOUR FACILITIES FROM 2012-2018 (Litres)**

1. BBH
2. MBH
3. BHM
4. MBHD
Results cont.

Demand for hand rub increased

Number of staff refilling 100ml personal hand rub within 14-19 days increased

Number of staff with personal hand rub in their pockets during spot check increased.
## Costs Analysis

<table>
<thead>
<tr>
<th>Volume</th>
<th>Local</th>
<th>Imported</th>
<th>Deference</th>
</tr>
</thead>
<tbody>
<tr>
<td>100ml</td>
<td>500Fcfa ($1)</td>
<td>2,000Fcfa ($4)</td>
<td>1,500Fcfa</td>
</tr>
<tr>
<td>500ml</td>
<td>1,800Fcfa ($3.6)</td>
<td>5,000Fcfa ($10)</td>
<td>3,200Fcfa</td>
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<tr>
<td>1000ml</td>
<td>3,600Fcfa ($7.5)</td>
<td>8,000Fcfa ($16)</td>
<td>4,400Fcfa</td>
</tr>
<tr>
<td>Dispenser</td>
<td>2,000Fcfa ($4)</td>
<td>5,000Fcfa ($10)</td>
<td>3,000Fcfa</td>
</tr>
</tbody>
</table>
Sustainability strategies

- Local production reduces cost
- Strong leadership commitment
- Centralization (within the system) increases economies of scale
- Aligning production with existing activities (example: Central Pharmacy for CBC Health Services), for effective use of human and material resources
- Suitable partners and networking
Challenges

- Production is entirely manual and labor-intensive
- Poor and inefficient delivery systems leading to stockouts in some facilities
- Inaccessibility of some facilities leading to delivery difficulties
- Misplacement or damage of containers by some staff
- Limited commitment of some leaders
- Poor monitoring systems in most facilities
Lesson learnt

- Infection prevention is not rocket science
- Consistent application of basic strategies is key
- Alcohol hand rub can be produced and used in any setting
- Local production is key to sustainability.
Neonatal sepsis is the most common cause of neonatal deaths in LMIC.

Common use items are highly associated with spread.

Hand hygiene is the key preventive strategy.
Conclusion/take home message

- Alcohol hand rub is vital to improve hand hygiene practices and compliance.
- There is a very serious need to promote local hand rub production.
- Networks might be necessary to support/promote local hand rub initiatives.
Points for further discussion

- Can this initiative move from concept to action?
- How can we stimulate local hand rub production?
- Is external support necessary to stimulate local initiatives?
- How can WHO, ICAN, and similar IPC/WASH organizations be of help?
- What support can a technical working group provide to others interested in taking action?
Thanks for your kind attention.