ZERO OMPHALITIS : A Hospital-Based Intervention for Neonatal Safety

Anna Benedict (Assistant Nurse Manager) ; Koon Lai Chew (Director of Nursing) ; Hishamudin Bin Wahab (Senior Manager Clinical Support) ; Dr Wong Jun Yet (Paediatrician)

Gleneagles Hospital JOHOR

ABSTRACT

The **Zero Omphalitis Project** at Gleneagles Hospital Johor was initiated to prevent post-discharge umbilical cord infections and enhance neonatal safety. Root cause analysis revealed three main contributors: bulky cord clamps, inadequate parental education, and lack of clear references for home care. To address these, two key interventions were implemented: the introduction of an innovative **"cord string" device** as a safer alternative to the traditional clamp, and a standardized **educational video** to improve parental knowledge and confidence. Since August 2020, the project has successfully achieved **zero omphalitis cases**, while parental confidence in cord care improved dramatically from **48% to 96%**. To ensure sustainability, several strategies were introduced, including revised nursing guidelines, integration of cord care into parent craft sessions, submission of the cord string for patent rights, and the development of the **Omphalitis Stages in Nursery (OSiN) Chart**. The OSiN Chart serves as a standardized communication tool for doctors, nurses, and allied health staff to assess and classify omphalitis stages consistently [Figure 3].
This initiative demonstrates how targeted, practical measures—combining innovation, education, and structured communication—can significantly improve neonatal outcomes and empower parents in the safe care of their newborns.

CONTACT

Anna Benedict
Gleneagles Hospital Johor
Email: anna.benedict@gleneagles.com.my
Phone: +60127772875
Website : https://gleneagles.com.my/johor

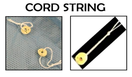
INTRODUCTION

Omphalitis is a serious infection of the newborn's umbilical cord, typically detected after discharge. It frequently occurs at home or in confinement centres and, if untreated, can lead to sepsis and significant morbidity or mortality. Globally, in developing countries the incidence of omphalitis ranges from **2% to 7% of neonates and** can climb even higher—up to **22%**—in settings using non-sterile home remedies [Reference 2]. Preventing omphalitis requires coordinated teamwork between parents, doctors, and nursery staff, supported by evidence-based guidelines [Reference 2 and Reference 3].

METHODS AND MATERIALS

Problem	Solution	Measurable
Ineffective education upon discharge	Prepare and provide education video to parents	1 education video released
No reference	Prepare and provide education video to parents	1 education video released
Bulky design	Introduce new product "in house" – cord string	New innovation product





Step 1 – Cord String Innovation
- 0.3 cm urine catheter + crochet cotton + string wrapper → sterilized → used as lightweight cord tie.



Step 2 – Clamp Replacement
- Day 2 of life: old cord clamp removed, cord string applied with clean technique.
- Quick, painless, and secure.



Step 3 – Parent Education
- Standardized video shows cleaning of cord base and stump with methylated spirit.
- Video shared as part of discharge process.

RESULTS

- Since August 2024, the combined introduction of the innovative cord string and an educational video has led to **zero cases of omphalitis** among newborns [Figure 1]. Parental confidence in cord care has shown a remarkable improvement, rising from **48% before the intervention to 96% after**, as measured on the Likert confidence scale [Figure 2].
- These outcomes highlight not only the effectiveness of the interventions in preventing infections but also their success in empowering parents with the knowledge and skills to provide safe cord care at home.
- The results demonstrate sustainable impact, with safer practices, stronger parental engagement, and improved overall quality of newborn care.

GRAPHS AND TABLES

Figure 1 : PDCA cycle of Omphalitis cases from Jan 2024 – Jun 2025

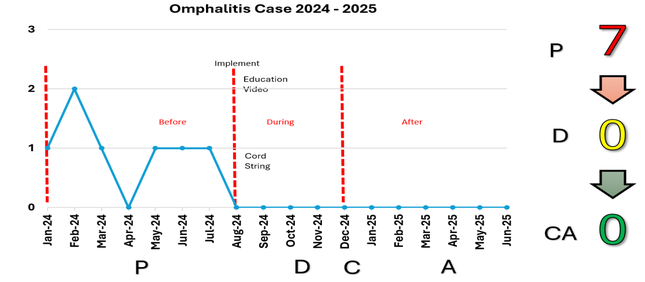
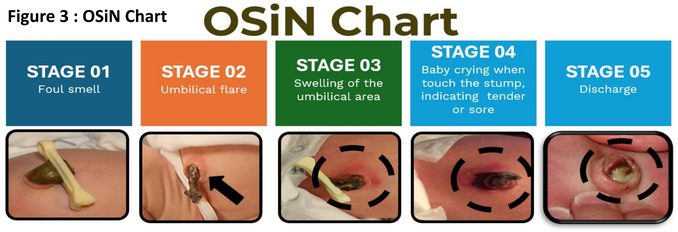


Figure 2 : Parents' Confidence Level



Figure 3 : OSiN Chart



DISCUSSION

Root Causes of Omphalitis Identified:
- Bulky cord clamp design
- Poor discharge education for parents
- No clear home-care reference material

Solutions Implemented:
- Introduced the **innovative "cord string"** to replace bulky clamp
- Developed an **educational video** to guide parents on proper cord care

Outcomes:
- Safer cord care practices
- Improved parental confidence in caring for newborns

CONCLUSIONS

The *Zero Omphalitis Project* successfully eliminated post-discharge omphalitis cases through innovative cord care solutions and effective parental education. By sustaining these practices and sharing tools like the *OSiN Chart*, the initiative demonstrates that simple innovations and collaboration can greatly enhance newborn safety and quality of care.

REFERENCES

1. **World Health Organization (WHO).** (2013). *Postnatal Care of the Mother and Newborn.* Geneva: WHO.
   👉 Provides global recommendations on cord care and infection prevention.
2. **American Academy of Pediatrics (AAP).** (2016). *Umbilical Cord Care in Newborns.* Pediatrics, 138(3).
   👉 Discusses best practices in preventing omphalitis and guiding parents.
3. **Zupan, J., & Garner, P.** (2004). Topical umbilical cord care at birth. *Cochrane Database of Systematic Reviews, (3).*
   👉 Compares different cord care methods and outcomes.
4. **Malaysia Ministry of Health.** (2019). *Guidelines on Essential Newborn Care.*
   👉 National guideline reference (useful for local context and alignment).