Singapore Healthcare Management 2021

Project H2K

To Improve Parental Involvement & Neurodevelopmental Care for Premature Infants in the Neonatal ICU

Teh WY, Audrey Seet, S.Bharadwaj, Ereno IL., Yuan HX., Tay YY, Delphine Seto, Robyn Foo, B. Ismail., Ker HP.

Department of Physiotherapy
Department of Neonatology & Developmental Medicine
Singapore General Hospital

Background of the Problem

STRESSFUL ENVIRONMENT

Neonatal ICU can be stressful for both preterm infants and their parents. Medical intervention & environmental stressors eg: blood taking, bright light or loud noise may alter physiological function of the infants.

AFFECTING DEVELOPMENT

Mismatches between extra- and intra-uterine during the critical period of the developing brain may affect future developmental outcomes.

EARLY PARENTAL INVOLVEMENT

Builds **quality experiences** in infant's NICU journey and improves **neurodevelopmental outcomes.**

Mission Statement

1 **Project Huddle to Kuddle (H2K)** aims to increase **parental involvement** and implement timely **developmental care** intervention from **40%** to **100%** in premature infants born ≤32 weeks over **12 months** in SGH.

2 **Secondary Outcomes:**

- Reduction in length of stay (LOS)
- Days to regain birth weight (BW)
- Days to achieve full feeds
- Test of Infant Motor Performance (TIMP)

Methodology

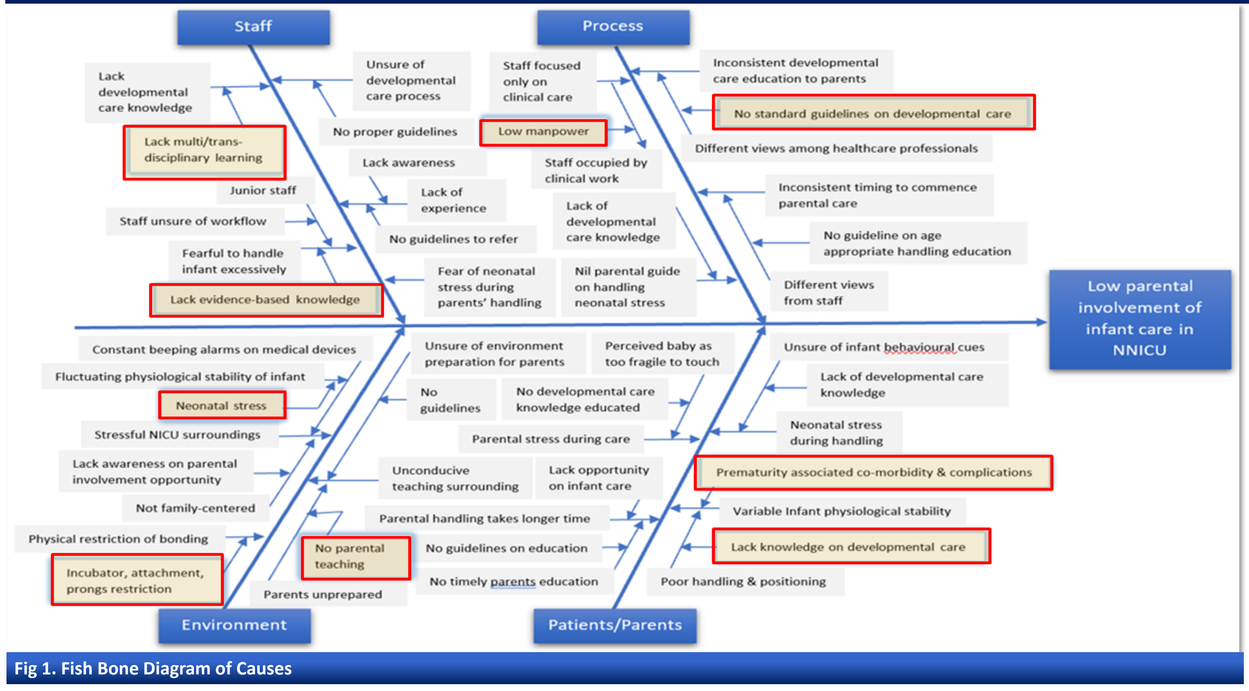


Fig 1. Fish Bone Diagram of Causes

Fig 2. Pareto Chart of Low Parental Involvement in NICU

Analysis

Brainstorming sessions in multidisciplinary **focus group**

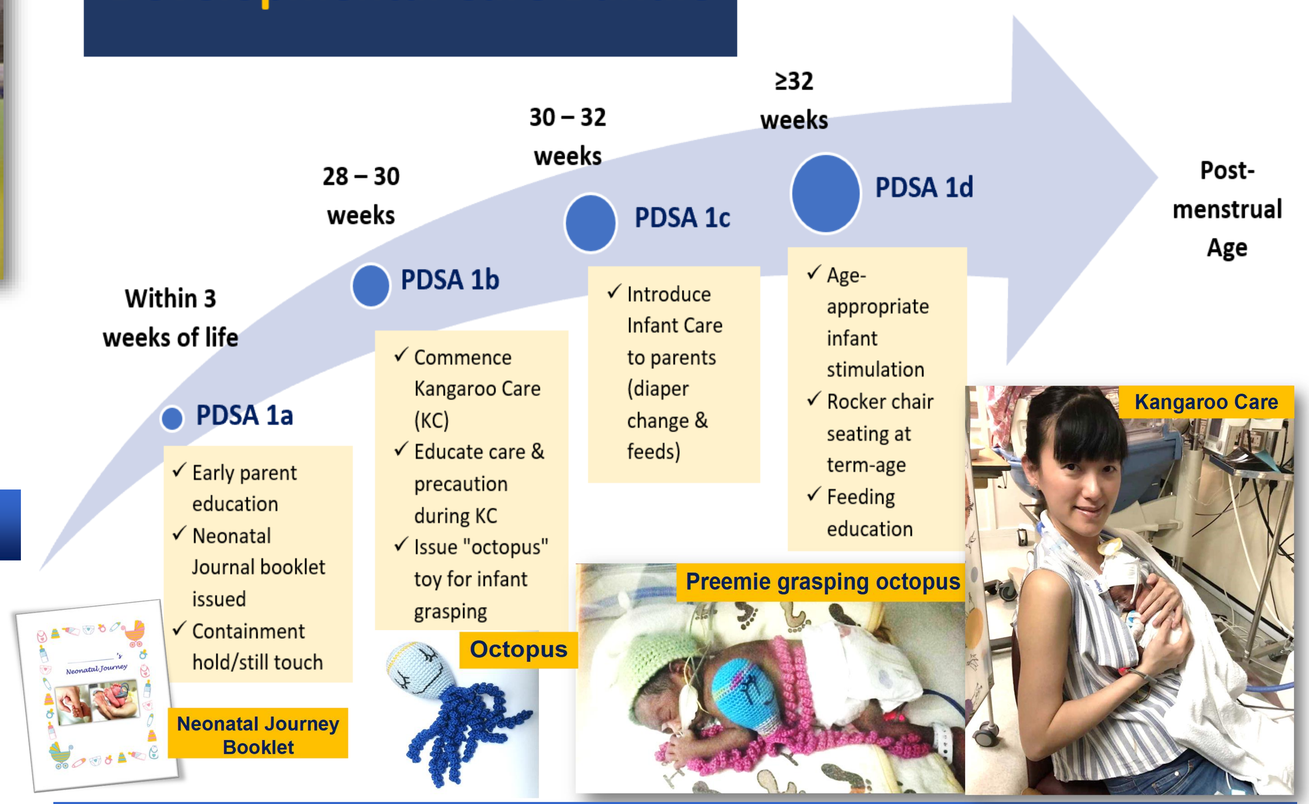
→ **Streamlined** & **verified** ideas to tackle all root causes in *Fig 2*

→ Identified **overlapped** solutions

→ Create **Neurodevelopmental Bundle** (Reinforced ***Kangaroo Care***, age-appropriate to individual infant based on post-menstrual age)

Intervention

Developmental Care Bundle



Results

Timely Developmental Care

Achieved in **100%** of the preterm infants born ≤32wks

Increased Parental Level of Participation

Increased Likert scale from <40% to **80%** in all 7 parental involvement domains eg: diaper change & assist feeding ($p < 0.005$)

Improved Motor Status

Increased mean TIMP scores by **2 points** [NS]

Improved days to Full Feeds & Regain BW

Mean days to achieve full feeds and regain BW improved by **4 days** & **1 day** respectively [NS]

Reduced Length of Stay

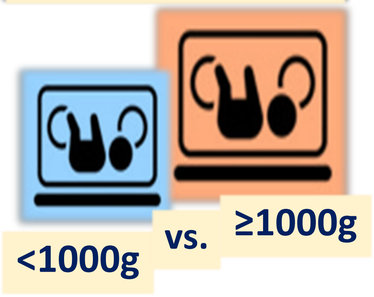
Reduced mean LOS in HD by **4 days** [NS]

*HD – high dependency unit NS – Not Significant S – Significant

SUBGROUP ANALYSIS

Baby with BW ≥1000g had:

Comparison of BW



Reduced HD Length of Stay

Significantly reduced by **7 days** ($p < 0.05$)

Regained BW earlier

Significantly earlier by **3 days** ($p < 0.05$)

Achieved Full Feeds earlier

Significantly earlier by **7 days** ($p = 0.069$)

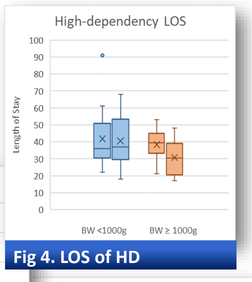


Fig 4. LOS of HD

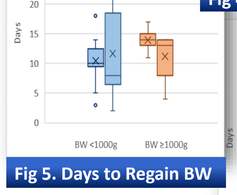


Fig 5. Days to Regain BW

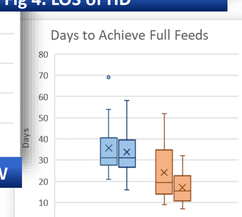


Fig 6. Days to Full Feeds

Sustainability

1 **Monitor Consistent Parental Education & Involvement**
Ensure e-documentation within 3 weeks of life of the infants

Installation of Procedures & Systems

3 **Compliance in Infection Control**
Ensure daily washing of octopus and wipeable rocker chair

2 **Patient Safety**
Close monitoring of kangaroo care

4 **Reinforce Guidelines**
Visible guideline forms on patient's clipboard

Acknowledgement

We would like to thank the sponsors, Dr Poon Woei Bing (Head, Neonatology) and Jennifer Liaw Suet Ching (Head, Physiotherapy), for being supportive and encouraging of this project.