

ENVIRONMENT & ISSUES

- Victoria General Hospital is a 22 bed Level 3 NICU located in Victoria, British Columbia.
- Developmental care and parental involvement is encouraged. However, opportunities for improvement were identified.
- Preterm birth requires numerous medical procedures to provide needed support to an infant.
- Intensive medical care may be fraught with potentially unpleasant sensory bombardment of the developing brain.
- Sweeping restrictions implemented by hospitals in response to the COVID pandemic created additional challenges & barriers for families admitted to the NICU.
- The Canadian healthcare system is experiencing severe staffing shortages, while demand for services continues to increase.

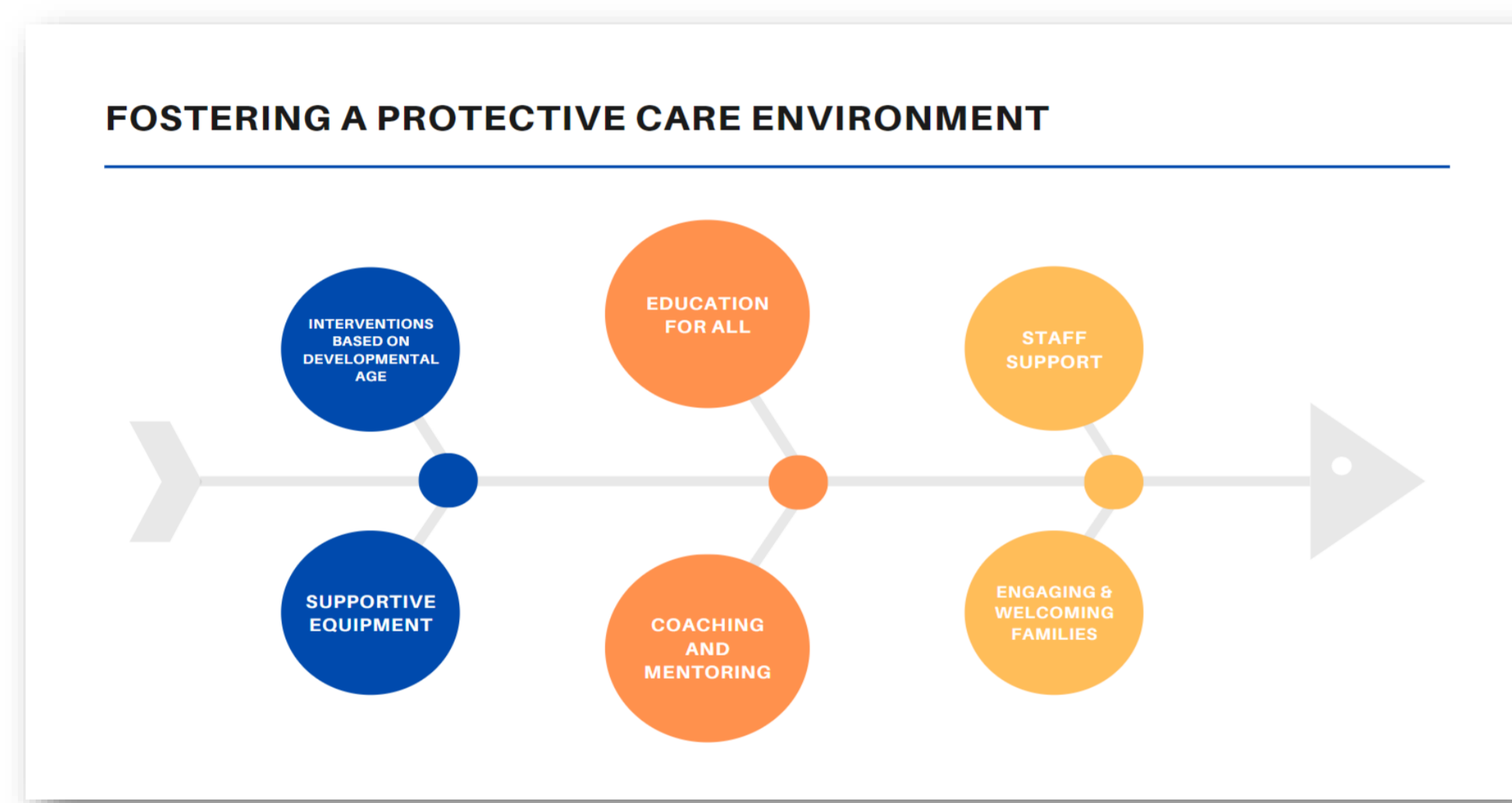


Figure 1

CURRENT SITUATION

Canadian Neonatal Network (CNN) 2021 Annual Report for Victoria General Hospital's (VGH) Neonatal Intensive Care Unit (NICU) reported:

- A decrease in severe neurological injury and an increase in mortality & severe morbidity rates for infants born less than 29 weeks gestation born at VGH NICU—Figure 2.

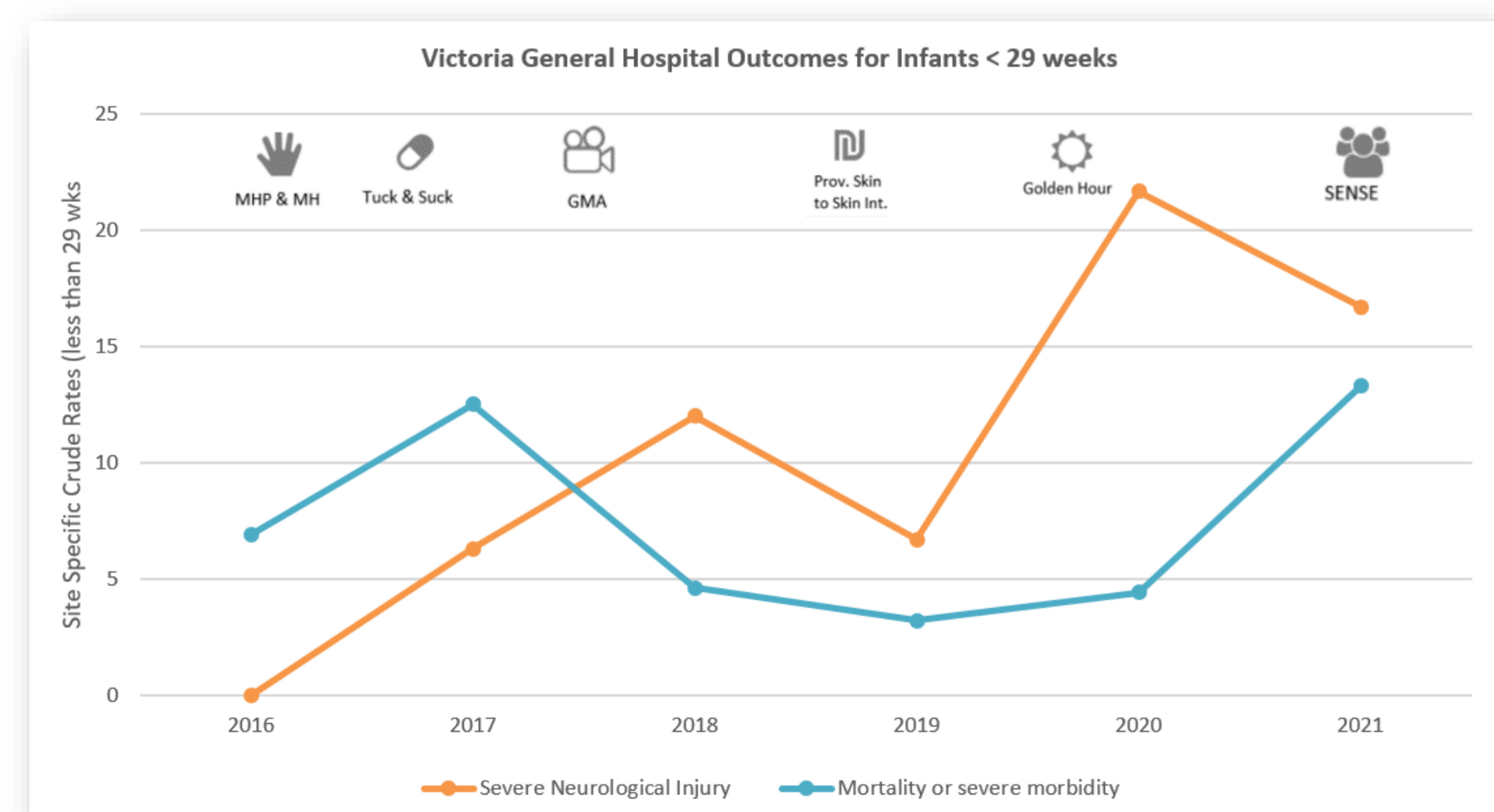


Figure 2

References:
 1. Pineda et al. Parent participation in the neonatal intensive care unit: Predictors and relationships to neurobehavior and developmental outcomes. Early Hum Dev 2018; 117: 32-38
 2. Whitehill L et al. Socio-demographic factors related to parent engagement in the NICU and the impact of the SENSE program. Early Hum Dev 2021; 163: 105486
 3. SENSE: Copyright 2017, by Washington University in St. Louis, Missouri and 2022, by University of Southern California in Los Angeles, California.
 4. Miller, S. Brain Health in the Neonate: From Connectome to Home. UBC Pediatric Grand Rounds. 08 April 2022

PROBLEM

The VGH NICU team suspects our previous levels of family involvement/engagement and rates of skin-to-skin care have decreased over the course of the COVID pandemic.

GOALS

- To foster a protective care environment for our littlest of patients through implementation of the SENSE program, including:
- Consistent parental encouragement to participate in the care of their child by providing daily intentionally nurturing sensory inputs
 - Supporting and mentoring new NICU team members
 - Provision of standardized information for families and team members
 - Monitoring of our long-term outcomes (such as developmental assessment information)
 - Monitoring our rates of brain injury in this patient population

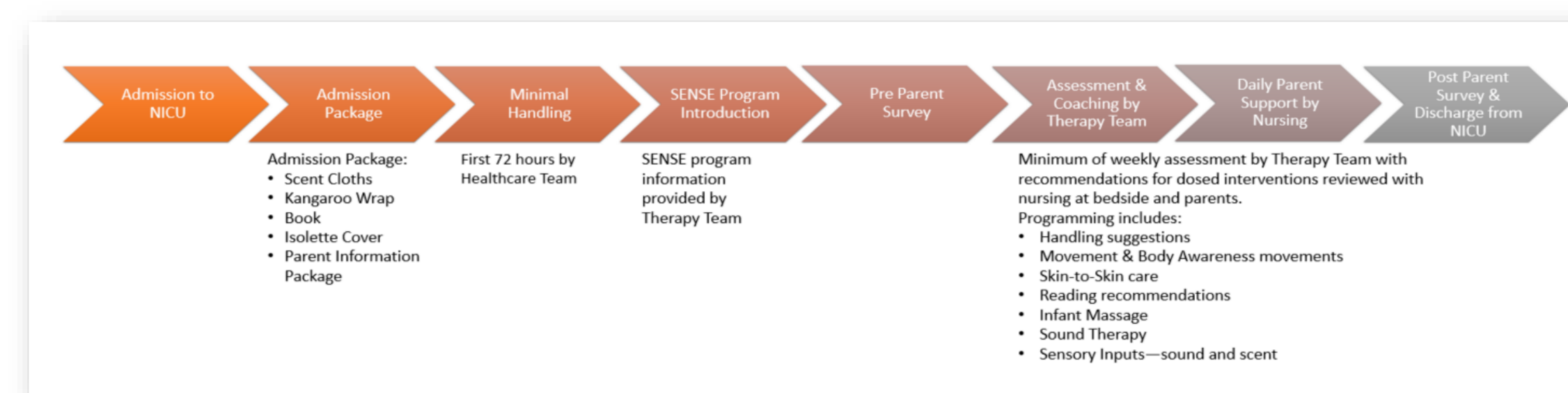


Figure 3

CHANGE PLAN

- VGH NICU will implement SENSE program in addition to previous neuroprotective initiatives (See Figure 3).
- The NICU team will use the SENSE program to implement standardized developmental activities guided by an infant's gestational age and developmental maturity.

Preparation for project includes:

- Analysis of trends in our neurological injury rates and long term outcomes for infants
- Identify data to be examined
- Create parent surveys
- Support NICU team during plan implementation
- Create and provide education plans & sessions for team and families.



What is The SENSE Program:

- The SENSE program is developed and tested by the University of Southern California NICU Therapy Lab.
- Sensory activities are based on gestational age of the infant.
- Parental educational material are included in the program package (See Figure 4).
- Program is designed to be parent delivered but may be supplemented by other team members when parents are not present.
- A weekly choice of different tactile, auditory, visual, olfactory/gustatory, and movement and body awareness experiences to provide the infant everyday of hospitalization.
- Dose of these activities is based on postmenstrual age and may be individualized for each infant (See Figure 5).

Parent Log Week 14 form with columns for Touch, Hearing, Smell, Seeing, and Movement & Body Awareness. The form is used to track sensory activities provided to the infant.

Figure 4

Sensory Support: 38 Weeks

Here are some things to do with your baby each day this week (as long as tolerated):

- Touch:** Give at least 1 hour of position touch each day by doing one or more of these things: Provide a handhold, Do kangaroo care (skin-to-skin) for at least 1 hour, Hold your baby in a car seat, Use massage for up to 15 minutes at a time.
- Hearing:** Give at least 30 minutes of position sound each day by doing one or more of these things: Talk, sing, and/or speak to your baby (or be in the same room as your baby) for at least 1 hour, Play music or recorded voice.
- Smell:** Provide at least 3 hours per day of parent scent on the head of the newborn.
- Seeing:** Cycle light to your baby with natural light or lightbox when there is natural light during the day and dim light at night, Look directly and brightly at your baby to allow your baby to see you.
- Movement & Body Awareness:** Change your baby and allow stretching and movement for at least 2 minutes every 2-3 hours, Engage in tummy time and holding at least 3 other positions for at least 10 minutes each, Rock using holding for at least 7 minutes.

Figure 5

RESULTS

The implementation team & the NICU team has:

- Consulted with multiple team members to inform implementation planning
- Provided education on SENSE program in multiple venues (such as Neonatal Rounds and Nursing Education Days), distributed information at team meetings, and through unit communication tools (such as newsletters).
- Created pre and post-family surveys
- Drafted a data collection tool
- Created admission packages



NEXT STEPS

- Implementation and collection of data
- Ongoing monitoring of outcomes
- Strive to build a supportive community of practice

Everyday experience impacts neurodevelopmental trajectory—Dr. Steven Millar³