



Parkland Nano Baby Bundle

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Parkland

Disclosure

- I have no actual or potential conflict of interest in relation to this presentation.





- Parkland Health is one of the largest county hospitals in the country.
- Fiscal year 2024 we had 13,716 deliveries with 1877 admissions.
- NICU has 96 single-patient rooms.



Delivery Room & Operating Rooms

- Parkland has 48 delivery suites and 9 Operating Rooms
- Five halls of 10 delivery rooms each
- Resuscitation is conducted within the DR/OR



Parkland Resuscitation Team

Multidisciplinary Resuscitation Team

- Attends all high-risk deliveries
- Primary Team
 - Nurse
 - Respiratory Therapist
 - Resident physician/Advanced Practice Providers (APP)

Backup team : joins the primary team when the need for advanced resuscitation is expected

- Additional APP and RN
- Fellow ± Attending



Background

- January 2014: Initiation of Golden Hour Quality Improvement project to streamline admission and treatment of infants <30wks
- August 2015: move to new hospital
- April 2021: Parkland began offering resuscitation to 22+0 wk EGA infants
- Sept 2022: Nano project initiated
 - Comparison of data before and after initiation of Nano Project



What is in the bundle?

Golden Hour Management - Infants < 30 Weeks Gestation		
<i>*Nano preemie (22 - 23+6 wk EGA) additional considerations and differences</i>		
Time	Personnel	Task(s)
Pre-delivery	L&D Provider	Resident notifies L&D attending, Fellow, NNP, Resus Nurse. Reviews maternal history
	Fellow/L&D Attending	Perform/Review prenatal consult"/history Conducts Resus team huddle Assign roles for each personnel
	Resus RN	Identify Admitting Room # & Pod NICU room set at 74°F and 80°F for <24 weeks
10 minutes prior	Resus RN	Prepare delivery supplies (pulse oximeter, leads, tape measure etc.) Prepare intubation supplies (ETCO ₂ , tape, ET tube, blade) Thermoregulation supplies (poncho, transwarmer, warm chuck, 2 blankets, hat, thermometer) Note DR temp (Temp > 74°F)
	Resus RT	Prepare DR CPAP supplies and airway supplies
	Unit RN	Isolette pre-warmed in NICU Check supplies setup at bedside (lab draw supplies, measuring tape, IV tubing etc.) *Stock additional nano supplies at bedside: LISA kit, clear sterile drape, extra transwarmer gel pad, minimal stimulation sign, etc
	Unit Aid	Transport isolette (preset at 38°C) taken to L&D and plugged into wall outside DR/OR
5 minutes prior	Resus RT	Setup Neopuff, mask, suction
	Unit RT	Perform Ventilator setup, bag mask and suction supplies and tubing at bedside
	Fellow/Attending	Confirms Resus Team roles
	Resus RN	Completes resus supplies preparation
	Unit RN	Completes NICU setup
Birth	Resus RN	Appar Timer on
	L&D Provider	Delayed cord clamping for 60 seconds & 30 seconds if need for immediate resuscitation Catches baby with sterile drapes Places infant on the poncho with TransWarmer underneath and applies hat

- Nano infants defined as 22-24+6 EGA
- Standardized timeline for Golden Hour admissions with further considerations for "Nano" infants
 - Structured by roles with clear instructions
- Surfactant before lines (within 1 hour of life)
- Experienced physician or NNP ready to place lines
- Additional guidelines for care following admission
 - Emphasis on clustering of care and minimal stimulation



Highlights of Delivery Room Management

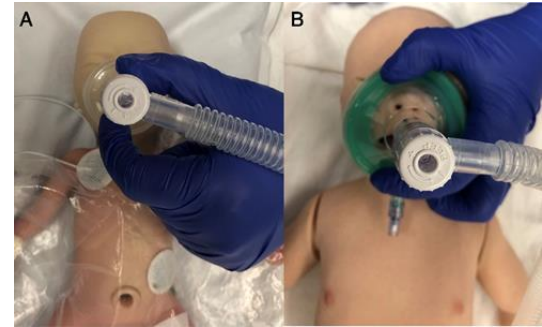
Delayed Cord Clamping whenever possible

Thermoregulation

- Use of hat, poncho, and trans-warmer gel pad in DR
- Use of hat, chemical thermal mattress, and sterile drape on admission

Less invasive approach to respiratory care:

- Colorimetric End Tidal CO₂ with face mask PPV
- Start at FiO₂ 0.3
- Optimize face mask PPV using MRSOPA
- Stepwise escalation of pressure- 25-30-35
- Increase CPAP stepwise to max 8 cm H₂O if FiO₂ >0.6
- Give time for baby to breathe (10 minutes) if HR is >100 and SpO₂ is improving



Highlights of NICU Management



- Thermoregulation
 - The room set to 80 degrees with the door shut
 - Mattress Temp increased to 39^oC
 - Set Skin Temp at 36.7^oC
 - Humidity at 70% for 7 days, then 50% until 30 weeks EGA
- Less invasive approach to respiratory intervention
 - Less Invasive Surfactant Administration Guideline
 - If indicated, surfactant within 1 hour of life - "Surf Before Lines"
- Minimum stimulation
 - Top-down ASAP
 - Emphasis on clustering of care



Highlights of NICU Management

- Specialized skin care
 - Specialized products – Mepitac ©, Mepitel ©
 - Wound care nurse
- Family-centered care
 - Pre-delivery consult with upper-level provider
 - Frequent visitation and rooming encouraged
 - Participation in care is encouraged
 - Multidisciplinary rounds with family, family meetings

Parkland's NICU and You



Your guide to premature babies < 29 weeks

 Parkland
Patient Education

Getting ready for your baby's delivery

At your baby's birth, a team from the Neonatal ICU (NICU) will be there in the delivery room to take care of your baby. The people on this team are:

- **Provider:** a doctor or nurse practitioner who will lead the care of your premature baby.
- **Nurse:** the nurse listens to the heart rate and lung sounds and will let the team know about any changes.
- **Respiratory Therapist (RT):** the RT will help your baby with breathing.

Keeping your baby warm: Your baby will be brought to a special bed to keep it warm right after it is born. Your baby's body will be placed in a plastic covering with the head outside to give extra warmth.



In the NICU

The medical team will be busy making sure your baby is safe. During this time, the team will be:

- Watching the heart rate, breathing rate, blood pressure and oxygen levels
- Taking X-rays to learn about your baby's lungs and heart
- Drawing blood to check different lab values
- Placing umbilical or IV lines

Breathing and your baby

A premature baby's lungs are still forming, and your baby will need help breathing. There are a few ways that we can help your baby breathe.

- **CPAP** helps to give extra pressure into your baby's lungs through tubes in the nose to keep the lungs and airway open. Your baby still does most of the breathing. There will be a machine connected to the tubes to help give this extra pressure.



- An **Endotracheal (ET) Tube** is a breathing tube that is put into your baby's windpipe to help them breathe. A breathing machine will do most of the work for your baby.



Your baby can receive oxygen by CPAP or ET tube. Some babies may get a medicine given directly to their lungs called surfactant. This medicine helps the lungs work better. We will be able to measure how well your baby is doing by blood tests. We will make changes based on these results.



Measures for Projects

Measures for Golden Hour Project

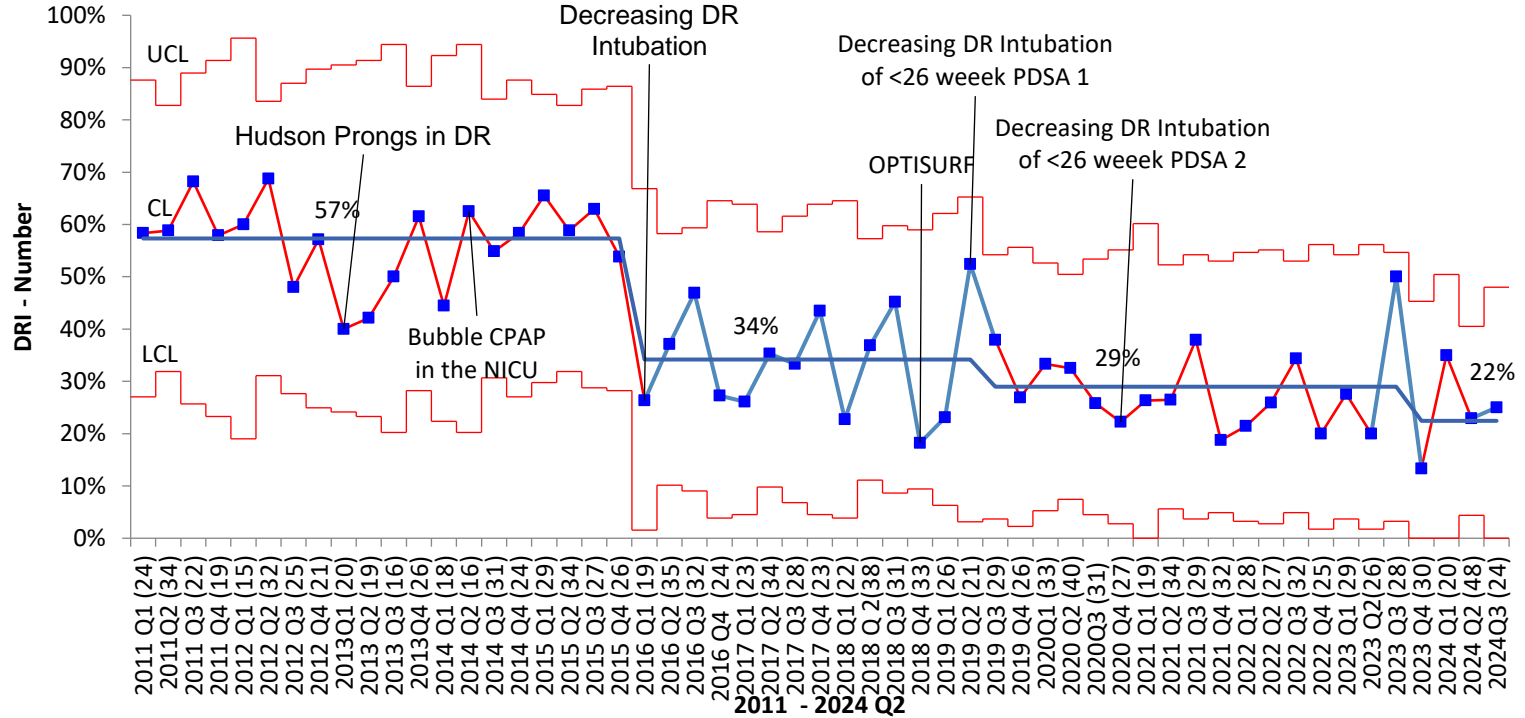
- DR Intubation rates
- Admission temperature
- Time to isolette closure
- CPAP failure

Measures for Nano Project

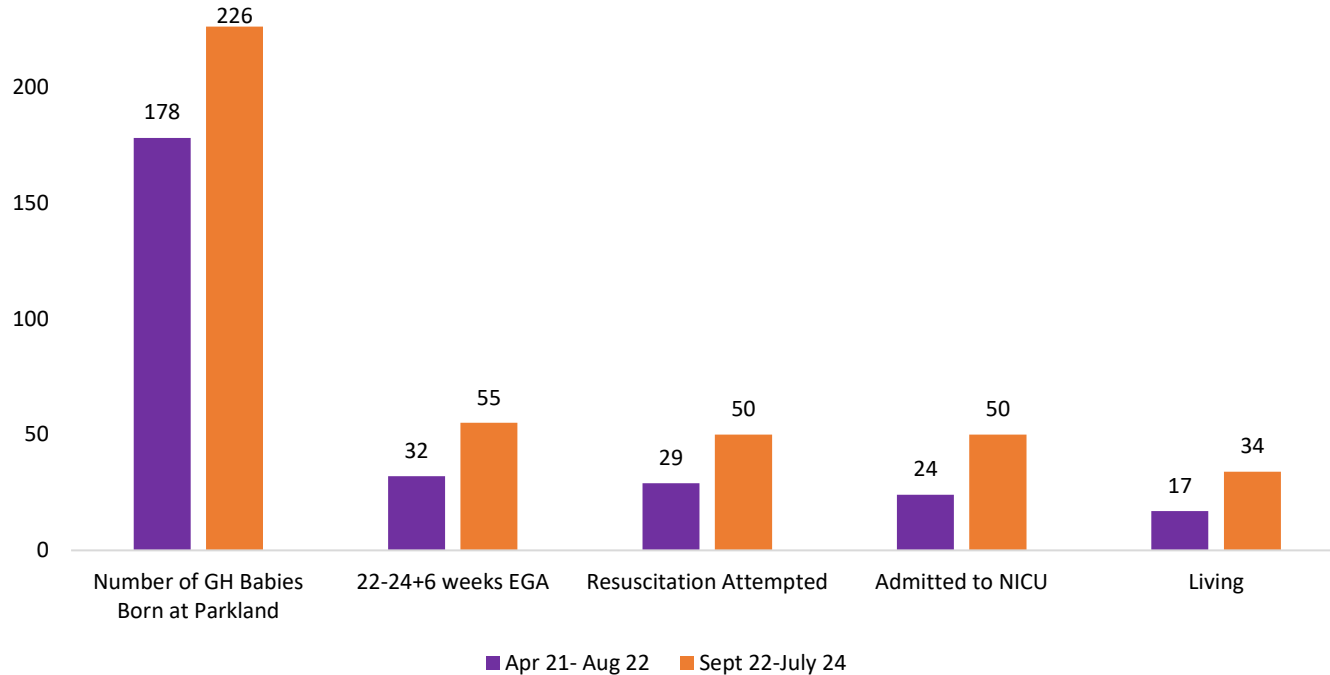
- Survival of infants ≤ 24 weeks GA



Delivery Room Intubation Rate

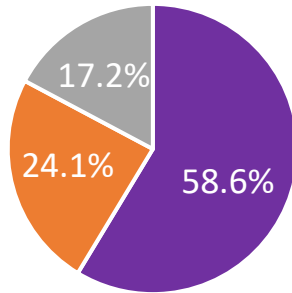


Nano Babies at Parkland Health

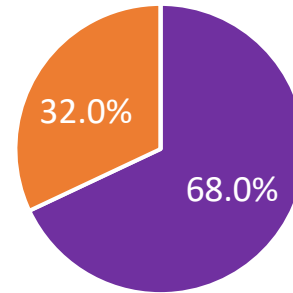


Nano Disposition Breakdown (22-24 Weeks GA Infants)

Before Nano Project
4/1/21-8/31/22



After Project
9/1/22-7/31/24

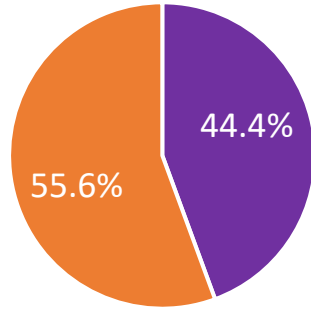


■ Living (17) ■ Demise in NICU (7) ■ Demise in DR (5) ■ Living (34) ■ Demise in NICU (16) ■ Demise in DR (0)



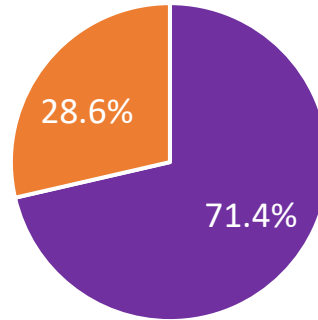
Nano Disposition by EGA Following Project Start

22 Weeks



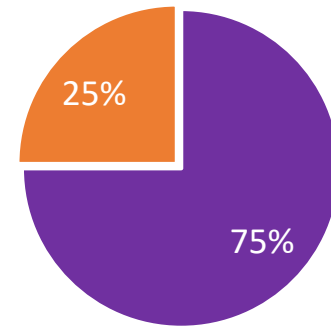
- Living (4)
- Demise in NICU (5)

23 Weeks



- Living (15)
- Demise in NICU (6)

24 Weeks



- Living (15)
- Demise in NICU (5)



Culture Change

