NICU Transition Overview

Jane Turner, MD, FAAP
Professor HP
Pediatrics and Human Development
Learning objectives

• Describe conditions that are commonly seen in babies in the NICU;
• Recognize nutritional needs of babies cared for in the NICU;
• Be prepared to address behavioral health and emotional needs of NICU graduates and their family members.
Common conditions

- Premature birth
- Significant congenital anomalies or metabolic disorder
- Neonatal Abstinence Syndrome
- Short term medical needs
  - Trouble breathing
  - Hypoglycemia
  - Infection or risk of infection
Premature birth

• Complications of prematurity
  – Breathing problems
  – Nutrition needs
  – Feeding issues
  – Retinopathy of prematurity
  – Intraventricular hemorrhage
Eric

- 24 week preemie born by C-section
- Birth weight 650 grams
- 7 month stay in the NICU
- Nutrition = breastmilk fortified with Enfacare 24 cal/oz and benoprotein
  - 82 ml per feeding, what isn’t taken by nipple is given by NG tube
Problem List

- Bronchopulmonary dysplasia
- Hypothyroidism
  - On 1 L oxygen
  - Pulmocort BID
- Pulmonary hypertension
  - Sildenafil
- Osteopenia
- Retinopathy of Prematurity
- CMV
- Anemia
- Apnea of prematurity
  - Apnea monitor
- s/p hernia repair
- s/p pneumothorax
Follow up

- Endocrine
- Cardiology
- Pulmonology
- Ophthalmology
- Feeding evaluation
- DAC
- DME
- Medicaid
- SSI

- What’s missing?
- Early On
- WIC
- MIHP
- Dietician
What is YOUR ROLE?
Congenital Anomalies

- Heart defects
- Spina bifida
- Cleft palate
- Club foot
- Brain malformations
Dwayne

- 27 week gestation
- Congenital heart disease
- Renal dysplasia
Problem list

- Bronchopulmonary dysplasia
- Home ventilator
- Tracheostomy
- Gastrostomy
- Renal agenesis Right
- Congenital heart disease
- Retinopathy of prematurity
- Feeding problem
- s/p venous thrombosis
- Developmental delay
- Social disruption – foster care
Follow up

- Nephrology
- Ophthalmology
- Cardiology
- Vent clinic
- Peds surgery
- Coagulation clinic
- Audiology
- ENT

- What’s missing?
- Early On
- Dietician
- Speech/OT feeding
- Support for family?
What is YOUR role?
Neonatal Abstinence Syndrome

• In 2014, 14 per 1000 live births had opioid withdrawal
• 21 per 1000 live births in the UP
Jenny

- Term infant delivered vaginally
- Mother has hx opioid abuse
- Mother in recovery – taking methadone
- Infant becomes increasingly irritable beginning on second day of life.
Problems

- Irritable
- Jittery
- Increased tone
- Constant movement – especially arms and legs
- Short, nonquiet sleep
- Poor feeding
- Slow weight gain
- Uncoordinated suck
- High pitched cry
- Rapid breathing
Follow up

- Primary Care
- Maternal Infant Health Program
- Early On

- What’s missing?
- Dietician
- Speech/OT feeding
What is YOUR role?
Short term problems

• Transient respiratory difficulties
• Infection or risk of infection
• Difficulties regulating blood sugar or temperature
Mary

- Born at 37 weeks 3 days gestation
- Small for gestational age
- Low blood sugar that didn’t resolve
- Uncoordinated suck
Problem list

• Small for gestational age
• Late preterm
• Feeding difficulties
• Low blood sugar
• Young mother
• Father not involved
Follow up

• Primary care
• MIHP

• What’s missing?
What is Your role?
Nutrition Needs

• Preterm, small and ill babies typically have altered energy and nutrient needs
• Delayed growth
• Oral-motor dysfunction; feeding, swallowing or digestive disorders
• Eating is hard work and requires skill.
Behavioral Health Needs

- Child birth is a dangerous and stressful time.
- Having a baby who is sick is extremely stressful.
- Premature birth and poor outcomes are affected by social factors.
- Having a baby with health problems can be very isolating.
Risk indicators

- Preterm birth
- Neonatal illness – long hospitalization
- Single parenthood
- Adolescent motherhood
- Closely spaced pregnancies
- Infrequent family visits to hospital
- Substance use
Eric

- Born at 24 weeks, 650 grams at birth
- Increased effort to breath (BPD)
- Anemia
- High energy need
- Avoid fluid overload (BPD)
- Nutrients: iron, vit D
Eric

- Nutrition
  - Consult Registered Dietician
  - Special formula – calorie dense
    - Lipids and protein
  - Iron and Vit D
  - Feeding therapy by Speech pathologist
- Emotional support
  - The Family Center
  - MIHP, Early On, Medical Home
Dwayne

- 27 weeks gestation
- Congenital heart disease
- Renal agenesis
- Gastrostomy
- Poor growth
- High calorie, low solute formula
Dwayne

- Nutrition
  - Dietician at the Vent Clinic
  - Special formula – low protein, low solute
  - Iron and Vit D, minerals
  - Feeding therapy by Speech pathologist

- Emotional support
  - The Family Center
  - MIHP, Early On, Medical Home
Jenny

- Neonatal withdrawal from opioids
- Jittery, high tone, irritable
- Hard to comfort
- Uncoordinated suck
Jenny

- Nutrition
  - Breast feeding support
  - Lactation consultant
  - Consider supplement with high calorie formula

- Emotional Support
  - MIHP
  - Medical Home
Mary

• Small for gestational age;
• Transient low blood sugars
• Initial difficulties feeding.
Mary

- **Nutrition**
  - Breast feeding support
  - Lactation consultant
- **Emotional support**
  - Medical home
  - Consider MIHP
  - Community support
Support for families

• The Family Center
  – CSHCS Family Center Phone Line at 1-800-359-3722,
  – Email: cshcsfc@michigan.gov

• http://share.marchofdimes.org/ -- a blog for parents
Consult dietician

- Birth weight < 1500 grams
- Slow growth
- Weight/length < 5th percentile
- Medical condition such as congenital heart disease, kidney disease, inborn error of metabolism, cleft lip, cerebral palsy
- Tube feeding
- Other
NICU follow up workgroups

- Multiple stakeholders met to address challenges in the transition from NICU to home, medical home and community.
- 2013 WG: focus on Home Visiting
- 2015 WG: Transfer of complete and useful information was identified as priority.
Communication Element Highlights

• Infant demographics
• Parent demographics
• Physician, Specialist & Referral contact information
• Follow-up appointments
• Social, emotional and economic information
• Community resources for parents
• Immunizations
• Tests and laboratory results
Communication Element Highlights, continued

• Course of hospitalizations
• Medical plan & goals
• List of medications
• Feeding plan
• In-home specialty care needs
• Additional resource information to include: local health departments, evidence-based home visiting programs, EarlyOn, county Department of Health & Human Services offices, 2-1-1, Great Start Collaborative, WIC, Medicaid Health Plan websites
Recommendations

• All infants eligible for CSHCS will be referred to Local Health Department
• All infants in Medicaid will be referred to Maternal Infant Health Program.
• Key elements of information to be included in discharge documents were identified.
• A checklist for transition NICU to primary care was developed.
Summary

• Common conditions
  – Prematurity
  – Congenital anomalies or metabolic diseases
  – Opioid withdrawal
  – Short term medical instability

• Nutrition needs

• Behavioral health/emotional needs
What’s next?

- Social determinants of health
- Ideal transitions
- Parents’ perspectives
- Nurses’ perspectives
- Framework for supporting a smooth transition from NICU to home/medical home/community.