Module 2: Diagnoses Associated with Prematurity & Developmental Implications
Decoding a Discharge Summary Handout
Developed by Brenda Hussey-Gardner, PhD, MPH

Directions: Review the discharge summary and answer the following four questions.

1) Does the child have one or more high probability medical conditions? If so, list them.

2) Are there any findings important to early intervention?

3) Who should participate on the eligibility evaluation team?

4) What linkages should you consider adding to the IFSP?

Neonatal Discharge Summary

Smith, Baby Girl

Neonatologist: Anna Jones, M.D.

Delivery date: 10/11/12
Admission date: 10/11/12
Discharge date: 1/5/13
Gestational Age: 25 2/7 wks
Birth weight: 545 grams

ADMISSION DIAGNOSES

1. 25 week preterm female
2. Extreme prematurity
3. Respiratory distress syndrome
4. Respiratory failure
5. Suspected Sepsis
6. Hypotension
7. Hypoglycemia

DISCHARGE DIAGNOSES:

1. 25 week preterm female
2. Chronic lung disease
3. S/P bowel resection secondary to surgical necrotizing enterocolitis
4. Retinopathy of prematurity
5. Bilateral Grade III Intraventricular Hemorrhage, resolved.
6. Left periventricular leukomalacia
7. Anemia of prematurity

DIAGNOSES

Singleton, inborn infant, Extreme prematurity, Respiratory distress syndrome, Oxygen requirement on day 28 (Chronic Lung Disease), Patent ductus arteriosus, Hypotension (symptomatic), Bilateral Grade III Intraventricular hemorrhage bilateral, Periventricular leukomalacia, Apnea of prematurity, Jaundice due to prematurity, Late onset sepsis: E. coli, Necrotizing enterocolitis (surgical), Feeding intolerance, Anemia, (direct) conjugated hyperbilirubinemia, Thrombocytopenia (Plt <100,000), Retinopathy of prematurity Stage 1 Zone 2 bilaterally, Tobacco exposure, Maternal chorioamnionitis

MATERNAL HISTORY

BG Smith is a 545 gram preterm female born at 25 weeks gestation by spontaneous vaginal delivery. Mother is a 22YO G1P0 without known significant PMH. Her pregnancy was complicated by incompetent cervix requiring a cerclage and preterm labor. She received good prenatal care. She was admitted 3 weeks prior to delivery and received a course of Betamethasone and discharged after 3 days. She was admitted on the day of delivery in advanced labor and was diagnosed with chorioamnionitis. She received magnesium sulfate and antibiotics prior to delivery.

Prenatal Labs:

Blood Type: O
Rh: positive, Antibody: negative
Hepatitis B: negative
Rubella status: immune
RPR: nonreactive
Length ROM: 6 hours
GC: negative
Chlamydia: negative
GBS Status: negative

DELIVERY

Type: Spontaneous vaginal delivery
Apgars: 1 min: 4, 5 min: 08
Delivery outcome: live birth, admitted to NICU

Delivery Room Narrative: Infant was brought to the radiant warmer and placed under plastic wrap. She was pale, cyanotic, and limp without spontaneous respiratory effort. Her initial heart rate was <60 but improved quickly with positive pressure ventilation with the Neopuff. Color and muscle tone improved. She was intubated on the 2nd attempt by Dr. Fellow and given Surfactant in the delivery room. She was placed on the transport ventilator and brought to the NICU for further care.

ADMISSION HISTORY

BG Smith was placed on the conventional ventilator on admission to the NICU and 100% oxygen. Initial settings were 18/5 x 40, and her arterial blood gas was 7.31/48/84/-2. UAC and UVC were placed. She was NPO and started on IVF at 100 ml/kg/day. Her initial glucose level was 26 mg/dL and she received a D10 bolus x 1 with subsequent improvement. A partial sepsis evaluation was performed on admission and she was started on antibiotics.

ADMIT EXAM

Weight (g): 545 grams Length (cm): 30.5 Head circ (cm): 20.5 GA Exam: 25 wks
VITAL SIGNS: Temperature: 36.5 Heart rate: 135 Respiratory rate: 38 Mean BP: 24-30
Oxygen saturation: 91
GENERAL: intubated, spontaneous breathing and movement noted
SKIN: thin, friable, extremely premature and gelatinous, bruising noted over trunk
HEAD: eyes fused, AFSF, intubated, palate intact
EYES: normal shape, size
EARS: normal position
LUNGS & CHEST: symmetric chest, clear & equal breaths
CARDIAC: normal rate and rhythm, pulses equal in all 4 extremities, grade 2/6 murmur best heard right and left USB
ABDOMEN & CORD: soft, non-tender, normal bowel sounds, no organomegaly or masses GENITALIA: immature female genitalia
BACK & SPINE: straight spine
LIMBS & HIPS: normal and symmetric
NEURO: Normal strength and tone for gestational age

CUMULATIVE SUMMARY

FLUID AND NUTRITION

Her nadir in weight was 460 grams on 10/15/12. A total of 53 days of parenteral nutrition were used.

DIAGNOSES:
Feeding intolerance (ileus)
Hyponatremia
Necrotizing enterocolitis (surgical)
Abdominal distension
Diffuse peritonitis

TREATMENTS:
Intravenous fluids
Intermittent gavage feeding breast milk
Parenteral nutrition
Fer-in-Sol
Multi-vitamins
Actigall
Vitamin K
Peripheral artery line
Exploratory laparotomy
PICC line
Broviac placement
Barium enema
Ranitidine
Upper GI series

RESPIRATORY

She was treated with 48 days of ventilation and 65 days of oxygen

DIAGNOSES:
Respiratory distress syndrome
Chronic lung disease
Pulmonary edema
Apnea of prematurity

TREATMENTS:
Chest X-Ray
Caffeine
Oxygen
High flow Nasal Cannula
Low Flow Nasal Cannula
Conventional Mechanical Ventilation
Intubation
Lasix
Diuril
Aldactone
Nasal CPAP

CARDIAC

DIAGNOSES:
Patent ductus arteriosus

TREATMENTS:
Echocardiogram: moderate PDA with left to right shunt, PFO with left to right shunt, normal biventricular systemic function, Indomethacin

HEMATOLOGY

The initial hematocrit was 28.8% on 10/11/12. The most recent hematocrit was 33.6% on 1/4/13. The blood type is O+. The DAT is negative. The highest bilirubin level was 11.2 mg/dl on 10/14/12. The last bilirubin level was 1.3 mg/dl on 11/14/12. She received phototherapy for 11 days.

DIAGNOSES:
Hyperbilirubinemia of prematurity
Conjugated hyperbilirubinemia
Anemia
Thrombocytopenia (Plt <100,000)

TREATMENTS:
Phototherapy
PRBC transfusion
Platelet transfusion

INFECTIOUS DISEASE

BG Smith received 30 days of antibiotics given over 3 courses of therapy.

DIAGNOSES:
Sepsis suspected
E. coli sepsis
NEC/peritionitis

TREATMENTS:
Ampicillin and Gentamicin
Bladder catheterization
Lumbar puncture
Gentamicin and Zosyn
Cefotaxime and Vancomycin
Fluconazole prophylaxis

NEURO & SCREENING

DIAGNOSES:
Grade III IVH, bilateral
Periventricular leukomalacia, left

TREATMENTS:
Head ultrasound, 6 examinations
Eye Exam - Stage 1 and Zone 2 in both eyes on 11/5/12, last exam 1/2/13
Stage 0 Zone 3.
Phenobarbital for direct hyperbilirubinemia while NPO
Brainstem auditory response, passed both

Head ultrasound (10/14/12) Bilateral moderate Grade III IVH
Head ultrasound (10/17/12) Evolving Grade III IVH, no post-hemorrhagic hydrocephalus
Head ultrasound (10'/21/12) No significant change, bilateral Grade III IVH, no PHH
Head ultrasound (10/30/12) Resolving Grade III IVH, no PHH. Evolving left periventricular cystic changes consistent with periventricular leukomalacia.
Head ultrasound (11/6/12) Interval maturation with resolving bilateral Grade III IVH. There is also limited periventricular leukomalacia on the left.
Head ultrasound (12/1/12) Resolved Grade III IVH, left porencephalic cyst
Head ultrasound (12/21/12): No significant change, left porencephaly

ADDITIONAL ISSUES

Tobacco exposure
Maternal chorioamnionitis
Preterm Newborn
Gestational age grouping
Attendance at high risk delivery
Fentanyl drip
Fentanyl

Recent Labs: 12/25/2011 17:00: Na=136 meq/L, K=5.1 meq/L, Cl=101 meq/L, CO2=22 meq/L, Glucose=86 mg/dl,BUN=16 mg/dl, Creat=.27 mg/dl, Ca=10.4 mg/dl, D bili=0 mg/dl, Alb=3.5 gm/dl, T Prot=5.8 mg/dl, Alk phos=219 U/L, SGPT=31 U/L, SGOT=46 U/L. 1/4/13 19:00: Na=143 meq/L, K=4.4 meq/L, Cl=107 meq/L, CO2=24 meq/L, Glucose=87 mg/dl, BUN=3 mg/dl, Creat=0.3 mg/dl, Ca=9.7 mg/dl, Phos=6 mg/dl, D bili=1.3 mg/dl, Alb=3.2 gm/dl, T Prot=5.3 mg/dl, Alk phos=339 U/L, SGPT=25 U/L, SGOT=43 U/L. Hct=33.6 %, Retic=2.93 %.

SUMMARY OF HOSPITAL COURSE (BY SYSTEMS)

BG Smith is a 545 gram preterm female born at 25 weeks gestation by spontaneous vaginal delivery. Mother is a 22YO G1P0 without known significant PMH. Her pregnancy was complicated by incompetent cervix requiring a cerclage and preterm labor. She received good prenatal care. She was admitted 3 weeks prior to delivery and received a course of Betamethasone. She was admitted on the day of delivery in advanced labor and was diagnosed with chorioamnionitis. She received magnesium sulfate and antibiotics prior to delivery. Infant was brought to the radiant warmer and placed under plastic wrap. She was pale, cyanotic, and limp without spontaneous respiratory effort. Her initial heart rate was <60 but improved quickly with positive pressure ventilation with the Neopuff. Color and muscle tone improved. She was intubated on the 2nd attempt by Dr. Fellow and given Surfactant in the delivery room. She was placed on the transport ventilator and brought to the NICU for further care. BG Smith was placed on the conventional ventilator on admission to the NICU and 100% oxygen. Initial settings were 18/5 x 40, and her arterial blood gas was 7.31/48/84/-2. UAC and UVC were placed. She was NPO and started on IVF at 100 ml/kg/day. Her initial glucose level was 26 mg/dL and she received a D10 bolus x 1 with subsequent improvement. A partial sepsis evaluation was performed on admission and she was started on antibiotics. Briefly, her hospital course by systems:

CV/RESP: Infant remained intubated on mechanical ventilation until DOL #20 when she was extubated and placed on NCPAP. On DOL #25 she was transitioned to nasal cannula. She was started on caffeine for apnea of prematurity on DOL #12 until day of life 44. She was reintubated for 28 days on DOL#30 secondary to sepsis and surgical NEC. She remained on the ventilator until DOL#58 when she was extubated to nasal cannula. She was treated intermittently with Lasix for pulmonary edema, and will be discharged on 0.1 LPM and 100% oxygen, Aldactone, and Diuril. She will follow up with pulmonology as an outpatient for chronic lung disease. Parents have been instructed on oxygen and home monitor use. She received Synagis prior to discharge. Echocardiogram was performed on DOL#5 and a moderate PDA with left to right shunting was noted. She received one course of Indomethacin with subsequent closure of the PDA. She received 4 days of blood pressure support with Dopamine while being treated for surgical NEC. Blood pressure stabilized, and she has been Hemodynamically stable since that time.

FEN: Infant was NPO on admission and was started on IVF. Parenteral nutrition was initiated on DOL#2 and continued for a total of 53 days. Enteral feedings were started on DOL #2 with preterm formula as gut priming x 7 days. Feeds were slowly advanced to full enteral feeds and calories on dol #27. On DOL#29 she was made NPO and restarted on IVF for abdominal distention and feeding intolerance. She developed increasing distention, bloody stools, and abdominal radiograph demonstrated pneumatosis intestinalis consistent with necrotizing enterocolitis. A Replogle was placed and pediatric surgery was consulted. She developed free air on abdominal radiograph consistent with intestinal perforation on DOL#32 and was taken to the OR for exploratory laparotomy. 4 cm of necrotic bowel was resected in the distal ileum with primary reanastamosis performed. She tolerated surgery well and was brought

back to the NICU. She remained NPO for 14 days and was treated with antibiotics. Her feedings resumed with Pregestimil and she slowly advanced back to full enteral feeds. She acheived full feeds on continuous OG feeds and has tolerated the transition to bolus feeds. She is currently feeding Pregestimil 24 cal/oz 2-3 ounces every 3-4 hr. She received Phenobarbital and Actigal for direct hyperbilirubinemia, which has subsequently resolved. Please monitor weight gain closely.

ID: On admission, a partial sepsis evaluation was performed and antibiotics were started. She received Ampicillin and Gentamicin x 3 days and blood cultures were negative. On DOL# 11 a sepsis evaluation was performed due to increased apnea and bradycardia. Blood culture was positive for e. coli and she was treated with Vancomycin and Cefotaxime for 10 days. Subsequent blood culture, CSF, and urine culture were negative. She was started on Genamicin and Zosyn on DOL#30 and was treated for 14 days secondary to NEC and peritonitis. She had a sepsis work-up at 50 days of age with negative cultures.

HEME: Maternal blood type is O+, and the infant's blood type is O+. She was treated for hyperbilirubinemia for 11 days. Maximum bilirubin was 11.2 on 10/14/12. She has received multiple PRBC and platelet transfusions. Her last PRBC transfusion was on 12/11/12. Her most recent hematocrit was 33.6% on 1/4/13. She had a PICC placed in her right upper extremity on day 12.

NEURO: Initial head ultrasound on 10/14/12 showed bilateral moderate Grade III IVH. Head ultrasound (10/17/12) showed evolving Grade III IVH, no post-hemorrhagic hydrocephalus. Head ultrasound (10'/21/12) showed no significant change, bilateral Grade III IVH, no PHH. Head ultrasound (10/30/12) showed resolving Grade III IVH, no PHH, evolving left periventricular cystic changes consistent with periventricular leukomalacia. Head ultrasound (11/6/12) showed interval maturation with resolving bilateral Grade III IVH, and limited periventricular leukomalacia on the left. Head ultrasound (12/1/12) showed resolved Grade III IVH, left porencephalic cyst. Head ultrasound (12/21/12): no significant change, left porencephaly. Infant's toxicology screen was negative.

Ophthalmology: Eye exams: Stage 1 and Zone 2 in both eyes on 11/5/12, last exam 1/2/13 Stage 0 Zone 3. Please ensure ophthalmology follow-up.

OTHER:
Hearing Screening = 1/4/13 - Passed
Immunizations - Pediarix, Prevnar given 12/2/12, HIB given 12/2/12, Synagis 1/4/13
Metabolic screening done - 10/13/12, 7/16/11, 10/22/12
Car seat testing- Passed

DISCHARGE EXAM

Weight (g): 2102 grams Length (cm): 42.6 Head circ (cm): 30.3
VITAL SIGNS: Temperature: 36.3-36.7 Heart rate: 124-146 Respiratory rate: 30-60
Blood pressure: 88-103 / 36-56 Mean BP: 41 Oxygen saturation: 92%
GENERAL: alert and active, pink and well perfused
SKIN: no icterus, rashes or birthmark,
HEAD: open, flat anterior fontanel
EYES: equal red reflexes, normal size & shape
EARS: normally set, no anomalies
NOSE & MOUTH: patent nares, oral mucosa moist, pink
NECK & CLAVICLES: supple neck, intact clavicles
LUNGS & CHEST: symmetric chest, no distress, clear and equal breath sounds
CARDIAC: normal rate and rhythm, no murmur
ABDOMEN: soft, non-tender, normal bowel sounds
GENITALIA: normal external genitalia
BACK & SPINE: straight spine
LIMBS & HIPS: symmetric, moves all 4 limbs
NEUROLOGIC: hypertonia greater in lower extremities, normal primitive reflexes

PLANS

Jaleea was discharged to home on 1/5/13
Appointments:

1. Pediatrician follow-up: Dr. Green 1/6/13 at 11:15 AM
2. Additional appointments: Pulmonology - 2/1/13 @ 10 am
3. Opthomology 1/15/13 @ 9:15 am
4. NICU Follow-up clinic - 3/7/13 @ 12:15
5. Pediatric surgery clinic 2/1/13 at 3:00
6. Home nursing Sunnyside 1/7/13 at 8:00 am

Feeding at discharge: Pregestimil 24 cal/oz 40 ml every 3 hours.
Synagis during RSV season
Home apnea monitor
Oxygen 0.1 LPM FiO2 100%

Discharge medications:

1. Aldactone 0.3 ml PO every 12 hours (2 mg/kg/day)
2. Diuril 0.74 ml PO every 12 hr (20 mg/kg/day)
3. Poly-vi-sol with iron 1 ml by mouth every day

Special Instructions to family: BG Smith is eligible for the Infants and Toddlers Program. Please call to let them know when she is home from the hospital: 301-555-4444

Anna Jones M.D.

Anna Jones, M.D. on 1/5/13 at 11:15.
I performed discharge day management to set up appointments, follow-up home care and parent teaching.