

XXXX - Baby Formula Case Review

Parameter	Findings	PDF Ref
Patient Name (<i>Name of Child</i>)	XXXX	913
Date of Birth	MM/DD/2004	913
Date of Death (<i>If applicable</i>)	MM/DD/2005	196
Delivery Details	Gestational Age at Birth: 33 weeks Apgar Score at 1 min/5 min: Apgar @ 1 min: 7; Apgar @ 5 min: 8 Birth Weight: 2195 gms Mode of Delivery: Vaginal delivery	925, 950
Cause of Prematurity	Partial/marginal placenta previa Vaginal trichomonas Anemia	142
Name of Mother	XXXX	926
Condition Mother Experienced During Pregnancy (<i>Recreational drug use, hypertensive disease, infections, problems related to placental blood flow, not getting anti-natal steroids, delayed cord clamping, HIV positive, exchange transfusions</i>)	Recreational drug use: Unknown Hypertensive disease: Unknown Infections: Yes (GBS Positive) Problems related to placental blood flow: Unknown Not getting anti-natal steroids: No (Celestone) Delayed cord clamping: Unknown HIV positive: Negative Exchange transfusions: Unknown	925, 153
Intake Details		
Breast Milk Feeding Details (<i>Mother/Donor</i>)	<i>Not available</i>	
Products Given to Patient/Infant (<i>Feeds related to Fortifier/Formula</i>)	MM/DD/2004 – MM/DD/2004: Enfamil Premature 20 Cal. MM/DD/2004 – MM/DD/2004: Alimentum MM/DD/2005: Pedialyte MM/DD/2005 – MM/DD/2005: Pregestimil MM/DD/2005 – MM/DD/2005: Pregestimil MM/DD/2005 – MM/DD/2005: Pregestimil MM/DD/2005: Pedialyte MM/DD/2005: Pedialyte MM/DD/2005 - MM/DD/2005: Pregestimil MM/DD/2005 – MM/DD/2005: Neocate	48, 140 42, 136-137, 134-135 562-563, 560-553 547, 520 512, 465 446-447 440 438-439, 397 394, 223 224-225, 209-210

Parameter	Findings	PDF Ref
	MM/DD/2005 – MM/DD/2005: Pedialyte	
Dates When Total Parental Nutrition (TPN) was Given?	MM/DD/2004 – MM/DD/2004 MM/DD/2004 – MM/DD/2005 MM/DD/2005 - MM/DD/2005	126-128, 121-123 591-592, 239 219-220, 209-210
Feeding Plan or Consent or Consultation Regarding Usage and Risks and Benefits of Formula/Fortifier	Yes	48, 42, 396
Injury Details		
Symptoms of NEC	MM/DD/2004: Bloody stools and abdominal distention	142-147
Date of NEC Diagnosis	MM/DD/2004	84
NEC Diagnosis Details	Date of First NEC Symptoms: MM/DD/2004 NEC Mode of Diagnosis: Symptoms and X-ray	142-147, 85
Bell Staging Criteria of NEC (Stage I-Suspect/Stage II-Definitive/Stage III-Advanced)	<i>Unavailable</i>	
Complications Associated with NEC (Sepsis/Recurrence/Death)	Sepsis Short Gut Syndrome Death (MM/DD/2005)	142-147, 611-612, 197-200
Hospitalization Details (Treatment of active NEC infection)	Birth Hospital Name: XXXX Systems Date of transfer/discharge from Birth Hospital: MM/DD/2004	929-931, 925
	Additional Hospital Name: XXXX Center Date of admission to Additional Hospital: MM/DD/2004 Date of transfer/discharge from Additional Hospital: MM/DD/2004	148-149, 142-147
	Additional Hospital Name: XXXX Hospital Date of admission to Additional Hospital: MM/DD/2004 Date of transfer/discharge from Additional Hospital: MM/DD/2005	197-200
Treatment of NEC Injury (Antibiotics/Bowel Rest/Percutaneous Drains/Surgical Treatment)	Antibiotics: Noted (Vancomycin, Claforan and Clindamycin) Bowel rest: Noted Surgical treatment: MM/DD/2004: <ul style="list-style-type: none"> • Exploration of abdomen • Small bowel resection times six 	142-147, 640-642, 619-620

Parameter	Findings	PDF Ref
	<ul style="list-style-type: none"> • Small bowel anastomosis times five • Creation of proximal jejunostomy • Creation of distal mucous fistula • Placement of cecostomy tube • Broviac catheter placement <p>MM/DD/2005: Exploration of abdomen with lysis of multiple abdominal adhesions; resection of jejunostomy site with primary bowel anastomosis.</p>	
Identified Cause(s) of NEC	<i>Unavailable</i>	
Reason for Death	<ul style="list-style-type: none"> • Cardiopulmonary failure • Liver failure • Short gut syndrome • Prematurity 	917
Other Comorbid Conditions Experienced by Patient/Infant	<ul style="list-style-type: none"> • Jejunostomy status post takedown and bowel reanastomosis • Antral dysmotility with moderate gastric outlet obstruction, with markedly dilated segments of small bowel separated by at least 3 strictures. • Bilateral subependymal hemorrhages • Hypotension • Pulmonary immaturity • Malabsorption secondary to short bowel • Cholestatic liver disease /Hepatic failure • E-coli/Klebsiella/Enterococcus bacteremia and meningitis • Coagulopathy bleeding in urinary tract, GI tract and pulmonary hemorrhage 	199
Condition of the Patient Per Last Available Record	As on MM/DD/2005, the patient continued to have bradycardia and poor saturation, and eventually had a heart rate stop and was pronounced dead at 5:20 a.m.	197-200

Missing Medical Record: None

What Records are Needed	Hospital/Medical Provider	Date/Time Period	Why We Need The Records?	Is Record Missing Confirmatory or Probable?	Hint/Clue That Records Are Missing

Detailed Chronology

DATE	PROVIDER	OCCURRENCE/TREATMENT	PDF Ref
MM/DD/2004	XX Systems XXXX	<p>Delivery Report:</p> <p>Labor: Spontaneous Gestation: Single Condition: Live birth Mother: GBS Positive. Complications: Premature labor. Apgar score: Apgar @ 1 min: 7; Apgar @ 5 min: 8 Premature 33 weeks. Comment: Transfer to Saint Francis Method of feeding: No Breast feeding, Formula</p> <p><i>Related Records: Newborn assessment sheets</i></p>	929-931, 950
MM/DD/2004- MM/DD/2004	XX Systems XXXX	<p>Discharge summary for birth hospitalization:</p> <p>Summary: The patient is a 33-week gestation infant delivered vaginally to a 30-year-old gravida 5 para 3 AB2 mother. Prenatal history was complicated by Group B Strep. The patient presented in preterm labor. The patient was given Celestone and treated with Ampicillin at the time of delivery. The patient was delivered with Apgars of 7/8 and 8. The patient had a physical exam consistent with a gestational age of 33 weeks but otherwise was unremarkable. Initial plans were to transfer the patient to XXXX at the time of delivery however there was not a bed that was available in the MCU. The patient was reasonably stable on low levels of Oxygen. The patient was maintained here until a bed became available. Physical examination was essentially within normal limits with the exception of physical exam which indicated the patient's low gestational age.</p> <p>Hospital Course: The patient was admitted and monitored overnight. Blood cultures were obtained as were CBC, blood gases and chest X-ray. The chest X-ray showed minimal hila membrane disease but otherwise unremarkable. Lumbar puncture was attempted but no fluid was obtained. The patient was started on Ampicillin and Gentamicin. The following morning a bed became available at XXXX MCU and the patient was transferred.</p>	925
MM/DD/2004	XXXX Center	<p>History and physical examination for premature infant:</p> <p>Referring Physician: Dr. XXXX and Dr. XXXX, both in Caruthersville.</p>	148-149

DATE	PROVIDER	OCCURRENCE/TREATMENT	PDF Ref
	XXXX	<p>Chief Complaint: Prematurity.</p> <p>History: This is a 2.195-kilogram black female infant born by precipitous vertex vaginal delivery to a 30-year-old, gravida 5, para 1-2-1-3, black single female at estimated date of gestation 32 4/7 weeks. Mother presented for late prenatal care. She is B positive, hepatitis negative, serology nonreactive, rubella immune, GBS positive, gonorrhea and Chlamydia negative, human immunodeficiency virus negative. She smoked 1/2 pack of cigarettes per day. Pregnancy was complicated by partial or marginal placental previa, urinary tract infection just month ago, vaginal trichomonas, anemia. EDC was MM/DD/2005. She has no previous history of herpes infection. She presented last evening to the emergency room with bulging bag of waters, vaginal bleeding, and contractions. Ruptured membranes occurred just prior to delivery. On examination of the placenta, marginal abruption was noted. Prior to delivery, she had been taking Ampicillin and Celestone and received one dose of each. At delivery, Apgar's were 7 and 8 with oxygen stimulation required for resuscitation. The baby had respiratory distress and was started on 40% oxygen by hood maintaining oxygen saturations over 95%. Chest x-ray was mildly granular with air bronchograms consistent with mild hyaline membrane disease. She had occasional grunting and tachypnea, however, was stable through the night on Oxy- Hood. Initial arterial blood gas showed a hydrogen ion concentration of 739, a pCO₂ of 33, Po₂ of 173, and a base deficit of minus 3. Complete blood count showed a white count of 18,000 with 61 segs, 7 bands, a normal platelet count, initial hematocrit was 48%. Blood sugars were stable. Intravenous fluid was initiated. Cultures were attempted but unable to be obtained due to maternal status and she was started on Ampicillin and Gentamicin. Transport was requested, but due to inability to accept the baby until later in the morning of MM/DD/2004, transport was slightly delayed. At arrival of the transport team, she was stable under oxygen hood with respiratory rate 40 to 60 and is mildly decreased perfusion. She receives one normal saline bolus en route. She was transported on a one-liter nasal cannula, 30% oxygen, and arrived in stable condition. Initially capillary blood count showed a hydrogen ion concentration of 740, pCO₂ of 31, PO₂ of 55, abase deficit of minus 4.4. Sodium was 139, potassium 6.1, on a heel stick, chloride 111, calcium mildly decreased at 7.5, blood urea nitrogen 10. creatinine 1.3, bilirubin was 4.3, glucose was 55. Liver function tests were normal.</p> <p>Impression:</p> <ul style="list-style-type: none"> • A 33-to-34-week AGA black female infant. 	

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		<ul style="list-style-type: none"> Mild respiratory distress syndrome. Maternal history group B strep. Rule out sepsis. Maternal history placenta previa and mild placental abruption. Mild temperature instability. Late prenatal care. <p>Plan: Support is needed with oxygen, I doubt we will need intubation or mechanical ventilation, as well as Surfactant. Nutritional support with intravenous fluids followed by early institution of feeding, therefore, TPN if unable to feed. Continue antibiotics pending culture results with complete sepsis workup including left LP. Consider screening head ultrasound and Intensive Care Unit care and support. Condition: Critical stable. Parents updated as to plan of care and appear to understand.</p>	
MM/DD/2004	XXXX Center XXXX	<p>X ray of abdomen:</p> <p>Clinical Indication: Line placement</p> <p>Impression:</p> <ul style="list-style-type: none"> Normal bowel gas pattern with no evidence of obstruction or pneumatosis. Nasogastric tube in adequate position. 	79
MM/DD/2004	XXXX Center XXXX	<p>X-Ray of chest:</p> <p>Clinical indication: respiratory distress syndrome.</p> <p>Impression: Nasogastric tube in adequate position. No acute cardiopulmonary disease</p>	80
MM/DD/2004	XXXX Center XXXX	<p>Inpatient progress notes:</p> <p>Feeding details:</p> <p>MM/DD/2004: Enfamil Premature 20 Cal.</p>	48
MM/DD/2004	XXXX Center	<p>Inpatient progress notes:</p> <p>Feeding details:</p> <p>MM/DD/2004: Enfamil Premature 20 Cal.</p>	140
MM/DD/2004	XXXX Center	<p>Inpatient progress notes:</p> <p>@2045 hours: Moderate stool with moderate amount of bloody mucus. Diaper findings shown same. Abdomen assessment, benign. Rectal fissure noted @ 12, 6 and 10 O' clock. No active bleeding. KUB done.</p>	47, 46

DATE	PROVIDER	OCCURRENCE/TREATMENT	PDF Ref
MM/DD/2004	XXXX Center	Inpatient progress notes: Feeding details: Patient given Alimentum	42
MM/DD/2004	XXXX Center XXXX	X-Ray of Abdomen: History: Pneumatosis, bloody stools. Impression: Normal bowel gas pattern with no pneumatosis or free intraperitoneal air. Nasogastric tube in adequate position.	81
MM/DD/2004	XXXX Center XXXX	Inpatient progress notes: <i>(Illegible notes)</i> Feeding Details: NPO Plan: Bloody stool this morning with mucous ___, Start 50 ml Alimentum. Start TPN. Starts feeding Alimentum. <i>Related Record: Vitals, Nursing notes, order sheets</i>	138-139, 170-171, 44-45, 172
MM/DD/2004	XXXX Center XXXX	Inpatient progress note: <i>(Illegible notes)</i> Feeding details: Alimentum 8 cc. q3h Plan: No further bloody stools. Will advance to 15 ml now.	136-137
MM/DD/2004	XXXX Center XXXX	Inpatient progress note: <i>(Illegible notes)</i> Feeding details: Alimentum 8 cc. q3h Plan: Increase feeds to 30 ml	134-135
MM/DD/2004	XXXX Center XXXX	X-ray of abdomen: History: AP and lateral films of the abdomen. Comparison: Abdominal films done earlier the same date. Impression: <ul style="list-style-type: none"> • Pneumatosis suspected as well as pneumoperitoneum. • NG tube in the mid stomach. • Report was called to the floor. 	83
MM/DD/2004	XXXX Center	X-ray of KUB: History: Pneumoperitoneum. Pneumatosis.	84

DATE	PROVIDER	OCCURRENCE/TREATMENT	PDF Ref
	XXXX	<p>Comparison: The current study is compared to numerous films of the abdomen done the same date.</p> <p>Impression:</p> <ul style="list-style-type: none"> • Persistent but improving pneumoperitoneum. • Persistent stippled appearance is identified involving the proximal colon suggestive of pneumatosis • NG tube remains positioned in the raid stomach. 	
MM/DD/2004	XXXX Center XXXX	<p>Inpatient progress note: <i>(Illegible notes)</i></p> <p>Feeding details: Alimentum 30 cc. q3h</p> <p>Updated plan: Feeding tolerance Poor PO</p>	132-133
MM/DD/2004	XXXX Center XXXX	<p>X-ray of chest:</p> <p>History: RDS. Pneumatosis and pneumoperitoneum.</p> <p>Comparison: Chest film dated MM/DD/2004.</p> <p>Impression:</p> <ul style="list-style-type: none"> • Tubes and catheters in good position • The right upper lobe consolidation identified suggestive of atelectasis versus pneumonitis • Residual interstitial prominence to suggest RDS • The pneumatosis as well as pneumoperitoneum has shown significant improvement if not resolution since the prior study 	72
MM/DD2004	XXXX Center XXXX	<p>X-ray of chest and abdomen:</p> <p>Clinical information: Follow-up line placement.</p> <p>Comparison: Earlier in the day at 1446 hours.</p> <p>Findings: The endotracheal tube and orogastric tube remain in place unchanged in position. The UAC has been slightly retracted to the T5-6 level and the tip of the UVC has been slightly redacted to the T6 level. The cardio thymic silhouette is stable. There is mild prominence of the central broncho vascular markings without evidence of focal consolidation in the chest. No pneumothorax. Bowel gas pattern appears unchanged. There are</p>	85

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		findings suggestive of persistent pneumatosis involving loops of bowel in the right hemi abdomen The lungs continue to have a mild granular appearance.	
MM/DD/2004	XXXX Center XXXX	<p>X-ray of abdomen:</p> <p>History: Pneumoperitoneum.</p> <p>Comparison: Prior chest and abdomen films dated MM/DD/2004.</p> <p>Impression:</p> <ul style="list-style-type: none"> • Persistent pneumatosis and pneumoperitoneum • NG tube remains positioned in the mid stomach 	86
MM/DD/2004	XXXX Center XXXX	<p>X-ray of chest:</p> <p>History: Shortness of breath. History of pneumoperitoneum.</p> <p>Impression:</p> <ul style="list-style-type: none"> • Suspected atelectatic change in the right upper lobe. No evidence of pneumothorax is evident • Tubes and catheters are stable • Persistent pneumatosis and/or pneumoperitoneum identified in the abdomen, this is most prominent in the proximal colon 	88
MM/DD/2004	XXXX Center XXXX	<p>X-ray of abdomen:</p> <p>History: Pneumatosis and pneumoperitoneum.</p> <p>Comparison: KUB dated MM/DD/2004 as well as MM/DD/2004.</p> <p>Impression:</p> <ul style="list-style-type: none"> • Near-complete resolution of pneumoperitoneum identified noted on the prior study • Persistent but improved pneumatosis in the proximal colon • Incidental note is made of persistent consolidation in the right upper lobe. Tubes and catheters are stable involving the thorax and upper abdomen 	89
MM/DD/2004	XXXX Center XXXX	<p>Inpatient progress note: (Illegible notes)</p> <p>Fair to poor air movement, wheeze, abdomen full, firm, decreased tenderness, little responsiveness</p> <p>Feeding details: NPO</p>	129-131

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		<p>Plan: Needs central line Will consult CT surgery for central line Will keep tube feed Start TPN & IL. Metabolic acidosis this morning. Water frequent lytes + gases.</p> <p>RDS Hyperbili Feeding intolerance Poor PO Poor weight gain</p>	
MM/DD/2004	XXXX Center XXXX	<p>X-ray of chest:</p> <p>History: NEC</p> <p>Comparison: Chest and abdominal radiographs dated MM/DD/2004.</p> <p>Findings: The current films demonstrate that the umbilical catheters as well as the ET tube are stable. The NG tube has been removed. There is persistent and worsening consolidation identified in the right upper lobe as well as the mid right lung, there are air bronchograms identified, this may represent atelectasis however given the lack of resolution a right upper lobe pneumonitis cannot be excluded. The underlying interstitial remains prominent suggestive of RDS. No evidence of pneumothorax is identified. Heart size is stable.</p> <p>Two views of the abdomen demonstrate that the air within the bowel wall noted on prior studies has shown significant improvement. There is significantly less distention of the large bowel when compared to the prior study. No evidence of portal venous air is evident. No obvious pneumoperitoneum is identified on the current study. The soft tissues and osseous structures appear stable.</p> <p>Impression:</p> <ul style="list-style-type: none"> • Persistent und worsening right upper lobe consolidation as described above. • The remainder of the tubes and catheters are stable. • Significant improvement in the bowel gas pattern. The pneumatosis as well as pneumoperitoneum noted on the prior studies has shown significant improvement if not complete resolution. 	67
MM/DD/2004	XXXX	Ultrasound of abdomen:	68

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	Center XXXX	<p>History: Premature infant necrotizing enterocolitis</p> <p>Impression: Study confirms some ascites most prominent along the medial margin of the liver Cannot exclude a minimum amount of hydronephrosis involving the left kidney Liver, spleen, pancreas are unremarkable with flow in the portal vein hepatopetal Gallbladder is contracted with gallbladder wall measuring 0.18 cm</p>	
MM/DD/2004	XXXX Center XXXX	<p>X-ray of chest:</p> <p>History: NEC. RDS.</p> <p>Comparison: Prior chest and abdominal films done the same date.</p> <p>Impression:</p> <ul style="list-style-type: none"> • Tubes and catheters are stable • Persistent and stable ground-glass opacities • No radiographic evidence of pneumatosis is identified. No obvious pneumoperitoneum is identified. 	69
MM/DD/2004	XXXX Center XXXX	<p>X-ray of abdomen:</p> <p>History: Pneumatosis and pneumoperitoneum.</p> <p>Comparison: The current study is compared to prior films of the abdomen done the same date.</p> <p>Impression:</p> <ul style="list-style-type: none"> • NG tube as well as umbilical catheters appear to be in good position. • No evidence of free air or pneumatosis identified on the current study. 	70
MM/DD/2004	XXXX Center XXXX	<p>Inpatient progress note: <i>(Illegible notes)</i></p> <p>Feeding details: NPO</p> <p>Plan: NPO for 12 days</p>	126-128
MM/DD/2004	XXXX Center XXXX	<p>Inpatient progress note: <i>(Illegible notes)</i></p> <p>Feeding details: NPO</p>	121-123
MM/DD/2004	MM/DD	Hospitalization records: Orders, flow sheets, nurse notes, transfusion	1-4, 6-30,

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– MM/DD/2004	Center Multiple providers	<i>records, radiology reports, procedure report for UVC placement, medication sheets and laboratory reports</i>	32-41, 43, 48, 50-63, 65, 71, 73-75, 77-78, 87, 92- 124, 130, 151-169, 173-189, 919
MM/DD/2004	XXXX Center XXXX	<p>Discharge Summary:</p> <p>Perinatal History: Patient is now 9 days old. Briefly she was a stable feeder grower until the 7th DOL (MM/DD/2004) when she developed bloody stools, abdominal distention, and pneumatosis on X-ray. She was initially treated medically for NEC, but developed worsening abdominal distention, thrombocytopenia and neutropenia today. She is being transferred to XXXX Hospital today for a surgical evaluation secondary to worsening NEC.</p> <p>She is a former 32 4/7 wits by dates infant born at MM/DD Mo on MM/DD/2004 to a 30yr old, G 5, P 2 A 3 black female with the following serologies B+, hepatitis -, serology NR, rubella immune, GBS +, GC and chlamydia -, HIV -; by precipitous vaginal delivery. The pregnancy was complicated by:</p> <ul style="list-style-type: none"> Late prenatal care beginning at 28 weeks Partial/marginal placenta previa UTI Vaginal trichomonas Anemia <p>Hospital Course to date: Prematurity: 32 4/7 wk, AGA, preterm female infant now 9 days of age at 34 1/7 wks. Fluids Electrolytes/Nutrition: Patient was initially NPO and nutrition was provided by parenteral TPN and lipids. Feedings were introduced on the 2nd DOL but were stopped on MM/DD/XXXX (3rd DOL) secondary to a bloody stool. However subsequent KUB's were within normal limits and clinical exams were benign. There is family history of milk intolerance with sibling requiring Alimentum. Feedings were started on MM/DD/XXXX with Alimentum and advanced without difficulty to abdomen Lib. However, on the 7th DOL</p>	142-147

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		<p>(MM/DD/XXXX) she developed grossly bloody stools, abdominal distention, and pneumatosis on X-ray and was made NPO. She is currently receiving TPN lipids via UVC. TF are currently at 144cc/kg/day.</p> <p>NEC: On the 7th DOL (MM/DD/2004) Patient developed bloody stools and abdominal distention. Pneumatosis intestinalis with dilated bowel loops were visible on a KUB. She initially required a vigorous fluid resuscitation, aggressive correction of metabolic acidosis, pressor support for hypotension, and intubation for respiratory failure. Late on the night of MM/DD/XXXX free air was noted on a cross table lateral KUB. She did stabilize and was subsequently treated medically for NEC with bowel decompression and antibiotic therapy. An abdominal ultrasound on MM/DD/XXXX revealed ascites along the medial margin of the liver as well as questionable hydronephrosis of the left kidney. On MM/DD/XXXX, in light of the persistent abdominal distention, a peritoneal tap was done x 2 with approximately 22cc and approximately 8cc of wine colored fluid removed. This peritoneal fluid has positive growth for gram negative rods. Today she developed worsening abdominal distention, thrombocytopenia and neutropenia and the decision was made to transfer to XXXX Hospital for a surgical evaluation. Suspect infant swallowed infected amniotic fluid before birth.</p> <p>Cardiovascular:</p> <p>Hypotension: On MM/DD/XXXX after the presentation of NEC. Patient developed hypotension requiring treatment with multiple fluid boluses and pressor support with Dopamine at 7.5mc/kg/min. She continues to require Dopamine at 7.5 mc/kg/min to maintain MAP in the 40's.</p> <p>Suspected PPHN: In light of increasing FiO2 requirements, an ECHO was done on MM/DD/XXX which revealed no PDA but elevated PA pressures. The recommendation from cardiology was to keep the systolic pressures in the 60s if possible.</p> <p>Metabolic acidosis: Patient did require multiple doses of NaHCO3 and a vigorous fluid resuscitation on MM/DD/XXXX to correct a persistent metabolic acidosis (max BD= 11.9) but has not required correction since MM/DD/XXXX. This AM her BD was -2.5.</p> <p>Presumed sepsis: Patient initially received a 7 day course of Amp/Gent secondary to + maternal GBS culture-with limited treatment prior to delivery. Her initial CRP was 0.1, and blood and CSF cultures were negative.</p> <p>Sepsis with E.coli bacteremia: With the treatment of NEC on</p>	

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		<p>MM/DD/XXXX, she was started on Vancomycin, Claforan and Clindamycin. Blood and TA cultures were sent. Serial CRPs were 10 (12-14) and 14 (12-15). Stool culture was negative for C. diff. On MM/DD/XXXX after consultation with XXXX, Patient antibiotics were changed to Vancomycin/Gentamicin/Zosyn. Vancomycin P/T on MM/DD/XXXX were 25/8.2. Blood culture from MM/DD/XXXX is positive for E. Coli. TA from MM/DD/XXXX is positive for CONS. Peritoneal tap was done on MM/DD/XXXX and is positive for gram negative rods. CRP increased from 16 to 19 in last 2 days, consistent with NEC, perforation, peritonitis, and bacteremia.</p> <p>Thrombocytopenia: Patient platelets count on admission was 145 k and remained stable (140- 190k) until MM/DD/2004 (8 DOL) when the pit count dropped to 48k. She did receive a total of 3 pit transfusions (20ml/kg/transfusion) on MM/DD/XXXX- MM/DD/XXXX. The F/U platelets count on MM/DD/XXXX was 138k. However, her pit count this morning was 34k but she was transferred before we could give another pit transfusion. Neutropenia: Patient initial CBC's were within normal limits, however on MM/DD/XXXX the WBC dropped to 4.6 k with 5 segs and 39 bands. Her last WBC today revealed a WBC of 2.6 k, 8 segs, 3 bands, 80 lymph's. There was recurrent thrombocytopenia after pit transfusions. Last platelets ct = 38 K MM/DD/XXXX.</p> <p>Diagnosis:</p> <ul style="list-style-type: none"> • Preterm female infant now 34 1/7 weeks adjusted [dates may be wrong and - 35 weeks] • RDS: resolved from initial • Necrotizing enterocolitis [NEC, suspect in utero infected amniotic fluid] • Respiratory failure secondary to NEC and abdominal distension. • Presumed sepsis at birth: resolved from admission with negative cultures. • Sepsis with E. Coli bacteremia, peritonitis after bowel perforation secondary to NEC. • Thrombocytopenia/Coagulopathy secondary sepsis and NEC • Neutopenia – watch for bone marrow depletion and neutrophils. • Suspected PPHN – acquired secondary sepsis and improved. • Hyperbilirubinemia – stable • Hypotension – improved with volume and inotropes. • Questionable hydronephrosis of left kidney – needs further studies. 	
MM/DD/2004	XXXX Hospital	Operative report for exploration of abdomen, small bowel resection and anastomosis, creation of proximal jejunostomy and distal mucous fistula and placement of cecostomy tube and broviac catheter:	640-642

DATE	PROVIDER	OCCURRENCE/TREATMENT	PDF Ref
	XXXX	<p>Indications for surgery: This patient is a 32-week estimated gestational age child who was born at an outside hospital. She is now nine days of age. Four to five days prior to her admission at XXXX, she developed abdominal distension, feeding intolerance, and bloody stools. X-rays showed extensive pneumatosis intestinalis. She also had additional X-rays which were concerning for free intraperitoneal air. The patient was subsequently transferred to this institution where she was on a ventilator. Her abdomen was distended with erythema and edema. X-rays were obtained which were concerning for bowel obstruction or perforation of the intestine. The risks and benefits of surgical repair of these defects were discussed with the child's parents prior to the operation. I discussed the risks of bleeding, infection, reoperation and death. I also discussed the creation of a colostomy.</p> <p>Pre and post-operative diagnosis: Complicated necrotizing enterocolitis with bowel perforation.</p> <p>Procedure:</p> <ul style="list-style-type: none"> • Exploration of abdomen • Small bowel resection times six • Small bowel anastomosis times five • Creation of proximal jejunostomy • Creation of distal mucous fistula • Placement of cecostomy tube • Broviac catheter placement <p>Anesthesia: General anesthesia</p> <p>Procedure:</p> <p>The patient was brought to the operating room and placed on the operating room table where appropriate access and monitoring was established. Induction of general anesthesia took place without difficulty. The neck, chest, and abdomen were all prepped with Betadine and draped sterilely. The patient was placed in a mild Trendelenburg position. A transverse incision was made over the right neck region. This was done 1 cm inferior and lateral to the angle of the right mandible. Bovie electrocautery was then used to divide the subcutaneous tissue. A fine Crile clamp was then used to separate the muscle tissue into the deep subcutaneous tissue. At that point, the right facial vein was identified. Proximal and distal control was obtained with 4-0 Vicryl ties. A counter incision was made on the right anterior chest and a 4.2 French Broviac catheter tunneled through the</p>	

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		<p>subcutaneous tunnel exiting at the neck incision. The catheter was then cut to the appropriate length. The cephalad portion of the vein was ligated with a 4-0 Vicryl tie. A transverse venotomy was made with a #11 blade. The catheter was then inserted under direct vision into the vessel and threaded through the vessel without difficulty. The catheter flushed and aspirated blood easily. The catheter tip appeared to be in the superior vena cava. The catheter was then secured at the distal portion of the vessel. The catheter was also secured to the chest level with a nylon suture. The neck incision was closed by reapproximating the platysma with an interrupted 5-0 Vicryl suture. The skin was reapproximated with interrupted 1-0 Vicryl suture. The Broviac was secured at the chest wall with nylon suture. A sterile bandage was applied to the site. The port for the Broviac was passed to the anesthesia staff. The attention was then turned to the abdomen. A transverse incision was made with a #15 blade. Bovie electrocautery was used to deepen this incision. The initial incision extended from the midline to the right. Bovie electrocautery was used to divide the subcutaneous tissue. The peritoneum was then identified and entered sharply. The incision was then opened widely up to the level of the umbilical vein remnant. The patient had a previous umbilical vein catheter, which was being utilized. We subsequently did extend our incision to the left of the midline, taking care to protect the umbilical vein. This was done by applying vessel loops around the catheter to secure it and prevent injury. Upon entrance into the abdomen and opening the incision, there was a large amount of feculent material which was evacuated. This was present in all quadrants of the abdomen, including the subdiaphragmatic spaces. This was copiously irrigated and evacuated. We then identified the bowel. There were multiple areas of bowel perforation and active pneumatosis intestinalis. The bowel was slowly eviscerated in order to fully evaluate the intestinal tract. The ligament of Treitz was identified, and I felt this was uninvolved in the necrotizing enterocolitis process. The bowel was somewhat edematous and friable, however, there was no evidence of pneumatosis and no evidence of gangrene. The bowel was adequate for approximately 30 cm. At that point, we began to identify multiple areas of full-thickness gangrene and perforation. We ultimately resected six portions of the small bowel. These sizes ranged in length from 2 cm to several centimeters of 12-15 cm. These were all excised using Bovie electrocautery to control the mesenteric vessels. They were all passed off the field and sent as separate specimens. The more proximal bowel loops were the jejunum and the distal small bowel loops, including the specimen 5 and 6 included portions of the terminal ileum. The extreme terminal ileum and the cecum appeared to be uninvolved in the necrosis. After the small bowel loops had been excised. Bovie electrocautery was used to obtain meticulous hemostasia.. I then took</p>	

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		<p>a 4.2 French Broviac catheter and placed it through the abdominal wall in the left lateral abdomen. I then used the Broviac catheter and a rectal probe to thread the Broviac catheter through the lumen of the remaining bowel loops. The bowel loops were then lined appropriately and anastomoses were performed between the small bowel segments. These were performed, using interrupted 4-0 Vicryl sutures on a TF needle. Five separate small bowel anastomoses took place. The Broviac catheter was then brought through the cecum and exited the right lateral abdominal wall. Multiple TF sutures were also used to suture the cecum up to the level of the right lateral abdominal wall to secure this in place. The appendix appeared to be normal. The colon appeared to be generally uninvolved in the process, however, there was swelling and inflammation. There was no evidence of full-thickness injury. At that point, we brought out the proximal jejunostomy through the mid portion of the incision. The defunctionalized small bowel loops were brought out of the raucous fistula in a separate incision to the left of our original incision. The mucous fistula was secured using multiple 3-0 Vicryl sutures which were placed in full-thickness bites of the suture and fascia. This was done in a circumferential manner. The fascial edges of the abdominal incision were then brought together using interrupted 3-0 Vicryl suture. The jejunostomy matured in the mid portion of the incision using interrupted 4-0 Vicryl suture. A sterile bandage was applied to the site. The patient tolerated the procedure well. The patient remained in critical and unstable condition and was transported back to the Neonatal Intensive Care Unit. I was present for the entire procedure.</p>	
MM/DD/2004	XXXX Hospital XXXX	<p>X-ray of chest and abdomen:</p> <p>History: Patient born at 32 week gestation. She reportedly had free air on an outside facility abdominal film around MM/DD/2004.</p> <p>Impression:</p> <ul style="list-style-type: none"> • Abnormal bowel gas pattern with a few scattered dilated gas filled loops of bowel, primarily with the- right abdomen. • Endotracheal tube with tip at the carina, directed toward the right main stem bronchus. • Nasogastric tube with side holes overlying the esophagus. 	716
MM/DD/2004 – MM/DD/2004	XXXX Hospital XXXX	<p>Summary of interim progress notes:</p> <p>MM/DD/2004: She is status post-surgical laparotomy exploration for surgical NEC. Last night they found perforated NEC and they resected a large amount of small bowel and had a stoma. Surgical NEC with perforation and surgical resection and short gut.</p>	591-592, 588-589, 586, 584- 585, 582, 580-581, 578, 577, 576, 575,

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		<p>Currently NPO on Replogle drainage and on IV fluids.</p> <p>Infectious disease: She is currently on Vancomycin, Gentamicin and Clindamycin. Her previous cultures from blood and peritoneal fluid is growing E-coli. She has a Broviac in her neck, the tip of the SVC right atrium. She also has UAC and UVC lines left in place by surgery as removing them was risky because of her bleeding tendency.</p> <p>MM/DD/2004: Post surgical NEC and resection. We will keep NPO and we will start TPN and intralipid today. She had hypoglycemia last night.</p> <p>MM/DD/2004: Her abdomen is full, slightly tender and not tense. Currently NPO, no Replogle drainage, and on TPN and intralipid, 44 cal/kg/day.</p> <p>MM/DD/2004: Currently NPO. No Replogle drainage, and on TPN and Intralipid. Electrolytes are acceptable and will continue on TPN and Intralipids support.</p> <p>MM/DD/2004: She has puffiness and generalized edema with third spacing.</p> <p>MM/DD/2004: Currently NPO and will continue to monitor her gastrointestinal status closely. She is likely to develop short gut in the future and possible liver disease and cholestasis.</p> <p>MM/DD/2004: Her abdomen is distended, but not tense. She is sedated. Currently NPO. Has stoma. On TPN and intralipid.</p> <p>MM/DD/2004: She remains NPO on TPN and intralipids.</p> <p>MM/DD/2004: Will keep NPO on TPN and intralipids. On Vancomycin, Gentamycin and Clindamycin.</p> <p>MM/DD/2004: Will keep NPO on TPN and intralipids. On Vancomycin, Gentamycin and Clindamycin.</p> <p>MM/DD/2004: Currently NPO on lipids. We will continue 7th, lipids, and monitor electrolytes closely. On Vancomycin, Gentamycin and Clindamycin.</p> <p>MM/DD/2004: Currently NPO on TPN and Intralipid, adequate calorie intake, voiding and passed a small amount in the stoma. We will continue</p>	574, 573, 572, 571, 570

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		<p>to support the nutrition by TPN and monitor her electrolytes as appropriate. On Vancomycin, Gentamycin and Clindamycin.</p> <p>MM/DD/2004: She remains on TPN and intralipids NPO. On Vancomycin, Gentamycin and Clindamycin.</p> <p>MM/DD/2004: We will continue to keep NPO on Replogle drainage, and on TPN and intralipid. Off Vancomycin and Clindamycin. We will keep Gentamycin for another week to complete three weeks of treatment for possibility of meningitis with E.coli.</p> <p>MM/DD/2004: Currently NPO on TPN and intralipid. On Gentamycin for E.coli, possible meningitis as well as on Fluconazole for tracheal yeast and urine yeast.</p> <p><i>*Reviewer's comments: The interim progress notes were summarized with significant events.</i></p>	
MM/DD/2005	XXXX Hospital XXXX	<p>X-ray of small intestine:</p> <p>History: A seven-week-old female with a history of necrotizing enterocolitis, status post partial resection of small bowel and reanastomosis. Please evaluate for stricture or extravasation at anastomosis.</p> <p>Impression: Short segment stenosis near the ileocecal junction, with faint suggestion of extravasation of intraluminal contrast.</p>	699
MM/DD/2005	XXXX Hospital XXXX	<p>X-ray of abdomen:</p> <p>History: A 7-week-old female, status post small bowel segmentectomy with diverting ileostomy. The patient is status post lower GI study yesterday.</p> <p>Impression: Residual contrast in rectosigmoid colon and in reanastomosed segment of small bowel in this patient with a history of recent small bowel segmentectomy for necrotizing enterocolitis, status post, lower GI exam yesterday.</p>	698
MM/DD/2005	XXXX Hospital XXXX	<p>X-ray of abdomen:</p> <p>History: A 7-week-old female with history of necrotizing enterocolitis status post bowel resection. Check for any remaining contrast.</p> <p>Findings:</p> <ul style="list-style-type: none"> • Comparison is made to the prior study of the abdomen dated 	697

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		<p>MM/DD/2004.</p> <ul style="list-style-type: none"> Intraluminal contrast is seen in the large and small bowel. There are no dilated loops of large or small bowel. There is no intramural gas, portal venous gas or intraperitoneal free gas. 	
<p>MM/DD/2005 – MM/DD/2005</p>	<p>XXXX Hospital XXXXXX</p>	<p>Summary of interim progress notes:</p> <p>MM/DD/2005: Enteral feedings were resumed yesterday and she had frank blood in her colostomy bag. Feedings were, therefore, discontinued. She continues to be NPO and on TPN. She is at risk of splanchnic circulatory compromise if fed.</p> <p>MM/DD/2005: She was NPO and on TPN.</p> <p>MM/DD/2005: There are some conflicting reports about her blood per rectum versus blood from the ostomy tube. I discussed her with Dr. XXXX who is under the impression that there was blood per rectum. She continues to be NPO and TPN.</p> <p>MM/DD/2005: Mucous fistula in situ. She was NPO but has been commenced on Pedialyte feeds by the surgical team.</p> <p>MM/DD/2005: Continues to ooze blood from the mucous fistula. She continues to be on TPN, has been commenced on gavage trophic feeds of Pregestimil 20 cal/ounce.</p> <p>MM/DD/2005: Last day of Gentamicin today. On TPN. Enteral feeds were commenced yesterday, but has increasing ostomy output and hence, not advanced.</p> <p>MM/DD/2005: She had high colostomy output with small-volume feeds and hence enteral feeds were discontinued. She is now on TPN.</p> <p>MM/DD/2005: She is currently TPN dependent which reflects the failure of her alimentary system to tolerate enteral nutrition.</p> <p>MM/DD/2005: She continues to be NG fed, 2 ml of Pregestimil 20 but has large PGAs. Hence, no advancing of NG feeds. She continues to be on TPN.</p> <p>MM/DD/2005: She clearly is showing signs of malabsorption even with this small feed. She continues to be on TPN.</p> <p>MM/DD/2005: On TPN.</p> <p>MM/DD/2005: Had high ostomy output and hence a decision was made to replace ostomy output without normal, saline in his potassium chloride and equal volumes.</p>	<p>568, 566- 567, 564- 565, 562- 563, 560, 558, 556- 557, 555, 553, 551, 550, 549, 548, 547, 546, 544, 542, 541, 540, 539, 538, 537, 536, 535, 534, 533, 532, 531, 530, 529</p>

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		<p>MM/DD/2005: On TPN and lipids.</p> <p>MM/DD/2005, MM/DD/2005, MM/DD/2005, MM/DD/2005, MM/DD/2005, MM/DD/2005, MM/DD/2005, MM/DD/2005, MM/DD/2005, MM/DD/2005, MM/DD/2005, MM/DD/2005, MM/DD/2005, MM/DD/2005, MM/DD/2005 and MM/DD/2005: She continues to feed 2 ml of Pregestimil q3h and continues to be on TPN.</p> <p><i>*Reviewer's comments: The interim progress notes were summarized with significant events.</i></p>	
MM/DD/2005	XXXX Hospital XXXX	<p>X-ray of abdomen:</p> <p>History: Eight-week-old female with known necrotizing enterocolitis, now here for evaluation of internal contrast.</p> <p>Findings: Comparison was made to single view of the abdomen from MM/DD/2005, Again visualized is a paucity of bowel gas in the upper abdomen, with the exception of air within the stomach. Contrast is again identified in distal bowel loops, particularly within the distal colon. Lateral view demonstrates an air/fluid level in the stomach with the question of a second air/fluid level identified in a loop of small bowel. Central venous catheter is again identified with its tip projecting over the superior vena cava. Ho new infiltrate is identified in the lungs.</p> <p>Impression:</p> <ul style="list-style-type: none"> • Continued presence of contrast, as described above. • Air/fluid level in the stomach and possibly within a loop of small bowel. 	696
MM/DD/2005	XXXX Hospital XXXX	<p>X-ray of abdomen:</p> <p>History: NEC status post bowel resection follow-up.</p> <p>Conclusion: Residual colonic contrast with catheter now in ileostomy</p>	695
MM/DD/2005	XXXX Hospital XXXX	<p>X-ray of abdomen:</p> <p>History: A 2-month-old female with history of necrotizing enterocolitis status post bowel resection with recent contrast enema.</p> <p>Findings: Comparison was made to a prior exam dated MM/DD/2005.</p>	694

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		In comparison to the prior exam, the contrast in the large bowel has progressed and now resides in the distal rectosigmoid colon. There is no evidence of extravasated contrast on this single portable view. There is a persistent gas bubble in the stomach. There is no evidence of extraluminal area. The chest appears clear.	
MM/DD/2005	XXXX Hospital XXXX	X-ray of abdomen: History: The patient is a 3-month-old female with necrotizing enterocolitis status post bowel resection. We are asked to check for oral contrast progression in the distal bowel. Findings: Compared to prior examination dated MM/DD/2005, there has been no significant change in the progression oral contrast within the distal bowel loops. Again noted is oral contrast within the distal colon and rectal sigmoid. Gas is still seen within the stomach. No pneumoperitoneum or pneumatosis is noted.	693
MM/DD/2005	XXXX Hospital XXXX	X-ray of abdomen: History: The patient is a 2-month-old female with history of necrotizing enterocolitis status post bowel resection. Findings: Compared to prior examination dated MM/DD/2005, there has been less contrast seen within the rectum, possibly secondary to recent evacuation. Still some contrast is seen in the distal colon. The stomach is still distended with gas. No gas is seen in other loops of bowel. No evidence of pneumatosis or pneumoperitoneum. The lungs bases are clear with no pneumothorax, pleural effusion or confluent infiltrate. The visualized portion of the heart is normal.	692
02/15/2005	XXXX Hospital	Lower gastrointestinal radiography with barium contrast:: History: Status post ileostomy for necrotizing enterocolitis. Conclusion: <ul style="list-style-type: none"> • Normal colon with fetal-type cecum without stricture. • Short segment of ileum filling to the ileostomy in the left lower quadrant, grossly unremarkable. 	691
MM/DD/2005 – MM/DD/2005	XXXX Hospital XXXX	Summary of interim progress notes: XXXX/2005, MM/DD/2005, MM/DD/2005, MM/DD/2005, MM/DD/2005, MM/DD/2005, MM/DD/2005, MM/DD/2005: She continues on TPN and on trophic feeds of 2 ml of Pregestimil every 3	528, 527, 525, 526, 523, 522, 521, 520, 517, 516,

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		<p>hours.</p> <p>MM/DD/2005: She now has a gastrostomy as a result of surgery for NEC. In cooperation with surgery, there has been a change of plan in that she is no longer getting the ostomy output fed back into the distal loop and that there is a question as not there is ongoing obstruction.</p> <p>MM/DD/2005: A major problem on this baby is that she is putting but varying amounts of fluid from her ostomy and this requires close following of her electrolytes which we are doing every other day. We plan to give her Pregestimil as tolerated and follow her feedings very carefully.</p> <p>MM/DD/2005: We plan to increase her feeds and also plan to continue to get AFP's until she clears her barium.</p> <p>MM/DD/2005: Her primary problem is that she still has a colostomy and apparently has some obstruction in the colon. She remains on TPN and today has increased colostomy output.</p> <p>MM/DD/2005: She still has a jejunal fistula. She is n.p.o. and is getting all TPN and lipids.</p> <p>MM/DD/2005: She is on TPN and is getting very small feeds today which are 2 mL and mere or less trophic feeds.</p> <p>MM/DD/2005: She is getting very small trophic feedings. She is on TPN and has not gained a great deal of weight yet.</p> <p>MM/DD/2005: This infant is on all TPN for gastrointestinal dysfunction. She is also getting trophic feeds. Yesterday there were some reported high blood pressures of 120 to 125. She had an echocardiogram while we were on rounds today, which is suggestive of a clot in the main pulmonary artery.</p> <p>MM/DD/2005: She has what appears to be short gut syndrome. Whether or not this will improve significantly when she is reanastomosed is unclear. She has a murmur heard on rounds and an echo, we performed yesterday which showed an ASD and pulmonic valve stenosis. We plan to follow her along with her TPN and will await surgery's plans to reanastomose her.</p> <p>MM/DD/2005: She is on trophic feeds only and she remains on TPN.</p> <p>MM/DD/2005: She is on TPN for her ongoing gastrointestinal dysfunction. She is still getting trophic feedings.</p> <p>MM/DD/2005: She is getting 95 kcal/kg and is gaining weight although slowly. We plan to wait for surgery's decision on reanastomosing her bowel.</p>	<p>515, 514, 511, 512, 511, 510, 508, 507, 506, 505, 504, 503, 502, 500, 499, 498, 497, 492</p>

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		<p>MM/DD/2005, MM/DD/2005: She is on TPN for gastrointestinal dysfunction. We plan to consult surgery as to the date for their planned reanastomosis.</p> <p>MM/DD/2005: This is an infant who is waiting for her fistula repair and reconnection which is planned sometime next week.</p> <p>MM/DD/2005: She is on mostly total parenteral nutrition and we plan to increase this today to make up for losses coming out of her ileostomy.</p> <p>MM/DD/2005: She is on Pepcid and is on all hyperalimentation with occasional small feedings. She needs to grow in order for her upcoming surgery which is a reattachment of her bowel. She continues to have a murmur clue to mild congenital heart defects.</p> <p>MM/DD/2005: She continues with replacement of fluids from her ileostomy and also she is taking 2 ml of Pregestimil every three hours of trophic or maintenance feedings. We plan to keep things as they are for the next 24 hours.</p> <p>MM/DD/2005: She is on TPN for her ongoing gastrointestinal dysfunction. She continues to get small trophic feedings.</p> <p>MM/DD/2005: She continues to gain weight, is getting 98 kilocalories of TPN and lipids with small amounts of small feeds. She will be going to surgery in the next 10-14 days. She has anemia of prematurity as well.</p> <p><i>*Reviewer's comments: The interim progress notes were summarized with significant events.</i></p>	
MM/DD/2005	XXXX Hospital XXXX	<p>X-ray of small intestine:</p> <p>History: A 3-month-old female with a history of necrotizing enterocolitis, with complicated surgical history including 6 small bowel segment resections with multiple anastomoses. The patient has a proximal jejunostomy and an ileostomy mucous fistula. There is clinical concern from prior studies and patient's history of a stricture or a leak in the region of the terminal ileum or cecum.</p> <p>Findings: Comparison is made to the patient's prior examinations of MM/DD/2005 and MM/DD/2005. Initial scout image demonstrates a gas filled stomach with a paucity of gas in the remaining loops of bowel. A central venous catheter is incompletely evaluated with the distal tip in the region of the superior vena cava or right</p>	690

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		<p>atrium. Retained barium is seen in the region of the rectum and sigmoid colon consistent with the patient's prior examination.</p> <p>Instillation of radiopaque water-soluble contrast demonstrates a loop of small bowel, likely ileum, coursing transversely over to the right mid abdomen. Contrast flows easily from this loop of bowel into the region of the cecum, with visualization of a normal appearing appendix. The cecum is in a somewhat abnormal position, with an abnormally positioned ascending colon which is likely secondary to patient's prior surgery. This is, however, unchanged in position from MM/DD/2005. The contrast flows easily through the colon, into the transverse colon, a short segment of descending colon, and into the proximal sigmoid colon. The course of the visualized colon is unchanged in position from the patient's prior examinations. The colon is not easily distensible with contrast but is unchanged in caliber or position. No strictures or ulcerations are seen. No extravasation is seen into the peritoneal cavity.</p> <p>Impression: No strictures or leaks identified as detailed above.</p>	
MM/DD/2005	XXXX Hospital XXXX	<p>Operative report for exploration of abdomen with lysis of multiple abdominal adhesions and resection of jejunostomy site with primary bowel anastomosis:</p> <p>Indications for surgery: This patient is now a three-month-old child; with a previous history of severe necrotizing enterocolitis. This resulted in surgery, at which point multiple small bowel loops were excised. She subsequently had multiple bowel anastomoses performed over a Broviac stent. A proximal jejunostomy was then created along with the mucous fistula. The Broviac catheter was allowed to stay in place for six weeks. She subsequently underwent a contrast study through this site. It showed the bowel to be intact. There was a possible stricture in the mid-portion of this site. The Broviac catheter was removed. The patient was then treated for an additional six weeks with total parenteral nutrition and is subsequently brought to the operating room for reanastomosis of her gastrointestinal tract.</p> <p>Pre and post-operative diagnosis: Necrotizing enterocolitis with jejunostomy and proximal mucous fistula; previous multiple bowel resections.</p> <p>Operative procedure: Exploration of abdomen with lysis of multiple abdominal adhesions; resection of jejunostomy site with primary bowel anastomosis.</p>	619-620

DATE	PROVIDER	OCCURRENCE/TREATMENT	PDF Ref
		<p>Anesthesia: General anesthesia.</p> <p>Estimated blood loss: 20 ml.</p> <p>Procedure: The patient was brought to the operating room where appropriate access and monitoring was then established. Induction of general endotracheal anesthesia took place without difficulty. The abdomen was prepped with multiple layers of Betadine and draped sterilely. This was done after the patient had received preoperative intravenous antibiotics and a Foley catheter was placed. We also had preoperatively irrigated the child's bowel. The previous incision was then utilized. Bovie electrocautery was used to divide the subcutaneous tissue. This was taken down through fibrous scar tissue and the abdominal cavity entered. Multiple adhesions were encountered, specifically in the upper abdomen along the inferior edge of the liver. At this point, we encountered the previous bowel anastomoses. There were some significant strictures on the underside of the incision and fine Metzenbaum scissors and Bovie electrocautery were used to divide the adhesions to free the bowel loops. After the bowel loops had been freed, we turned our attention to the stoma site. The jejunostomy was separated after incising the mucocutaneous junction with Bovie electrocautery. This dissection was taken down through the muscular layers of the abdominal wall and the bowel was then freed of all connections. The roost terminal aspect of this jejunostomy was excised. The distance of this excision was approximately 1 cm. The resulting bowel edge was viable with good vascularity. I then turned our attention to the defunctionalized loop of the intestine. Multiple adhesions were once again divided with Metzenbaum scissors up to the skin level. Circumferential dissection was then undertaken to separate this from the abdominal wall. After this was accomplished, an 8 French red rubber catheter was passed through the defunctionalized bowel. It was irrigated. The bowel appeared to distend adequately throughout the length of this intestine. We then aligned the previously defunctionalized bowel and the more proximal jejunostomy. An end-to-end single-layer anastomosis was then completed utilizing 4-0 Vicryl sutures. The mesenteric defect was then reapproximated with interrupted 4-0 Vicryl suture. The abdominal cavity was thoroughly irrigated with warm saline. The bowel was placed back within the abdominal cavity. We then identified fascial edges of good integrity on all sides. The fascia was then reapproximated with interrupted 2-0 Vicryl sutures. The dermal edges were then reapproximated with interrupted 4-0 Vicryl suture. The patient tolerated the procedure well. I was present for all portions of the procedure. The patient did remain intubated and was transported back to the neonatal intensive care unit in guarded condition.</p>	

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MM/DD/2005	XXXX XXXX	<p>X-ray of abdomen:</p> <p>History: This is a 3-month-old female with a history of necrotizing enterocolitis status post bowel resection.</p> <p>An abdominal obstructive series is obtained and compared with the previous study dated MM/DD/2005.</p> <p>Opinion:</p> <ul style="list-style-type: none"> • No obstruction, pneumatosis or pneumoperitoneum. • Hepatosplenomegaly. 	681
MM/DD/2005	XXXX Hospital XXXX	<p>Upper gastrointestinal and small intestine radiography with Barium, air contrast:</p> <p>History: The patient is a 3-month-old female with a history of necrotizing enterocolitis. The patient is status post resection of multiple loops of small bowel, with reanastomosis. The patient's most recent surgery was MM/DD/2005, where an exploration of the abdomen, lysis of abdominal adhesions, and resection of jejunostomy site was performed with a primary bowel anastomosis. The patient was recently administered oral feeds with resulting emesis.</p> <p>Impression:</p> <ul style="list-style-type: none"> • Tubular appearance of the stomach antrum, with delayed gastric emptying. These findings are most consistent with antral dyskinesia. • No small bowel obstruction. • No evidence of malrotation. • Short small bowel. 	679-680
MM/DD/2005 – MM/DD/2005	XXXX Hospital XXXX	<p>Summary of interim progress notes:</p> <p>MM/DD/2005, MM/DD/2005, MM/DD/2005, MM/DD/2005, MM/DD/2005 and MM/DD/2005, MM/DD/2005, MM/DD/2005, MM/DD/2005, MM/DD/2005, MM/DD/2005, MM/DD/2005, MM/DD/2005, MM/DD/2005, MM/DD/2005 and MM/DD/2005: She is receiving most of her nutrition in the form of 20% dextrose containing TPN and intralipid solutions. She continues to receive small-volume trophic feedings just to provide continued stimulation in this important developmental arena which she is tolerating well.</p> <p>MM/DD/2005: The Pediatric Surgical team will plan to reinstate TPN today and will monitor her sugars and urine output closely.</p>	495, 493, 489-490, 487, 483- 484, 484, 482, 480, 479, 478, 477, 475, 473, 472, 471, 468- 469, 467, 465, 463- 464, 443, 461-462, 459-460,

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		<p>MM/DD/2005, MM/DD/2005, MM/DD/2005, MM/DD/2005, MM/DD/2005, MM/DD/2005, MM/DD/2005 and MM/DD/2005: On TPN and intralipids</p> <p>03/28/2005: Yesterday she received total fluids of about 100 mL/kg/day, largely in the form of 27-1/2% dextrose containing TPN and intralipid solution as well as small volumes of Pedialyte by mouth.</p> <p>MM/DD/2005 and MM/DD/2005: NPO. On TPN and intralipids</p> <p>MM/DD/2005: She started on small volume Pedialyte feedings yesterday, but those were stopped when she had significant emesis. Essentially all of her nutrition, is in the form of TPN and Intralipid at volumes of about 100 mL/kg/day.</p> <p><i>*Reviewer's comments: The interim progress notes were summarized with significant events.</i></p>	457-458, 454-455, 452-453, 450-451, 448-449, 446-447, 444-445, 442, 440
MM/DD/2005	XXXX Hospital XXXX	<p>X-ray of abdomen:</p> <p>History: BPD; feeding tube placement.</p> <p>Conclusion: Feeding tube ending in 2nd duodenum</p>	676
MM/DD/2005	XXXX Hospital XXXX	<p>X-ray of abdomen:</p> <p>History: A 4-month-old girl status post nasojejunal tube placement.</p> <p>Findings: A single view of the abdomen dated MM/DD/2005 at 1105 hours is compared to a prior examination at 0537 hours on the same date. There has been interval replacement of an enteric feeding tube. The new feeding tube is coiled within the stomach. There is gas throughout nondilated loops of bowel.</p>	674
MM/DD/2005	XXXX Hospital XXXX	<p>X-ray of abdomen:</p> <p>History: A 4-month-old girl with abdominal distention.</p> <p>Findings: A single view of the abdomen is compared to a prior examination dated MM/DD/2005. The enteric tube is again seen coiled within the stomach, but its tip is now within the gastric outlet. There is unchanged appearance of gas and stools throughout nondilated loops of bowel. There is unchanged appearance of hepatosplenomegaly.</p>	675
MM/DD/2005	XXXX Hospital XXXX	<p>X-ray of abdomen:</p> <p>History: A four-month-old girl with a nasogastric feeding tube.</p>	672

DATE	PROVIDER	OCCURRENCE/TREATMENT	PDF Ref
		<p>Findings: A single view of the abdomen, dated MM/DD/2005, is compared to a prior examination from earlier on the same date. There has been no interval change. Again seen is an enteric feeding tube which is coiled within the stomach. There is non-dilated loops of bowel.</p> <p>A single view of the abdomen, dated MM/DD/2005 at 0503 hours, is compared to the above examination, has been no interval change. The enteric feeding tube remains coiled in the stomach.</p>	
MM/DD/2005	XXXX Hospital XXXX	<p>X-ray of abdomen:</p> <p>History: A four-month-old girl status post feeding tube placement.</p> <p>Findings: A single view of the abdomen dated 04/14/2005 at 0441 hours is compared to a prior examination dated 04/13/2005. There has been no interval change. Again seen is an enteric feeding tube, which is coiled within the stomach and has its tip likely in the gastric outlet. There is gas and stool throughout nondilated loops of bowel.</p>	673
MM/DD/2005	XXXX Hospital XXXX	<p>X-ray of abdomen:</p> <p>History: A 4-month-old girl status post feeding tube placement.</p> <p>Findings: A single view of the chest dated MM/DD/2005 at 0604 hours is compared to the prior examination from MM/DD/2005. There has been no interval change. Again seen is an enteric feeding tube which is curled within the stomach. There is gas throughout nondilated loops of bowel. Again seen is hepatosplenomegaly. There is unchanged wild cardiomegaly. There are unchanged coarse interstitial infiltrates consistent with bronchopulmonary dysplasia.</p>	670
MM/DD/2005	XXXX Hospital XXXX	<p>X-ray of abdomen:</p> <p>History: Check nasogastric tube placement.</p> <p>Findings: Comparison is made to the previous study dated MM/DD/2005. Again seen is a nasogastric tube whose tip projects over the region of the pylorus. There are mildly distended bowel loops seen in a nonobstructive pattern. No significant change from the previous exam.</p>	668
MM/DD/2005	XXXX Hospital XXXX	<p>X-ray of abdomen:</p> <p>History: Evaluate nasogastric tube placement.</p>	667

DATE	PROVIDER	OCCURRENCE/TREATMENT	PDF Ref
		Findings: Comparison is made to the previous study dated MM/DD/2005. Again seen is a nasogastric tube coiled in the stomach with its tip in the region of the pylorus. There are scattered mildly distended loops of bowel in the lower abdomen. There is a nonobstructive bowel gas pattern.	
MM/DD/2005 – MM/DD/2005	XXXX Hospital XXXX	Summary of interim progress notes: MM/DD/2005, MM/DD/2005: On TPN and Pregestimil <i>*Reviewer's comments: Only case relevant details were captured</i>	438-439, 436, 434- 435, 432, 431, 430, 428, 427, 426, 425, 424, 423, 422, 421, 420, 419, 418, 417, 416, 415, 413, 411- 412, 409, 407, 405- 406, 404, 403, 402, 401, 400
MM/DD/2005	XXXX Hospital XXXX	X-ray of abdomen: History: Hematemesis and abdominal distention. Comparison is made to the previous study dated MM/DD/2005. Impression: Feeding tube that is coiled in the stomach, more proximal than on the previous exam.	665
MM/DD/2005	XXXX Hospital XXXX	Ultrasound of abdomen: History: Five-month-old female with previous history of necrotizing enterocolitis. We were asked to evaluate for portal hypertension. Conclusion: <ul style="list-style-type: none"> • Normal Doppler exam of the liver with no evidence of portal hypertension. • Echogenic kidneys bilaterally, unchanged. • Sludge-filled gallbladder without intra- or extra-hepatic biliary duct dilatation. • Hepatosplenomegaly. 	663
MM/DD/2005	XXXX	Upper gastrointestinal, small intestine radiography with barium, air	662

DATE	PROVIDER	OCCURRENCE/TREATMENT	PDF Ref
	Hospital XXXX	<p>contrast:</p> <p>History: Necrotizing enterocolitis with seven anastomoses for necrotic bowel, now vomiting.</p> <p>Conclusion:</p> <ul style="list-style-type: none"> • Hepatosplenomegaly (compare to sonogram of the same day). • Marked antral dysmotility with moderate gastric outlet obstruction. • Abnormal small bowel with markedly dilated segments separated by at least three strictures. 	
MM/DD/2005	XXXX Hospital XXXX	<p>Procedure Report For Broviac Catheter Removal:</p> <p>Indications For Surgery: This is A 5-month-old child who has Short Gut Syndrome And Requires TPN For Nutrition. She Has Had Repeated Blood Cultures That Have Been Positive For Enterococcus. For This Reason We Have Planned Broviac Removal.</p> <p>Pre And Post-Operative Diagnosis: Bacteremia, Enterococcus; Short Gut Syndrome; Bronchopulmonary Dysplasia.</p> <p>Operative Procedure: Broviac Catheter Removal.</p> <p>Anesthesia: General</p> <p>Procedure: After the patient was brought to the operating room and given a general anesthetic and after the institution of appropriate monitoring, the anterior chest was prepped and draped in the usual manner. The Dacron cuff of the Broviac was approximately 3.5 cm superior to the catheter exit site. For this reason, after the anterior chest, was prepped and draped, I made a skin incision directly over the cuff, dissected through the subcutaneous tissue and identified the cuff. A dissection circumferentially around the cuff, freeing it up from loose connective tissue. I then was able to place traction on the catheter in the caudal direction and removed the catheter from the superior vena cava. I dissected from the cuff inferiorly and could free the rest of the catheter up. The catheter was divided and removed. The tip of the catheter was sent for culture. A total of 1.5 mL of 0.253 Marcaine was used to infiltrate the skin and subcutaneous tissue of the wound. The cut down site was closed in two layers using 4-0 Vicryl for subcutaneous and then a running subcuticular closure. Betadine ointment was placed over the catheter exit site followed by a gauze dressing. The patient tolerated the procedure, well. The sponge and needle count was correct and the blood loss was negligible. I personally was present for the</p>	611-612

DATE	PROVIDER	OCCURRENCE/TREATMENT	PDF Ref
		entire procedure.	
MM/DD/2005	XXXX Hospital XXXX	<p>Procedure report for insertion of left subclavian broviac catheter:</p> <p>Indications for surgery: This patient is a now 5-1/2-month-old child who was born with severe necrotizing enterocolitis. The patient underwent multiple intraabdominal operations including multiple bowel resection and essentially has short bowel syndrome. The patient requires long-term intravenous access for total parenteral nutrition. A most recent Broviac catheter had become chronically infected and was previously removed. The risks and benefits of the surgical procedure were discussed with the child's guardian prior to the operation.</p> <p>Pre and post-operative diagnosis: Short bowel syndrome,</p> <p>Operative procedure: Insertion of left subclavian broviac catheter (4.2 french).</p> <p>Anesthesia: General anesthesia.</p> <p>Estimated blood loss: Less than 5 ml.</p> <p>Procedure: The patient was brought to the operating room and placed on the operating room table where appropriate access and monitoring was then established. Induction of general anesthesia took place without difficulty. A shoulder roll was placed between the shoulder blades. The patient was placed in Trendelenburg position. The neck and chest area were prepped with multiple layers of Betadine and draped sterilely. The left subclavian vein was accessed percutaneously. A guidewire was inserted. Fluoroscopy showed the guidewire tip to be in the right atrium. A counter incision was made on the left anterior chest with a #15 blade. A subcutaneous tract was then developed with a rectal probe, bringing the catheter through the subcutaneous tunnel, exiting at the infraclavicular site. The dilator and peel-away sheath were then passed over the wire. The catheter was cut to the appropriate length and then passed through the peel-away sheath. The peel-away sheath was then, removed. The catheter flushed and aspirated blood easily. The catheter was secured at chest level with a nylon suture. The infraclavicular site was closed with Vicryl. Sterile bandages were applied to both sites. On fluoroscopy, the catheter tip appeared to be at the junction of the right atrium and superior vena cava. I was present for all portions of the procedure. The patient tolerated the procedure well. The patient was then awakened and transported to the recovery area.</p>	609-610
MM/DD/2005	XXXX	Summary of interim progress notes:	399, 398,

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			343
MM/DD/2005	XXXX Hospital XXXX	<p>Inpatient consultation report:</p> <p>Patient status post NEC with multiple surgical resections resulting in short-gut syndrome. She has been TPN dependent, and has increased liver enzymes, macrocytic anemia, and poor antral motility.</p> <p>Patient was born at 32-4/7 weeks to a 30-year-old G5, P1-2-1-3 mother whose serologies were B+, rubella immune, RPR nonreactive, HIV negative, GBS negative, hepatitis B positive, GC and Chlamydia negative. The pregnancy was complicated by tobacco use, partial placenta previa, history of UTI one month prior to delivery, vaginal Trichomonas, and anemia-. She had a precipitous vaginal vertex delivery and was treated at XXXX NICU. There, her course was complicated by necrotizing enterocolitis and sepsis. She started on antibiotics, received fresh-frozen plasma, platelets, and blood transfusion. She was transferred to XXXX for further management. On MM/DD/2004, patient was taken to the OR for bowel resection. She had multiple segments of small bowel resected and small bowel reanastomosis times five. Estimated remaining bowel length is approximately 30 cm. Her pylorus to proximal jejunum was intact. The remaining viable small bowel were connected along a Broviac line in the abdomen. She had a proximal jejunostomy and distal mucous fistula. On MM/DD/2005, she underwent exploration of her abdomen with lysis of abdominal adhesions and resection of jejunostomy site with primary bowel reanastomosis. Complications of the surgery included partial wound dehiscence that required a few weeks of packing. She also had frequent large amounts of emesis while on continuous feeds per NG. An upper GI and small bowel follow through done on MM/DD/2005 showed hepatosplenomegaly, marked antral dysmotility with moderate gastric outlet obstruction, and abnormal small bowel with markedly dilated segments separated by at least three strictures.</p> <p>Patient has been tolerating 39 ml/hr of Neocate 200 kcal/ml since MM/DD/XXXX. She remains on TPN and Intralipid to make up a balance of 80 kcal/kg/day. The Neonatal Intensive Care Unit team attempted to advance her feeds, however, her stools have become more loose and they were unable to advance her feeds further. Her electrolytes have remained stable and Speech Therapy continues to work on patient's oral motor feeding skills. Other problems include increasing liver enzymes. On MM/DD/XXXX, her alkaline phosphatase was 531, AST 1336, ALT 1128, GGT 76. Throughout her life, her alkaline phosphatase has been between 300 and 600. Her ALT was initially 27, but has gradually been climbing, and is currently at a peak. Her last ALT was 391 on MM/DD/2005. Her AST had also been climbing gradually. Her last AST was 523 on</p>	205-208

DATE	PROVIDER	OCCURRENCE/TREATMENT	PDF Ref
		<p>MM/DD/2005- She has also had macrocytic anemia with a hemoglobin of 8A, hematocrit of 26.4, and MCV of 90 on MM/DD/XXXX Her ferritin was 2092 and is being evaluated by the Hematology/Oncology Service. This laboratory data was thought to be due to global hepatic dysfunction and short gut syndrome.</p> <p>Assessment:</p> <ul style="list-style-type: none"> • Problems as listed above. • Short bowel syndrome. She receives approximately 55 kcal/kg/day via enteral feeds and 29 kcal/kg/day via PN. She has tolerable loose stools on the current regimen. She may have bacterial overgrowth in the dilated segments of small bowel. • Hypertransaminasemia and intrahepatic cholestasis. Multiple factors contribute: <ul style="list-style-type: none"> • Previous bacteremia • Abnormal bile acid kinetics due to decreased enterohepatic circulation of bile acids since ileum resected- • Possible fatty liver with increasing weight, • Iron overload. She has been on parenteral iron. • Hepatic vein thrombosis (not likely) • Macrocytic anemia, likely related to cholestasis, abnormal serum lipids, and abnormal RBC membrane lipids. Findings on smear on consistent with this mechanism. If she has vitamin E deficiency (which can occur in cholestasis and decreased parenteral delivery of vit E), then iron can lead to hemolysis. <p>Plan:</p> <p>To improve diarrhea:</p> <ul style="list-style-type: none"> • Discontinue Reglan • Discontinue Ursodiol <p>To evaluate liver:</p> <ul style="list-style-type: none"> • Hepatic ultrasound with Doppler flow studies • Check iron and TIBC. • Stop IV iron. • Check CPK. <p>To advance enteral feeds:</p> <ul style="list-style-type: none"> • Increase enteral feeds by 1 ml/hr per day • Follow daily BMP for acidosis • Tolerate variable weight as long as she does not appear ill. 	

DATE	PROVIDER	OCCURRENCE/TREATMENT	PDF Ref
MM/DD/2005	XXXX Hospital XXXX	<p>Procedure report for placement of right subclavian vein broviac catheter and removal of left subclavian vein broviac catheter:</p> <p>Indications for surgery: The patient is an eight-month-old infant with a history of short gut syndrome after bowel resection for necrotizing enterocolitis. The patient has required parental nutrition and currently has a clotted left subclavian vein Broviac catheter. The patient requires replacement of the Broviac catheter for continued parenteral nutrition and removal of the clotted catheter.</p> <p>Pre and post-operative diagnosis: Short gut syndrome.</p> <p>Operative procedure: Placement of right subclavian vein broviac catheter; Removal of left subclavian vein broviac catheter.</p> <p>Anesthesia: General anesthesia.</p> <p>Complications: None.</p> <p>Procedure: After informed consent was obtained, the patient was brought to the operating room and placed in a supine position. After general endotracheal anesthesia was induced, a roll was placed underneath the shoulder blades to extend the neck and all pressure points were padded appropriately. Anterior chest and neck were prepped and draped in the usual sterile fashion. The patient was then placed in a steep Trendelenburg position and the right subclavian vein accessed via Seldinger technique. The guidewire was identified at the junction of the SVC and right atrium via fluoroscopy. A counter incision was then created in the right anterior chest wall measuring 5 mm, and a 4.2 French single-lumen Broviac catheter was tunneled into the subcutaneous plane, through the sub clavicular incision site. The catheter was then cut to a length that would approximate the SVC and right atrium and was advanced into the superior vena cava via a break-away sheath. Blood was easily aspirated from the catheter, and the catheter was flushed with heparinized saline. The catheter as then anchored to the skin using interrupted 4-0 Ethilon suture and covered with a sterile Tegaderm dressing. The sub clavicular incision site was then closed with a 4-0 Monocryl subcuticular suture and covered with Steri-Strips. The anchoring suture for the left subclavian vein was then incised and the catheter removed in toto with downward traction. Hemostasis was obtained by applying pressure to the subcutaneous tract. The wound, was then covered with Betadine ointment and a sterile dressing.</p> <p>The patient tolerated the procedure well and there were no complications.</p>	593-594

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		The patient was extubated and brought to the recovery room in good condition, I was present during the entire procedure and participated in all portions of the procedure.	
MM/DD/2005	XXXX Hospital XXXX	<p>Inpatient consultation report:</p> <p>Patient has been stable.</p> <p>Enterally, feeds are now being advanced by 1 mL/hr daily. She is currently being fed starch-amino acid formula (Neocate 22) at 36 ml/hr with occasional vomiting (once or twice a day). 863 ml/d. 64 cal/kg/d.</p> <p>Parenterally, she receives D7.3 water with KCl and sodium acetate at 20 ml/hr. 480 ml/d. 15 cal/kg/d.</p> <p>She is 0.5 M2. Total fluid intake = 1300 ml/d = 2600 ml/M2/d.</p> <p>She has multiple small bowel movements; she is stooling almost continuously. There is no blood or mucus in the stool. She is generally content and not irritable.</p> <p>Problems:</p> <ul style="list-style-type: none"> • Premature. • NNEC status post bowel resection. <p>Active:</p> <ul style="list-style-type: none"> • Longstanding dependence on PN. • Cholestasis, life-long, recent worsening. • Portal hypertension. <p>Plan:</p> <ul style="list-style-type: none"> • Resume Ursodiol • Sweat test • Alpha-1-antitrypsin phenotype • Urine bile acids (Setchell lab Cincinnati) • Vitamin A level • Hepatitis A, B and C serology • CMV urine shell vial culture • Reticulocyte • SeFE/TIBC • Continue effort to establish independent enteral-only nutrition 	203-204
MM/DD/2005	XXXX Hospital XXXX	<p>Inpatient consultation report:</p> <p>Patient has been stable over the past week with no acute events. She is being fed Neocate 20 kilocalories/ounce at 42 mL/hr via NG also receives D7.5 plus 30 mEq KCl plus 40 mEq sodium acetate/ liter at 8 ml/hr</p>	201-202

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		<p>intravenously. This give her 70 kcal/kg/day and 2232 mL/sq in/day.</p> <p>Problems:</p> <ul style="list-style-type: none"> • Prematurity. • Short-gut syndrome following NEC and small bowel resection. <p>Active:</p> <ul style="list-style-type: none"> • Cholestasis, chronic, multifactorial etiology (prolonged limited enteral intake, infections, massive bowel resection, prolonged parenteral nutrition). • Portal hypertension with splenomegaly, due to prematurity <p>Plan:</p> <ul style="list-style-type: none"> • Hepatitis C virus RIBA. We spoke to the blood bank and were informed that her serum was very weakly positive for hepatitis C virus antibody • Continue to advance enteral feeds 	
MM/DD/2005	XXXX Hospital XXXX	<p>Abdominal sonogram:</p> <p>History: An 8-month-old female with hepatic dysfunction and sepsis.</p> <p>Comparison to examination on MM/DD/2005.</p> <p>Impression:</p> <ul style="list-style-type: none"> • Marked hepatosplenomegaly. • Increased echogenicity of the kidneys consistent with medicorenal disease • Septated fluid collection between the liver and stomach which appears to be extrahepatic. This was not seen on prior examination and may represent abscess 	653
MM/DD/2005	XXXX Hospital XXXX	<p>X-ray of abdomen and chest:</p> <p>History: Increased work of breathing and abdominal distention.</p> <p>Comparison is made with study dated MM/DD/2005.</p> <p>Findings:</p> <ul style="list-style-type: none"> • The lung volumes are small with interval increase in bibasilar infiltrates. There is no pleural effusion or pneumothorax. The cardiac size is markedly increased from prior study • There is minimal bowel gas with a large air-filled structure in the center 	652

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		<p>of the abdomen which may represent an air-filled stomach. Together with bulging flanks, this suggests the presence of ascites</p> <ul style="list-style-type: none"> • There has been interval removal of a nasogastric tube. A right subclavian central venous catheter remains in place with its distal tip positioned in the superior vena cava 	
MM/DD/2005 – MM/DD/2005	XXXX Hospital XXXX	<p>Summary of interim progress notes:</p> <p>MM/DD/2005: Complicated NEC with short gut syndrome and dysmotility disorder, with malabsorption and cholestasis. Recently had worsening liver enzyme levels with high ferritin level. Iron was supplemented in the TPN. We are working with GI consultation recommendation of attempting advancing feeds more quickly while monitoring her feeding tolerance as appropriate in order to get rid of the TPN and switch it to plain IV fluids with vitamins and minerals. Will work with the clinical pharmacist on this</p> <p>MM/DD/2005: On TPN and enteral feeds at 32 mL/hr with 7 bowel movements of loose watery.</p> <p>MM/DD/2005: Currently tolerating feeds at 33 mL per hour of Neocate and getting about 22 mL per hour of IV fluids, D-7.5 glucose and electrolytes. Her liver and abdominal ultrasounds revealed fatty liver with hepatosplenomegaly and sludge in the gallbladder with patent common bile duct.</p> <p>MM/DD/2005: Jaundiced. Hepatosplenomegaly. Slight abdominal distention. She was off her TPN. She remains on Pepcid.</p> <p>MM/DD/2005, MM/DD/2005, MM/DD/2005 and MM/DD/2005: On TPN and Neocate.</p> <p>MM/DD/2005: Ex-premature 32-week infant with complicated surgical NEC, short bowel with malabsorption, stenotic bowel with poor bowel mobility and malabsorption. Also, with cholestasis and liver disease with hepatosplenomegaly and hypersplenism with recurrent infections. On Neocate. She is off TPN.</p> <p>MM/DD/2005: She is 8 months old. She has short gut syndrome with hepatitis secondary to direct hyperbilirubinemia, cholestasis, fatty liver and repeated infections. She continues to have frequent stools which are loose. She passed 8 stools yesterday. On Neocate.</p> <p>MM/DD/2005, MM/DD/2005 and MM/DD/2005: She is tolerating Neocate formula feedings. No significant complications.</p> <p>MM/DD/2005: Today she is less active and is not as playful. She also spiked a temperature in the afternoon because of which we did a partial sepsis not including spinal tap.</p>	249, 246, 245, 244, 242-243, 241, 240, 239, 238, 236-237, 234-235, 232-233, 230-231, 228-229, 226-227, 224-225, 223, 221- 222, 219- 220, 217- 218, 215- 216, 213- 214, 211- 212, 209- 210

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		<p>MM/DD/2005: She remains on ursodiol, fat-soluble vitamins, and Pepcid. Yesterday we started triple antibiotic coverage with Vancomycin, Gentamicin, and Clindamycin because of fever. Since yesterday she has been less active and more irritable.</p> <p>MM/DD/2005: Over the last 23 hours, she has been less active than her usual baseline. We have been concerned about the possibility of dehydration and we have been giving IV boluses, more IV fluids and Pedialyte solutions.</p> <p>MM/DD/2005: We will give another bolus of IV fluids of normal saline and stop the Neocate feeding and switch to all Pedialyte feeding supplemented by IV fluids to a total fluids of 150 mg/kg/day. We will repeat another electrolytes this evening and evaluate fluid and electrolyte management as appropriate.</p> <p>MM/DD/2005: Infant with complicated surgical NEC with short bowel syndrome and malabsorption, cholestasis, elevated liver enzymes, who has been clinically septic on antibiotics that were switched last night, because of further clinical deterioration in terms of fever, lethargy, and hypotension on Vancomycin and Gentamicin, Meropenem, as well as Fluconazole and Clindamycin. We will discontinue the clindamycin today and continue these antibiotics.</p> <p>MM/DD/2005: We will start TPN today at 20 g/kg/day of protein and 2 g/kg/day of intralipids.</p> <p>MM/DD/2005: She is becoming more awake but has been irritable overnight. On TPN and enteral feeds of Pedialyte.</p> <p>MM/DD/2005: On TPN and enteral feeds of Pedialyte.</p> <p>MM/DD/2005: Will start Neocate 5 ml every hour and monitor feeding tolerance. Will stop Pedialyte. Will continue TPN.</p> <p>MM/DD/2005: She has tachypnea. Abdomen is distended, but not tense with huge hepatosplenomegaly. Spleen tip is in the left ileac fossa. Liver is about 10-12 cm below the costal margin. She is deeply jaundiced. Could not elicit ascites. Difficult to exam with huge hepatosplenomegaly. On TPN and enteral feeds of Neocate.</p> <p>MM/DD/2005: Jaundiced. Awake, but slightly irritable and in discomfort. She has tachypnea. Abdomen is distended, full with massive hepatosplenomegaly. Currently on TPN and did not tolerate Neocate feeds with vomiting twice with small amount of blood in the vomitus. Feedings were stopped and we elected to give her Pedialyte, but failed with another vomiting, so she is kept NPO on IV fluids 80 ml/kg/day. Will continue on</p>	

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		<p>Vancomycin, Gentamicin and Meropenem. Stopped her Fluconazole after 7 days. Called mom and talked to her about patient. She understands that patient is getting worse and has developed organ failure at this point and it is highly likely that these are not reversible. She also understood that patient may die at any time.</p> <p><i>*Reviewer's comments: The interim progress notes were summarized with significant events.</i></p>	
MM/DD/2005	XXXX Hospital XXXX	<p>Death summary:</p> <p>Date of death: MM/DD/2005</p> <p>Patient is an ex-premature infant, 32 weeks, with complicated surgical NEC resulting in short bowel malabsorption, bowel dysmotility, and cholestasis with liver disease then failure, hepatosplenomegaly, and hypersplenism. The overall course was also complicated by multiple infections. Over the past 24 hours, she has been having progressive manifestations of liver failure with poor homeostasis and bloody urine with blood in the gastric aspirates and worsening respiratory status requiring intubation. Parents arrived early this morning, and Dr. XXXX discussed with them her multiple organ failure, including liver, intestine, cardiovascular, pulmonary, and renal failure with severe metabolic and respiratory acidosis, hypoxia, hypotension, and anuria. The parents accepted and allowed natural death status with no chest compressions or Epinephrine, and no increase in her support and lab tests. She continued to have bradycardia and poor saturation, and eventually had a heart rate stop and was pronounced dead at 5:20 a.m.</p> <p>Her exam one hour prior to her death: She was on mechanical ventilation, tidal volume of 9, a volume inhalation rate of 40, 100% oxygen. She had moderate air entry bilaterally with moderate chest expansion and crackles diffusely bilaterally. She had normal heart sounds, weak brachial and femoral pulses. Her abdomen was severely distended with hepatosplenomegaly. Her sats were in the 60%, heart rate was 100 per minute.</p> <p>Options for funeral home and autopsy were discussed with the parents. They are planning to arrange for a funeral home and they refused to have an autopsy. The medical examiner was contacted by Dr. XXXX. The investigator is XXXX and medical examiner number is 051923.</p> <p>NICU course by system:</p> <p>Respiratory: Patient was maintained on mechanical ventilation through surgery and extubated to vapotherm on MM/DD/XXXX (DOL #30). She</p>	197-200

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		<p>was stable on room air until MM/DD/2005 when she had acute respiratory decompensation. She was initially placed on Vapotherm, then required intubation during cardiorespiratory resuscitation. She was mechanically ventilated until she expired on MM/DD/2005.</p> <p>Cardiovascular: Patient required dopamine for hypotension until MM/DD/XXXX (DOL #19) - An echocardiogram MM/DD/2005 to evaluate a murmur revealed mild pulmonary valve stenosis and a small to moderate secundum ASD.</p> <p>Infectious disease: Patient has received numerous courses of antimicrobials including Vancomycin, Gentamicin, Clindamycin, Fluconazole, ampicillin, Timentin, and meropenem for E. coli bacteremia/meningitis, fungal UTI/tracheitis, enterococcus/coag negative staph line infection, coag negative staph/Klebsiella bacteremia, and other presumed line infections/sepsis.</p> <p>Gastrointestinal: Patient had resection of multiple segments of small bowel (x6) and small bowel anastomosis times five (30 cm remain). Her pylorus to proximal jejunum was intact with the remaining viable pieces of bowel strung along a Broviac line in the abdomen. She had a proximal jejunostomy and distal mucous fistula. On MM/DD/2005, she underwent exploration of her abdomen with lysis of abdominal adhesions, and resection of jejunostomy site with primary bowel reanastomosis. After surgery, she developed a mild partial wound dehiscence that eventually closed after several weeks of packing. Because of large amounts of emesis even on continuous feedings per NG, an upper GI and small bowel follow through was done on MM/DD/2005 which showed: 1) hepatosplenomegaly; 2) marked antral dysmotility with moderate gastric outlet obstruction and, 3) abnormal small bowel with markedly dilated segments separated by at least 3 strictures.</p> <p>Hepatic failure: Patient has had gradually increasing conjugated bilirubin levels and liver function tests since early in her course. A liver ultrasound with Dopplers showed hepatosplenomegaly, fatty liver, sludge vs. gallbladder stone; there was no biliary duct dilatation. The laboratory work up was remarkable for a "weakly positive Hepatitis C antibody; follow up RIBA test for Hepatitis C was negative. Also HIV DNR was negative. She had an elevated ferritin level, but normal iron, TIBC and transferrin level.</p> <p>Nutrition: Patient was NFO on TPN and IL after her initial surgery until DOL #24 when enteral feeds were introduced. She was never able to tolerate any significant enteral intake secondary to dumping from her ostomy. Even after her bowel re-anastomosis, she continued to have problems with malabsorption and tolerated only very slow advancement of her continuous gavage feedings. She remained on supplemental TPN and IL her entire life until MM/DD/2005 (DOL 236) when was at 75% enteral</p>	

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		<p>nutrition from continuous NG feeds of Neocate. She was then placed on supplemental fluids of D7.5 with NaAcetate and KCl added.</p> <p>Heme: Patient had initially been coagulopathic with significant platelet consumption while critically ill with necrotizing enterocolitis and subsequent surgery. She required frequent transfusions of FFP, platelets and PRBCs post-operatively. She was hematologically stable until she became bacteremia again in XXXX, when she again became thrombocytopenic. She remained thrombocytopenic for the remainder of her course, but never required platelet transfusions until the last week of her life. On MM/DD/XXXX, she developed bloody urine. Her coags remained abnormal from that time on and she received multiple transfusions of platelets, FFP and PRBCs in that last week. On MM/DD/XXXX, she developed GI bleeding with blood streaked emesis and stool. Later that night when she was intubated, she had pulmonary hemorrhage.</p> <p>Neuro: A HUS on MM/DD/2005 showed small bilateral subependymal hemorrhages with cystic change on the left and a small choroid plexus cyst on the left, decreased gyration consistent with her history of prematurity. Patient had been receiving physical and occupational therapy for development of motor skills.</p> <p>Immunizations: Patient received her 2 month immunizations, including Pediarix, Hib and Prevnar, on MM/DD/2005. She received her 4 month immunizations on MM/DD/2005.</p> <p>ABR hearing screen: Passed ABR at 35 dB bilaterally on MM/DD/2005.</p> <p>Newborn screen: Sent on MM/DD/XXXX, with results of a low 74 with a normal TSH, normal CAH and PKU, but invalid hemoglobin and galactosemia screen secondary to transfusion. Repeat thyroid studies demonstrated a free T4 of 1.6 and a TSH of 2.7 which were both normal.</p> <p>Social: Mother is XXXX</p> <p>Diagnosis:</p> <ul style="list-style-type: none"> • Prematurity, 32-4/7 week EGA • NEC status post segmental resection • Jejunostomy status post takedown and bowel reanastomosis • Antral dysmotility with moderate gastric outlet obstruction, with markedly dilated segments of small bowel separated by at least 3 strictures • Bilateral subependymal hemorrhages • Hypotension, resolved • Pulmonary immaturity, resolved • Malabsorption secondary to short bowel • Cholestatic liver disease /Hepatic failure 	

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		<ul style="list-style-type: none"> • E-coli/Klebsiella/Enterococcus bacteremia and meningitis. • Coagulopathy bleeding in urinary tract, GI tract and pulmonary hemorrhage 	
MM/DD/2005	XXXX	<p>Death certificate:</p> <p>Date of death: MM/DD/2005</p> <p>Cause of death:</p> <ul style="list-style-type: none"> • Cardiopulmonary failure • Liver failure • Short gut syndrome • Prematurity <p>Manner: Natural</p>	917

TRIVENT LEGAL