

MEDICAL REVIEW AND SUMMARY CONCERNING MAGGIE XXXX

07/01/98

ADMISSION
CHILDREN'S HOSPITAL

07/01/98

VIDEO EEG MONITORING
HOLLY XXXX, M.D.
(p. 24)

The video EEG monitoring is abnormal due to the presence of moderate to severe generalized slowing, which is greater over the right hemisphere than the left hemisphere. There are no epileptiform abnormalities seen.

07/02/98

OPERATIVE REPORT
(p. 40-41)

Preoperative Diagnosis: Newborn with myelomeningocele.
Postoperative Diagnosis: Same.

Procedure: Closure of giant lumbar myelomeningocele.

Surgeon: Dr. Paul XXXX.

Assistant: Dr. Hake XXXXX.

07/08/98

DISCHARGE SUMMARY

JOSEPH XXXXX, M.D.

(p. 31-33)

Principal Diagnosis: 1. Myelomeningocele.

Other Diagnoses:

1. Term birth, living child.
2. Rule out sepsis.
3. Ventriculoseptal defect.
4. Rule out neurogenic bladder.
5. Bilateral calcaneal valgus deformity.

Principal Procedure: Closure of myelomeningocele by Dr. XXXX.

Baby Girl Long was born at 39 weeks to a 26-year-old gravida II para I mother. Delivery was elective cesarian section for prenatally diagnosed myelomeningocele. Apgar's were 8 and 9. She received oxygen stimulation, along with nasopharyngeal and oropharyngeal suctioning, and was transported to the Neonatal Intensive Care Unit for stabilization. Arrangements were made for transport to Children's Hospital of Alabama.

Problem List:

1. Term birth, living child.
2. Lumbar myelomeningocele. Head ultrasound on 07/02/98 revealed no hydrocephalus or evidence of Chiari malformation. Later that day, she underwent lumbar myelomeningocele repair by Dr. XXXXb. She had no perioperative or postoperative complications. Head ultrasound 07/06/98 revealed ventricular size within normal limits.
3. Cardiac: On admission to Children's Hospital, grade 2/6 systolic murmur was noted. Echocardiogram revealed normal heart with persistence of neonatal high TA pressure and resistance. Normal anatomy. Follow-up ultrasound prior to discharge because of persistence of murmur revealed an apical muscle ventriculoseptal defect.

4. Rule out sepsis. Infant was treated empirically with Ampecillin and Gentamycin for 48 hours. Amoxicillin was begun orally for urinary tract infection prophylaxis.
5. Urologic: Renal ultrasound 07/02/98 revealed mild to moderate collecting system enlargement with an empty bladder. Possible ureteropelvic junction obstruction. Voiding cistourethrogram on 07/06/98 showed no reflux.
6. Orthopedic: Hip ultrasound 07/06/98 revealed GRAF-1 on left side, GRAF-2A on the right (GRAF-1 is within normal limits; GRAF-2 is an immature hip and can be normal). She does not appear to have a club foot, but does have bilateral calcaneal valgus deformity.
7. Infant was maintained on I.V. fluids. Perioperatively, feedings were initiated without difficulty.
8. Health maintenance: Hearing screen was done on 07/06/98 and passed bilaterally.

07/14/98 **ADMISSION**
CHILDREN'S HOSPITAL

07/14/98 **OPERATIVE REPORT**
(p. 98-99)

Preoperative Diagnosis: Hydrocephalus.
Procedure: Insertion of ventriculoperitoneal shunt.

Surgeon: Dr. Paul XXXX.
Assistant: Dr. Hake XXXXXXXX.

07/15/98

DISCHARGE SUMMARY
PAUL XXXX, M.D.
(p. 94-95)

- Diagnosis:**
1. Myelomeningocele with hydrocephalus.
 2. Right frontal ventriculostomy placement.

Infant born with a myelomeningocele, closed by Dr. XXXX. Patient had no evidence of progressive increase in head circumference. She was therefore discharged home. Patient returned to Dr. XXXX's office, at which time she was noted to have fluid collection and swelling around the closure site. Head circumference was noted to be 36 cm, increased from 34.5 at the time of discharge. The fontanelle was full with mildly dilated scalp veins. She had lower extremity movement except for plantar flexion. She was admitted to the hospital and underwent surgery. Postoperatively, patient was observed on the regular floor with a benign hospital course. She was discharged home in stable condition.

07/24/98

ADMISSION
CHILDREN'S HOSPITAL

08/01/98

DISCHARGE SUMMARY
LEEANN XXXXXXXX, M.D.
(p. 103-104)

- Diagnoses:**
1. Rule out shunt malformation and infection.
 2. Ventriculoseptal defect.
 3. Status post ventriculoperitoneal shunt.
 4. Status post myelomeningocele repair.
 5. Diaper dermatitis.

- Procedure:**
1. Ventriculoperitoneal shunt tap.
 2. Intravenous antibiotics.
 3. Blood, urine and cerebrospinal fluid cultures.

Patient was readmitted to the hospital on 07/14/98 for shunt repair. She did well and was discharged home. She was readmitted to the hospital on 07/24 with complaint of fever and irritability. Work-up revealed no shunt

malformation or infection. Cerebrospinal fluid cultures were positive for a pleomorphic gram-positive rod. Neurosurgery felt this was a contaminant. Patient also had a positive blood culture identified as gram-positive cocci. Patient was placed on antibiotics. Cultures were repeated and found to be negative except for blood culture with an organism identified as coagulation-negative Staph, thought to be a contaminant.

01/13/99

CLINIC NOTE
CHILDREN'S HOSPITAL
MICHAEL XXXXX, M.D.
(p. 8)

Maggie is seen in follow-up for low level myelomeningocele. She is now six months of age. Mom's only real complaint is that Maggie's feet are small. She also notes that the left foot turns in more than the right. From the standpoint of development, Maggie is sitting independently when placed there, but she cannot get herself into a sitting position as yet. She scoots on her bottom and rolls both prone to supine and supine to prone. Feet are normal and plantigrade though, as mom notes, slightly small for her overall size. Motor exam is grossly intact, but it is difficult to tell about perhaps slight degrees of weakness of the foot plantar flexors.

03/02/99

OPERATIVE REPORT
(p. 149)

Preoperative Diagnosis: Proximal shunt obstruction.
Postoperative Diagnosis: Same.

Procedure: Revision of ventriculoperitoneal shunt.

Surgeon: Dr. Paul XXXX.

Assistant: Dr. Brad XXXX

Child presents with progressive macrocephaly and an enlarging ventricular system with a ventricular catheter. It appears to have become too short and migrated out of the ventricular space. I removed the Rickham hub from the ventricular catheter. There was very poor flow of cerebrospinal fluid. I removed the ventricular catheter enough so through the shunt track came a brisk flow of clear cerebrospinal fluid. We advanced the new catheter down the track to a length of 6.25 cm. This had brisk return of clear cerebrospinal

fluid. We then checked the distal run-off through the valve and tubing. It equilibrated into single digits by manometry. I was pleased with this.

04/07/99

CT OF THE HEAD
CHARLES XXXXX, M.D.
(p. 22-23)

Rule out shunt malfunction. Persistent moderate dilation of the third and lateral ventricles. Findings could represent shunt malfunction and clinical correlation will be needed. Findings were discussed with Dr. Paul XXXX.

04/07/99

PEDIATRIC NEUROSURGERY
CHILDREN'S
PAUL XXXX, M.D.
(p. 10)

Maggie returns today after having fallen and struck her head, with some swelling around the Rickham reservoir and right coronal area. On examination, she is happy, smiling and playful. There is some prominence to the veins and the fontanelle is full. There is a little bit of fluid around the Rickham reservoir. Her occipital frontal circumference is 47 cm, which is greater than it was postoperatively a month ago at 46.25. I went ahead and obtained a CT scan and it shows her ventricular size has really not come down. My suspicion is that the ventricular catheter is probably caught in some scar tissue from where her original shunt was and she would benefit from replacing the ventricular catheter elsewhere in the ventricular system. I discussed this with the family. We will plan on doing endoscopic shunt revision later this week.

04/09/99

ADMISSION
CHILDREN'S HOSPITAL

04/09/99

PHYSICIAN'S ORDERS
(p.)

0732 hours: To Neurosurgery - Dr. XXXXb. Status post shunt revision. Vital signs every 4 hours with neuro changes. Activity ad lib with supervision. No known Allergies. Regular diet. IV D5.45 at 40 cc hour. Tylenol 100 mg orally/rectum every 4 hours as needed for pain; Temp greater than 101 degrees. Tigan 50 mg per rectum every 6 hours as needed for nausea and vomiting. Vancomycin 150 mg IV every 8 hours for three

doses then discharge - No peak and trough. Bactrim per home dose. Anterior posterior lateral skull x-ray in ER.

04/09/99 **PHYSICIAN'S ORDERS**
(p.)

0815 hours: Demerol 5-10mg IV in PACU for pain.

04/09/99 **NURSING** **ADMISSION**
ASSESSMENT
(p. 196)

0945 hours: Temp 97.4, pulse 156, respirations 36. Usual source of health care is Dr. Carter. Patient takes Bactrim 5 cc daily. Isomil for formula. Infant has no normal sleep problems, no problems with elimination. Development is normal. There are no physical limitations.

04/09/99 **HISTORY AND PHYSICAL**
(p. 157)

Patient admitted. No change in ventricular size. Catheter in suboptimal position. Plan is for surgery.

04/09/99 **OPERATIVE REPORT**
(p. 163)

Operation: Endoscopic revision of ventriculoperitoneal shunt.
Attending Surgeon: Dr. Paul XXXX.
Assistant: Dr. Ravish XXXXX.

Preoperative Diagnosis: Shunt obstruction.

Four to six weeks ago, child underwent revision of ventricular catheter and now presents with still progressive head size, a full fontanelle and fluid around the Rickham. The coronal incision was reopened on the right side. Soft tissues were dissected from the Rickham hub. I disconnected the Rickham hub from the ventricular catheter and there was no flow of cerebrospinal fluid from the ventricular catheter. I then checked distal run-off through the system and it was fine. We then removed the ventricular catheter and placed a new ventricular catheter with the aid of an endoscope and excellent visualization of the foramen of Monro. Upon removing the

endoscope, we had brisk clear cerebrospinal fluid.

04/09/99 **NURSE'S NOTES**
P. XXX, R.N.
(p. 199)

0950 hours: Received nine-month-old white female from PACU via stretcher with nurse at bedside. Vital signs stable. Dressing to right scalp dry and intact with no visible drainage noted. Pupils are equal and reactive at 3 mm I.V. to left foot is infusing fluids as ordered without problems. Parents informed of plan of care.

1000 hours: Patient offered Pedialyte.

1130 hours: Patient had emesis episode.

04/09/99 **NURSE'S NOTES**
(p. 199)

1355 hours: 100 mg of Tylenol orally for discomfort.

04/09/99 **NURSE'S NOTES**
P. XXXXXX, R.N.
(p. 199)

1400 hours: Patient is awake. Slightly irritable, but calmed by mom. Patient refuses medication - bottle. No change from initial assessment.

04/09/99 **NURSE'S NOTES**
K. XXXXX, R.N.
(p. 199)

1500 hours: Patient in mom's arms. Assessment complete. Dressing to right scalp dry and intact. No drainage noted. Patient smiling and laughing. Moving all extremities well.

1800 hours: Mom holding patient. Assessment complete. Right scalp dressing dry and intact. No drainage noted.

04/09/99 **PHYSICIAN'S PROGRESS NOTE**
PAUL XXXXB, M.D.

Brief operative note
Ventricular catheter placement of ventriculoperitoneal shunt with good

RABISH XXXXX, M.D.
(p. 169)

distal run-off under endoscopic guidance. No complications.

04/09/99 **NURSE'S NOTES**
P. XXXX, R.N.
(p. 199)

2015 hours: Parents informed of discharge tomorrow and I.V. to heparin lock. Parents voiced understanding of discharge plan. No complaints of headache or pain. Neuro intact.

2200 hours: Asleep without complaints of pain. Saturations 97% on six liters.

2325 hours: Patient woke up shaking. Having a chill. Temp 101 axillary. Temp 103 rectal. Tylenol 100 mg given orally for fever - 101 axillary. Light blanket applied.

2335 hours: Tepid sponge bath given.

2340 hours: Saturation 86%. Heart rate 230. Patient looks like she might start seizing. Dr. XXXXXXXXX paged. Oxygen applied, 6 liters, by facial mask.

04/09/99 **CARDIORESPIRATORY**
RESUSCITATION RECORD
(p. 158)

2342 hours: Heart rate 223. Oxygen saturation 99%.

04/09/99 **NURSE'S NOTES**
P. XXXXX, R.N.
(p. 199)

2345 hours: Patient started seizing on left side. Eyes deviated to left.

2350 hours: Saturation 97% on six liters. Still seizing on left size. Eyes deviated to left.

04/10/99

**CARDIORESPIRATORY
RESUSCITATION RECORD**

(p. 158)

2350 hours: Team arrived. Oxygen saturation 99%.

04/09/99

NURSE'S NOTES

04/10/99

P. XXXX, R.N.

(p. 199)

2355 hours: Sponge bath given. Still seizing.

0010 hours: Temp 101.3 rectal. 100.3 axillary.

0013 hours: Dr. XXXXXXXXX paged again. Patient still seizing. PNR. Seizure is harder. Saturations 87%. Heart rate 250. Can't get blood pressure.

0020 hours: Temp 101.3 axillary. Saturation 79%. Ativan 0.2 mg I.V. given for seizure.

04/10/99

**PHYSICIAN'S ORDERS
XXXXX/P. XXX, RN**

(p.)

0020 hours: Place Oximeter on patient. Use oxygen as needed. Give Ativan 0.2mg IV now.

04/10/99

**PHYSICIAN'S ORDERS
XXXXX/P. XXXX, RN**

(p.)

0025 hours: Ativan 2 mg at bedside for MD.

04/10/99

**NURSE'S NOTES
P. XXXXX, R.N.**

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0025 hours: Dr. XXXX in room. More Ativan given for seizure.

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0030 hours: Ativan 0.25 IV given for seizure. Saturation 95%. Heart rate 230. Oxygen at 6 liters.

04/10/99 **NURSE'S NOTES**
(p. 199)

04/10/99 **NURSE'S NOTES**
P. XXXXX, R.N.
(p. 200)

04/10/99 **NURSE'S NOTES**
(p. 199)

04/10/99 **NURSE'S NOTES**
P. XXXXX, R.N.
(p. 200)

04/10/99 **NURSE'S NOTES**
(p. 199)

04/10/99 **NURSE'S NOTES**
P. XXXXX, R.N.
(p. 200)

04/10/99 **NURSE'S NOTES**

0034 hours: More Ativan given. Still seizing.

0035 hours: Ativan 0.25 IV given for seizure.

0040 hours: Ativan 0.5 IV given for seizure.

0040 hours: Saturation 100%. Heart rate 234. More Ativan given.

0042 hours: Ativan 0.5 IV given for seizure.

0042 hours: Saturation 99%. Heart rate 223. More Ativan given. Mouth suctioned. Dr. XXXXX attempted to intubate patient.

0050 hours: Seizure stopped.

0050 hours: Seizure stopped. Code team arrived. Intubation unsuccessful by Dr. XXXXXXXXX.

0100 hours: Nursing supervisor with parents.

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04/10/99 **CARDIORESPIRATORY**
RESUSCITATION RECORD
(p. 158)

0100 hours: Heart rate 201.

0105 hours: Norcuron 1.5 mg I.V. Versed 0.5 mg I.V. Heart rate 202.
Blood pressure 67/21. Oximeter 92%.

04/10/99 **NURSE'S NOTES**
(p. 199)

0105 hours: Norcuron 1.5 mg, Versed 0.5 mg I.V. given for intubation.

04/10/99 **ANESTHESIA NOTE**
RICHARD XXX, M.D.
(p. 169)

0110 hours: Called to see patient who had ventriculoperitoneal shunt yesterday. Had an episode of status epilepticus treated with I.V. Ativan 2 mg. Her respiratory status deteriorated and positive pressure ventilation with 100% oxygen was instituted. Intubated with #4.0. Given Norcuron (medication to paralyze) 1.5 mg and Versed (for sedation) 5 mg I.V. Intubated atraumatic. One attempt. Taped at 11 cm. Cuff inflated.

Transported to PICU. Oxygen sats staying low 90's, high 80's on 100% oxygen. Suspect negative pressure pulmonary edema.

04/10/99 **CARDIORESPIRATORY**
RESUSCITATION RECORD
(p. 158)

0110 hours: Heart rate 195. Oximeter 94%. Endotracheal tube placed.

04/10/99 **NURSE'S NOTES**
P. XXXXX, R.N.

0110 hours: Endotracheal tube placed - 4.0, 11 cm, by Dr. XXXX.
Patient bagged with oxygen saturation 94%.

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04/10/99 **CARDIORESPIRATORY**
RESUSCITATION RECORD
(p. 158)

0115 hours: Oral gastric tube placed.

0115 hours: Heart rate 197. Blood pressure 64/30. Oximeter 95%.
Nasogastric tube placed.

0120 hours: Heart rate 199. Oximeter 96%. Will attempt shunt tap.

04/10/99 **NURSE'S NOTES**
P. XXXXX, R.N.
(p. 200)

0120 hours: Dr. XXXXXXXXX attempted to tap shunt.

04/10/99 **NURSE'S NOTES**
(p. 199)

0120 hours: Parents voice understanding. Patient to be transferred to Peds
ICU.

04/10/99 **CARDIORESPIRATORY**
RESUSCITATION RECORD
(p. 158)

0122 hours: Attempted to shunt tap.

0123 hours: Heart rate 198. Blood pressure 59/34. Oximeter 96.

0128 hours: Heart 178. Blood pressure 64/34. Oximeter 95.

04/10/99 **NURSE'S NOTES**
P. XXXXX, R.N.
(p. 200)

0130 hours: Report called to PICU nurse.

04/10/99 **PHYSICIAN'S PROGRESS NOTE**
A. XXXXXX, M.D.

0130 hours: Maggie is a nine-month-old white female with spina bifida
and VSD who had a shunt revision earlier today. While on the floor

(p. 170-171)

tonight, she had a fever of 103 and soon after, starting seizing. The seizure lasted about 30 minutes. Received Ativan on the floor, resulting in respiratory depression and low oxygen saturation.

On my arrival to room, patient was not seizing. Had increased work of breathing with some perioral cyanosis. Could be bagged to a pink color. Anesthesia had been called to the bedside and made decision to intubate. Norcuron and Versed given. Intubated with a 4.0 endotracheal tube, with good chest rise.

Dr. XXXXXXXX performed a tap of the shunt which did not reveal any increased intracranial pressure. She had a stat CT done which showed a small intraventricular hemorrhage and left temporal edema. She was then transferred to PICU. No history of seizures. No in-and-out catheterizations.

Temp 103.3, pulse 205, respirations 27, blood pressure 94/93. Intubated. Sedated. Paralyzed. Surgical site without drainage. Pupils 3 mm and reactive.

Impression: 1. Nine-month-old with spina bifida status post shunt revision, status post status epilepticus with respiratory distress and fever.

Plan:

1. Respiratory: Maintain on ventilator until sedative/paralytics wear off, then plan to extubate. Chest x-ray pending.
2. Cardiovascular: Dynamically stable.
3. Infectious Disease: With fever. VSD VUR. Will check urine, blood, cultures. Continue on Vancomycin and Bactrim prophylaxis.
4. Neuro: Possible combination of febrile seizure and irritation status post manipulation. Will treat further seizures symptomatically per Neurosurgery to try and control the fever.
5. Nothing by mouth. Maintain I.V. fluids.

Addendum:

Chest x-ray without evidence of pneumonia or aspiration.
Endotracheal tube in good position.

04/10/99 **NURSE'S NOTES**
P. XXXXX, R.N.
(p. 200)

0132 hours: Patient in bed to PICU.

04/10/99 **CARDIORESPIRATORY**
RESUSCITATION RECORD
(p. 158)

0132 hours: Transferred to Peds ICU.

Clinical Outcome: Stabilized.

Time of seizure: 2335 hours:

Location: 3 East-302.

Intubated: 0110 hours: - Richard XXXX.

Type of arrest: Respiratory.

Physicians present: Dr. XXXXXXXXX, Dr. Hartig, Dr. XXXX and Dr. XXXXXXXX.

Nurses present: Jason XXXXXXXX, R.N.

Recorder's Signature: Penny XXXXX, R.N.

04/10/99 **NURSE'S NOTES**
G. XXXXXX, R.N.
(p. 202)

0135 hours: Received nine-month-old female in PICU, bed space #6, from 3-East. Assessment completed per floor sheet.

0140 hours: Preparing for transport to CT scan. Connected to transport monitor. Respiratory Therapy bagging with 100% oxygen.

04/10/99 **NURSE'S NOTES**
(p. 201)

0140 hours: To CT scan.

04/10/99 **CT OF THE HEAD**
CHARLES XXXXXX, M.D.
(p. 275-276)

1. Postoperative changes with intracranial catheter appearing continuous with the cranial extracavillarial component. Interval change in size of lateral ventricles.
2. Question of mild edematous change throughout the inferior left temporal parietal lobe.

Findings discussed with Dr. XXXXXXXX.

04/10/99 **NURSE'S NOTES**
G. XXXX, R.N.
(p. 202)

0153 hours: CT scan complete. Back to Peds ICU. Vital signs stable.

0215 hours: Temp 103.3 rectal. Dr. XXXXXXXXX and Dr. XXXXXXXXX at bedside and aware. Tylenol 100 mg given per rectal as ordered. Ice packs applied to axillary and groin areas.

04/10/99 **NURSE'S NOTES**
(p. 201)

0215 hours: Tylenol given per rectum. Ice packs applied.

04/10/99 **NEUROSURGERY** **ON-CALL**
NOTE

0215 hours: Called to evaluate after patient had seizure, acute onset, with temp up to 103 F. Oxygen saturations _____(cut off). Tried to cool down

RABISH XXXXXXXXX, M.D.
(p. 196)

with compresses, Tylenol. Seizure continued for more than ten minutes. Ativan given, with oxygen saturations in the 90's to 100's with head of bed up. Bag mask ventilation. Intubated, with latent drop in oxygen saturation to the 60's. With Anesthesia Services help, paralyzed and sedated. Shunt intraventricular tap without complications. Right, then left ventricular had flow spontaneous, but with decrease pressure and small amount.

CT of head positive left temporal edema and left lateral ventricle intraventricular hemorrhage with ventricular catheter through third ventricle with question tip in the cistern.

- Plan:**
1. Weaning to extubate if stable.
 2. Checking for seizure activity.
 3. Keep temp below 100 F.

04/10/99 **NURSE'S NOTES**
(p. 201)

0220 hours: Chest x-ray done.

04/10/99 **NURSE'S NOTES**
G. XXXXX, R.N.
(p. 202)

0220 hours: Chest x-ray for endotracheal tube placement done. Dr. XXXXXXXX aware.

0225 hours: In-and-out cath done using sterile technique.

0300 hours: Temp now 100.6 rectal.

04/10/99 **NURSE'S NOTES**
(p. 201)

0300 hours: CBC, blood cultures were sent. Cath urine cultures sent.

04/10/99 **NURSE'S NOTES**
G. XXXXX, R.N.
(p. 202)

0335 hours: Parents verbalize understanding of information given.

<u>04/10/99</u>	<u>NURSE'S NOTES</u> (p. 201)	0400 hours: Cooling blanket on.
<u>04/10/99</u>	<u>NURSE'S NOTES</u> <u>G. XXXXX, R.N.</u> (p. 202)	0410 hours: More awake. Gagging on nasogastric tube, endotracheal tube. Large amounts of formula like emesis noted. Dr. XXXXXXXX aware. 0450 hours: Extubated to room air. Oxygen saturation 96-97%. Bilateral breath sounds equal, coarse. Moving air well.
<u>04/10/99</u>	<u>NURSE'S NOTES</u> (p. 201)	0450 hours: FIO ₂ down to 50%. Extubated to room air.
<u>04/10/99</u>	<u>NURSE'S NOTES</u> <u>G. XXXXX, R.N.</u> (p. 202)	0500 hours: Pupils equal with left > right. Both briskly reactive. Mom states has one pupil that is greater than the other at times. The left one is the one that is sometimes bigger.
<u>04/10/99</u>	<u>NURSE'S NOTES</u> (p. 201)	0510 hours: Placed on oxygen at two liters nasal cannula.
<u>04/10/99</u>	<u>NURSE'S NOTES</u> <u>G. XXXXX, R.N.</u> (p. 202)	0510 hours: Oxygen saturation 88%. Placed on oxygen at two liters nasal cannula. Oxygen saturations up to 100%. 0530 hours: Respiratory rate 50's. Oxygen saturation 98-100%.
<u>04/10/99</u>	<u>SHIFT SUMMARY</u> <u>G. XXXXX, R.N.</u> (p. 202)	0630 hours: Patient opens eyes spontaneously. Pupils equal at present, but left larger than right at times. Both pupils briskly reactive. Positive focus. Few grunting noises noted. No seizure activity. Moves all extremities well. Heart rate 160 to lower 200's. Mean arterial pressure mostly 50's and 60's. Extremities cool. Peripheral I.V. infusing without complications. Oxygen at two liters nasal cannula. Respirations in the 40's-50's at

present.

Mild substernal retractions noted. Bilateral breath sounds coarse and equal. Emesis x6 from gagging on endotracheal tube. Flushed nasogastric tube. Adequate urine output. Temp max 103.3 rectal. Received Tylenol, one dose.

04/10/99 **CRITICAL CARE NOTE**
(p. 173)

Nine-month-old who developed prolonged seizure with respiratory compromise, prompting intubation. Transferred to Peds ICU. Extubated early this morning. Respiratory rate 40-50 per minute with mild inspiratory stridor. Otherwise, unlabored. Coarse breath sounds, but good air entry and equal breath sounds bilaterally. Chest x-ray with clear lung fields except for mild retrocardiac density and probable atelectasis (collapse).

Hemodynamically stable. Patient obtunded with arousal to deep pain and purposeful withdrawal. EEGs without evidence of seizure activity. Cultures pending.

04/10/99 **PICU FLOW SHEET**
(p. 205)

0700 hours: Glasgow Coma score 11.

04/10/99 **PHYSICIAN'S PROGRESS NOTE**
A. XXXXXXXX, M.D.
(p. 172)

0730 hours: Extubated this morning. Oxygen saturations 98-100% on two liters. Emesis x6 with suctioning. Generally sleepy, but arousable.

- Plan:**
1. Extubated early this morning to nasal cannula. Mildly tachypneic (rapid respirations, but no distress).
 2. Hemodynamically stable.
 3. Maintain on I.V. fluids.
 4. Blood cultures, urine cultures pending. On Vancomycin.
 5. Question febrile. No focus of infection. No further seizures.

04/10/99 **PHYSICIAN'S PROGRESS NOTE**
RABISH XXXXXXXX, M.D.
(p. 173)

0754 hours: Doing okay. Awake and alert. Extubated. No seizure activity.

04/10/99 **CONSULTATION**

Consultation with Neurology due to seizures. Requested by Dr. Paul XXXX.

DR. XXXXX
(p. 159)

Report of Consultant

On 04/09/99, under endoscopic guidance at shunt revision last night, she had a high fever at 103 F and had a very prolonged seizure (left to _____), Sats were down to 80%. Child was given Ativan and paralyzed, followed by intubation. She received last dose of Ativan today at 4:00 AM. She was intubated, following which there were no further seizures. CT shows left temporal edema with left ventricular hemorrhage. Catheter tip in ventricle. Source of fever is pulmonary. Other problems: Hip dislocated, club foot. Heart rate 150. Saturation 99%. Respiratory rate 30. Head circumference 47. Medications: Tylenol, Tigan (for nausea and vomiting), Vancomycin (antibiotic), Bactrim (antibiotic) and Decadron (steroid anti-inflammatory). Appears to be asleep. Extremities flaccid. No definite movement of legs to foot stimulation (patient could be under sedation). Moving all the extremities spontaneously.

Assessment: Patient had status epilepticus (left focal motor seizure).

EEG today. Impaired response. Could be due to post-ictal (post seizure) sedation. Loaded with phenobarbital. EEG shows generalized burst of slow wave activity with background suppression.

04/10/99 **PHYSICIAN'S PROGRESS NOTE**
(p. 172)

1440 hours: Spoke to Dr. XXXXXXXX, Neurosurgery, because of concern secondary to fever. Focal seizure lasting about one hour after shunt revision and no cerebrospinal fluid collected for culture. Chest x-ray x2 without infiltrates or atelectasis. Urine normal. Cultures pending for blood. Currently, no other source. Dr. XXXXXXXX explains too early since revision yesterday to be shunted. In fact, will continue to encourage Neurosurgery to tap shunt for cultures, especially if re-seizures or continued febrile spike.

04/10/99 **PICU FLOW SHEET**
(p. 205)

2000 hours: Glasgow Coma score 9.

04/10/99 **CT OF THE HEAD**
WOGINDER XXXXXX, M.D.
(p. 277-278)

2144 hours: There has been a slight increase in the size of the ventricles and a decrease in the amount of intraventricular clot. There has been no significant interval change since the study of 0150 hours on this same date.

04/11/99 PICU FLOW SHEET
(p. 205)

0200 hours: Glasgow Coma score 10.

04/11/99 PICU FLOW SHEET
(p. 205)

0500 hours: Glasgow Coma score 12.

04/11/99 PICU FLOW SHEET
(p. 205)

0600 hours: Glasgow Coma score 13.

04/11/99 NEUROLOGY NOTE
DR. XXXXXX
(p. 174)

Patient had left-sided seizure Friday PM. Patient given Ativan, which stopped seizure, although seizure apparently went on for at least 30 minutes prior to giving Ativan and continued after Ativan, with patient subsequently paralyzed and sedated, then given additional Ativan. CT reported to show intraventricular hemorrhage, but I am unable to locate CT this morning. Was seen by Neurosurgery. EEG yesterday showed proximal slow and some spike and sharp waves, but no ongoing seizure activity. Patient was also febrile to 103 at onset of seizure.

On exam, infant is encephalopathic/asleep. When does respond, cries appropriately. Moves all extremities. Decreased tone throughout. More with lower extremities, which is baseline.

Impression: Nine-month-old with MMC status post focal seizure associated with fever to 103 and reported intraventricular hemorrhage. Patient's current clinical picture most likely secondary to sedative effects of medication and prolonged seizure.

Recommend close observation and question source of fever. Would load with phenobarbital for further clinical seizures. Seizure education provided to patient's mother.

04/12/99 NEUROLOGY NOTE
XXXXXX, M.D.

No seizures. Doing well. Afebrile. Chest x-ray - infiltration/atelectasis. Moving all four extremities symmetrical. Focal status epilepticus. No recurrence of seizures. Neuro now

(p. 176)

non-focal.

04/13/99

NEUROLOGY NOTE

XXXXXX, M.D.

(p. 177)

Episodes witnessed. _____ very brisk. Posturing of left hand and leg with mild clonic jerking, brief and frequent. EEG symmetrical background. Slow motor. No seizure activity. Preliminary report.

Impression: Focal seizure, tonic/clonic.

Load with phenobarbital.

04/13/99

SPINA BIFIDA CLINIC

CHILDREN'S HOSPITAL ALABAMA

LOUIS XXXX, M.D.

(p. 9)

Maggie is on prophylactic antibiotics, but no bladder catheterization. She has not had any urinary tract infections, despite having bilateral Grade 2 reflux in her last urodynamics. Renal ultrasound today showed normal growth of kidneys.

She will return in six to ten months for video urodynamics to see if her reflux has improved and to determine if her bladder pressures are still reasonable. Of note, she is moving her lower extremities quite nicely.

04/14/99

PHYSICIAN'S PROGRESS NOTE

ALAN XXXX, M.D.

(p. 178)

Patient has had a series of focal partial seizures which have generalized on occasion. She has had continuing seizures throughout the night, despite being loaded on phenobarbital with a level of 25.

The plan is to increase the phenobarbital to 30 mg twice a day, and give her a 5 mg per kg bolus. She is also continuing not to move the left side as much, particularly the left upper extremity, but does have some movement today, which is better than yesterday. We plan to burst the phenobarbital to the effective level, with current target being between 35-40.

04/15/99

NEUROLOGY NOTE

XXXXXX, M.D.

(p. 182)

Had two seizures yesterday at 6:00 PM. Received an extra dose of phenobarbital. Afebrile.

04/16/99

NEUROLOGY NOTE

Seizure-free. Left side weakness improving. Febrile yesterday to 101 F. Afebrile this

XXXXXX, M.D.
(p. 183)

morning. Mom feels child's vision is impaired. Not blinking to threatening stimuli. Ophthalmology consult.

04/16/99 CONSULTATION
ED XXXXXXX, M.D.
(p. 160)

Patient with status epilepticus. Seizure-free for 48 hours. Does not fix and follow. Good brisk pupillary reaction to light. Does not cry with indirect light in eyes. Probably decreased visual acuity, both eyes. Degree of _____ due to compounding factor of motor _____. Possible _____ paralysis of visual cortex that will resolve.

04/17/99 CT OF THE BRAIN
CHRISTOPHER XXXXX, M.D.
(p. 279-280)

Impression: 1. Slight decrease in size of the lateral and fourth ventricles, with the third ventricle being unchanged in size.

2. Resolving hemorrhage within the occipital horn of the left lateral ventricle with no evidence of acute hemorrhage.

3. Patchy areas of low attenuation within the left frontal and right occipital region, suggestive of edema.

04/17/99 NEUROLOGY NOTE
DR. XXXXXX
(p. 184)

No further seizures overnight. Phenobarbital level is 40. She is more alert; however, has minimal evidence of fixing and following, and has clear evidence of a left hemiparesis. She does withdraw on the left foot. Her left palpebral fissure is widened and she has only slight movement of her left upper extremity. Recommend physical therapy and ophthalmologic assessment regarding her vision.

04/17/99 PHYSICIAN'S PROGRESS NOTE
(p. 184)

1000 hours: No seizures overnight. Moving left upper extremity slightly more vigorously today. However, still has persistent weakness of left upper extremity. Appeared to be more aware of surroundings and turns eyes laterally to approaching fingers. Improving gradually.

04/17/99 NEUROLOGY ON-CALL NOTE
(p. 185)

1140 hours: Called to bedside for decreased level of consciousness. Eye deviation to the left and tonic posture on the left. Ativan 0.5 mg I.V. given. Child somnolent, but arousable. Responds to noxious stimuli. Eye deviation slight to the left, but extraocular movement intact. Decreased tone, left upper and lower extremity. Moves left upper

extremity 5/5 proximal, 3/5 distal. Left lower extremity 3/5. Probable breakthrough seizure.

04/18/99 NEUROSURGERY ON-CALL NOTE
(p. 185)

1340 hours: Called to bedside for seizure again despite oral bolus of phenobarbital. Responded to Ativan x1.

Impression: Breakthrough seizures. Positive doll's eyes.

04/18/99 PHYSICIAN'S PROGRESS NOTE
XXXXX, M.D.
(p. 186)

No more seizures after given I.V. Ativan x2 and additional loading dose of phenobarbital.

04/19/99 PHYSICIAN'S PROGRESS NOTE
(p. 187)

No seizures since Saturday afternoon. Phenobarbital level 53 yesterday. Clinically, still has left hemiparesis with increased tone, without tonic of movement. No visual tracking yet, per mom. Waking up some yesterday.

04/19/99 CONSULTATION
XXXX, M.D.
(p. 161)

No vision. No response to light or threat, either eye. Pupils normal. Motility full. Left hemiparesis.

Impression: 1. Cortical blindness after status epilepticus. Visual evoked response if no improvement at age one year.

04/19/99 OCCUPATIONAL THERAPY
FRAN XXXXXX
(p. 187)

Saw patient this afternoon after transfer to 4 West for seizure monitoring. Patient is exhibiting decrease tone in left upper extremity. Overt Friday, but still minimal movement. She is not responding to stimulation on left side of face consistently, nor blinking to threat. She did exhibit some rooting, holding pacifier in mouth better.

04/20/99 PHYSICIAN'S PROGRESS NOTE
XXXXXX, M.D.
(p. 188)

No visual tracking still, per mom. Moving left upper extremity, lower extremity better against gravity.

<u>04/22/99</u>	<u>PHYSICIAN'S PROGRESS NOTE</u> (p. 190)	Clinically unchanged. Left hemiparesis. No visual tracking. Stroke evaluation pending. Hypercoagulable study. Echocardiography. MRI of the head.
<u>04/22/99</u>	<u>CONSULTATION</u> <u>XXXX, M.D.</u> (p. 162)	Patient with probable CVA status post surgery. I have no studies or reports documenting CVA in patients with VSD. The natural history of both lesions is spontaneous closure. If source of CVA..... <i>cut off</i>
<u>04/22/99</u>	<u>MRI OF THE BRAIN</u> <u>CHRISTOPHER XXXX, M.D.</u> (p. 25-26)	Clinical Information: 9-month-old with history of meningeal myelocele with apparent shunted hydrocephalus. MR is requested for further evaluation of possible stroke. Comparison is made with CT of 04/20/99 which demonstrated low density white matter in the right hemisphere. Impression: Persistent increased T2 white matter signal as described, which may represent evolution of white matter edema. No discrete infarct and a focal vascular distribution is appreciated at this time.
<u>04/23/99</u>	<u>OCCUPATIONAL THERAPY</u> <u>DISCHARGE SUMMARY</u> <u>FRAN XXXXXX</u> (p. 191)	Maggie has been followed for work on left hemiparesis. While inpatient, we were unable to fabricate a splint for the left wrist to this point secondary to I.V. placement. She continues to not exhibit movement purposeful of left upper extremity, although some non-purposeful movement was noted while asleep. She is stretching while asleep and she has full passive range of motion easily. Her vision continues to be an obstacle as motivation and initiation of movement is difficult. Head control is better now with attempts at active neck extension and maintaining midline for two to three seconds. Assessment: Some improvement of head control, but other goals not met secondary to discharge and number of procedures and exams while in-house which limited therapy to two to three times per week.
<u>04/23/99</u>	<u>DISCHARGE SUMMARY</u> <u>PAUL XXXXB, M.D.</u>	Principal Diagnosis: 1. Suboptimally positioned

ventriculoperitoneal shunt.

2. Hospital course complicated by status epilepticus and multiple seizures.

Primary Procedure: Revision of ventriculoperitoneal shunt under endoscopic guidance.

This is a nine-month-old female with a history of spinal bifida and myelomeningocele, with VP shunt placed approximately ten days following her birth, with the last shunt revision on 03/01/99. She had a subdural hematoma noted with shunt in a suboptimal position.

The physical examination revealed no obvious significant neurologic deficits. CT of the head was unremarkable for any increase in ventricular size. However, the ventricular catheter appeared to be in a suboptimal position, stopping just short of the optimal ventricular position near the foramen of Monro.

Overall, the patient was felt to be a candidate for revision given the suboptimal shunt placement as it appeared at this time.

Hospital Course: Following admission, the patient underwent the above procedure - namely, VP shunt placement - and was noted to have no significant complications as a result of this that were evident immediately postoperatively. She was doing well until the night following the operation, whereupon she was noted to suffer status epilepticus which did not clearly resolve despite multiple doses of Ativan. She required intubation and a CT scan was urgently performed. This showed some mild intraventricular hemorrhage and a catheter was placed in the position where it drained - it appeared both the third ventricle and lateral ventricles. However, she did not have apparent evidence of shunt problem with this. The patient had been paralyzed and sedated pharmacologically, and was transferred to the Pediatric ICU.

She was noted to be extubated by the next morning, whereupon she was noted to become progressively brighter. However, during the latter part of the day, she had not returned to her baseline status, and for this reason, another CT was done. This, once again, did not show any significant interval worsening when compared to the previous CT. The patient was kept in Peds ICU at least another 24 hours and following this, she was transferred to the floor. She continued to have less spontaneous movement with respect to the left half of her body. Of note, the left half was reported later by the mother as initially involved with the seizure. That, as mentioned, resulted in her status epilepticus.

The patient continued to have occasional focal motor seizures, with the left greater than the right involved. Neurology was consulted. EEG was done which did not show any ongoing seizure activity. The patient was loaded on phenobarbital, and the dose was progressively increased until the seizure activity subsided and was well controlled.

Meanwhile, the patient continued to improve, although slowly, with respect to oral intake, activity and wound status, such that she was considered to be ready for discharge. Prior to discharge, however, she underwent CT scanning which revealed some hypodensity present in the left temporal region. In addition, the intraventricular hemorrhage that had been noted on the initial scan done following the status epilepticus episode appeared to be resolving.

After the status epilepticus episode, the patient had the shunt tapped which yielded spontaneous flow under low pressure. In addition, this was confirmed with ventricular tap as the patient remained in status at that time.

Meanwhile, returning to her floor status, after which she appeared to improve progressively, the patient was considered to be ready for discharge. However, on the day of her discharge, she was noted to have a rash. For this reason, both Neurology and Dermatology were involved and made recommendations that she be discontinued from taking Bactrim. She had been taking it for quite some time. It was suggested that she be changed to Macrodantin. Finally, she was considered ready for discharge and she was discharged to home. Patient to be started on phenobarbital, to be taken at home per the dose designated by Neurology.

Clinical Information: 9-month-old female with spina bifida status post shunt revision with subsequent seizure, now with hemiparesis.

Impression: Low density abnormality in the right temporal parietal occipital region compatible with a right middle cerebral artery ischemic lesion. I feel this was likely present on 04/17/99. Stable ventricular site status post shunt.

Ten-month-old follow-up SHCP and seizures. Ten-month-old status post meningeal myelocoele, hydrocephalus, ventriculoperitoneal shunt. Discharged from hospital recently. Focal seizures, motor. Had three episodes of seizures. Phenobarb level is 57 following last. On phenobarbital 30 mg twice a day. Lost motor skills and verbal skills. Vision improving. She is awake. Tone increased, upper extremities. Question parity, _____

04/29/99 HEAD CT
MARGARET XXXXXXXX, M.D.
(p. 27-28)

05/05/99 PEDIATRIC NEUROSURGERY
(p. 11-12)

side of body. Recurrent seizures. On phenobarbital. Had a couple of break-through seizures. Cognitive decline.

Continue physical therapy. Continue phenobarbital.

When seizures are stabilized, plan is to switch to Tegretol.

Impression: 1. No abnormal focus of increased nor decreased activity to suggest specific seizure focus.

2. Diffuse symmetric uptake throughout the brain. In particular, no focal decreased activity is seen to suggest a complete infarction.

05/19/99 NUCLEAR MEDICINE BRAIN SPECT
MARGARET XXXXXXXXX, M.D.
(p. 28)

05/19/99 CRANIAL MR
(p. 29)

Since the prior exam, there has been a slight interval increase in size of the lateral ventricles, now moderately enlarged, with a third ventricle as well now moderately prominent in overall volume. The pericerebral fluid spaces bilaterally appeared moderately prominent and moderately more conspicuous than on the prior exam. The lateral ventricles were slightly asymmetric in size, left larger than right, with bilateral white and grey matter thinning.