LVN 132
Supplementary Packet

Table of Contents

Required Skills

Skills Record (Must be returned)

Skills:
! Care of the Patient with a Seizure Disorder
! Care of the Comatose Patient
! Assisting with Central Venous Catheter Insertion
! Dressing Change for Central Venous Catheter
! Physical Assessment of the Abdomen
! Colostomy Irrigation
! Applying Fecal Ostomy Pouch
! Gastronomy Tube Feeding
! Assessment of Skin

Guides:
! Group Leader Guide
! Team Leader - VN Student
! End of Shift Report
! Instructions for Written Assignments
! Content of the Professional Presentation
! Emergency Department
! Pediatric Department
! Intensive Care Unit - VN Student

Neurological Dysfunction

! Range of Motion Glossary: A Word for Every Movement
! Neurological Evaluation
! Skills: Cranial Nerve Check
! The 12 Cranial Nerves
! Glasgow Coma Scale
! Skills Demonstration
! Handout Supplementary Packet

Modular Information:
! The meaning of Blood Values
! Special needs of the Venal Patient
! Kidney Function
! Diuretic Actions
! Small Intestine
! Primary Skin Lesions
! NLN Competencies of Graduate of Nursing Programs c 1981
! New Definition of Nursing Practice
! Events that influenced Nursing Profession
! Evaluation of Theory
! Ethical Issues
! Learning Assignments

Clinical Evaluation LVN 132
### Required Skills

Text: Lynn, Taylor’s Clinical Nursing Skills

<table>
<thead>
<tr>
<th>Module</th>
<th>Skill</th>
</tr>
</thead>
</table>
| A-1    | 1. Demonstrate  
|        | a. Neurological Assessment  
|        | - Level of Consciousness  
|        | - Glasgow Coma Scale  
|        | - Motor Function  
|        | - Reflexes  
|        | - Sensory Function  
|        | - Vital Signs  
| A-2    | 2. Demonstrate  
|        | a. Seizure precautions  
| A-3    | b. Comatose patient care (adult and child)  
|        | - Eye care  
|        | - Core temperature  
|        | - Oral hygiene  
|        | - Level of consciousness  
| B      | 3. Review (self review)  
|        | a. Assisting with bed pan and urinal  
|        | b. Collection of urine specimens  
|        | c. Insertion and irrigation of catheters (intermittent and continuous)  
|        | d. Instilling medications  
|        | e. Cath care  
|        | f. Hemodialysis  
|        | 4. Demonstrate  
|        | a. Physical assessment of the urinary system  
| C      | 5. Review (self-review)  
|        | a. Nutrition and enteral feedings  
|        | b. N/G insertion & instillation  

<table>
<thead>
<tr>
<th>Module</th>
<th>Skill</th>
</tr>
</thead>
</table>
| C (cont.) | 6. Demonstrate  
   a. Physical assessment of the abdomen |
|        | 7. Demonstrate  
   a. Maintaining alternate feedings  
   ***1) TPN  
   ***2) Lipids  
   3) J-Tube feedings  
   4) Gastronomy  
   5) Feeding tube  
   b. Assisting with central vein catheter insertion  
   *** c. Dressing change for central vein catheter  
   *** d. Assisting with central vein catheter removal |
| D | 8. Review (self-review)  
   a. Stool collection, rectal tubes, and enemas |
|        | 9. Verbalize  
   ***a. Care of intestinal decompression tube |
|        | 10. Demonstrate  
   a. Colostomy irrigation, dilation, and care  
   b. Urinary diversion stomal care |
| E | 11. Demonstrate  
   a. Physical assessment of the integument on adult, child and infant |
|        | 12. Review (self-review)  
   a. Maintaining skin integrity  
   b. Hair care  
   c. Treatment of pediculosis  
   d. Perineal care  
   e. Foot care  
   f. Application of topical medications |
Skills Record

<table>
<thead>
<tr>
<th>Students Name</th>
<th>Semester: ______</th>
<th>Year: ______</th>
</tr>
</thead>
</table>

| Required Skill                                                                 | Date Due | Date Passed | Signature of Evaluator | Student=| s Initials |
|-----------------------------------------------------------------------------|----------|-------------|------------------------|--------|
| 1. Neurological Testing                                                    |          |             |                        |        |
| 2. Seizure precautions                                                      |          |             |                        |        |
| 3. Comatose Patient Care                                                   |          |             |                        |        |
| - Eye care                                                                 |          |             |                        |        |
| - Core temperature                                                         |          |             |                        |        |
| - Oral Hygiene                                                             |          |             |                        |        |
| - Level of consciousness                                                   |          |             |                        |        |
| 4. Physical Assessment of the abdomen                                      |          |             |                        |        |
| 5. Monitoring alternate feedings                                           |          |             |                        |        |
| ***a. TPN                                                                  |          |             |                        |        |
| ***b. Lipids                                                               |          |             |                        |        |
| ***c. J-Tube                                                               |          |             |                        |        |
| d. Gastrostomy Feedings                                                    |          |             |                        |        |
| ***6. Central vein catheter site care                                      |          |             |                        |        |
| a. Dressing change                                                         |          |             |                        |        |
| ***7. Assisting with insertion of central vein catheter                    |          |             |                        |        |
| ***8. Assisting with removal of central vein catheter                       |          |             |                        |        |
| ***9. Intestinal decompression tube care                                   |          |             |                        |        |
| 10. Colostomy care, irrigation, dilation                                    |          |             |                        |        |
| 11. Urinary diversion stomal care                                          |          |             |                        |        |

* Skills not required of VN student.
# Skills Demonstration
## Care of the Patient with a Seizure Disorder

<table>
<thead>
<tr>
<th>Students Name</th>
<th>Skill</th>
<th>Demonstrated</th>
<th>Not Demonstrated</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1. Seizure Precaution</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>a. Administer anticonvulsant medication</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>b. Rectal temp.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>c. Pad side rails</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>d. Padded tongue blade</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>e. Suction equipment</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>f. Monitor cardio and respiratory statues</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>g. Provide emotional support</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>2. Nursing care</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>a. Stay with patient</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>b. Lay patient flat and place in side-lying position</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>c. Loosen tight clothing</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>d. Protect patient's head and limbs from injury - don't restrain movements</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>e. Don't force open clenched teeth or tongue blade during seizure</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>f. If seizure continues, get help</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>3. After care</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>a. Ensure airway</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>b. Return to bed</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>c. Check for injury</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>d. Reorient the patient</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>e. Notify doctor</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>f. Document in nurses' notes</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Skills Demonstration
Care of the Comatose Patient

Student=s Name

<table>
<thead>
<tr>
<th>Skill</th>
<th>Demonstrated</th>
<th>Not Demonstrated</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Ensure adequate airway</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Assess neurological status</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Monitor vital sign parameters</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Daily care complications</td>
<td></td>
<td></td>
</tr>
<tr>
<td>a. Integumentary (decubitus ulcers, infection etc)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>b. Muscular system (contractures, atrophy, foot drop) ROM</td>
<td></td>
<td></td>
</tr>
<tr>
<td>c. Gastrointestinal system (stress ulcer, fluids, diet, distention, impaction)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>d. Genitourinary system (bladder distention, urine sediment &amp; color, fluids, cath care)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Special considerations</td>
<td></td>
<td></td>
</tr>
<tr>
<td>a. Don=t discuss patient=s condition at bedside</td>
<td></td>
<td></td>
</tr>
<tr>
<td>b. Inform patient of procedures</td>
<td></td>
<td></td>
</tr>
<tr>
<td>c. Talk to patient, encourage family to do so</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Students Name

<table>
<thead>
<tr>
<th>Skill</th>
<th>Demonstrated</th>
<th>Not Demonstrated</th>
</tr>
</thead>
<tbody>
<tr>
<td>Preparation:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Explained procedure to patient and obtained consent</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Taught patient Valsalva’s maneuver</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Reviewed physician’s order</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Obtained and checked hyperalimentation solution</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Obtained equipment</td>
<td></td>
<td></td>
</tr>
<tr>
<td>a. IV pump</td>
<td></td>
<td></td>
</tr>
<tr>
<td>b. IV-NaCl or D5W 500 cc, tubing with filter, extension tubing</td>
<td></td>
<td></td>
</tr>
<tr>
<td>c. Flushed tubing</td>
<td></td>
<td></td>
</tr>
<tr>
<td>d. Placed IV tubing through pump</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Washed hands-donned mask</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. Prepared equipment on bedside stand</td>
<td></td>
<td></td>
</tr>
<tr>
<td>a. Intracatheter or peripheral line catheter (20 cm - 16 gauge radiopaque)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>b. Betadine, alcohol, acetone swabs/solution</td>
<td></td>
<td></td>
</tr>
<tr>
<td>c. Sterile 4”x4” gauze pads</td>
<td></td>
<td></td>
</tr>
<tr>
<td>d. Sterile gloves</td>
<td></td>
<td></td>
</tr>
<tr>
<td>e. Sterile towels/drapes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>f. Needle holder and scissors</td>
<td></td>
<td></td>
</tr>
<tr>
<td>g. 3 cc syringe/25 gauge needle</td>
<td></td>
<td></td>
</tr>
<tr>
<td>h. Xylocaine 1%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>i. 2-0 or 3-0 silk suture with needle</td>
<td></td>
<td></td>
</tr>
<tr>
<td>j. Extension tubing</td>
<td></td>
<td></td>
</tr>
<tr>
<td>k. Plastic bag for garbage</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### Skill

<table>
<thead>
<tr>
<th>Procedure:</th>
<th>Demonstrated</th>
<th>Not Demonstrated</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Positioned patient</td>
<td></td>
<td></td>
</tr>
<tr>
<td>a. Bath blanket roll between shoulders</td>
<td></td>
<td></td>
</tr>
<tr>
<td>b. Head down position</td>
<td></td>
<td></td>
</tr>
<tr>
<td>c. Head turned to opposite side - instructed not to talk</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Prepped insertion site with acetone and betadine</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Assisted physician to don gown, mask and gloves</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Assisted physician as needed</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Instructed patient in Valsalva's maneuver when stylet was removed and tubing connected</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Taped tubing to catheter hub</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. Turned on IV pump</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. Applied occlusive dressing</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9. Notified X-ray department to verify placement</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10. Started hyperalimentation and adjusted flow rate as directed</td>
<td></td>
<td></td>
</tr>
<tr>
<td>11. Time-taped bottle</td>
<td></td>
<td></td>
</tr>
<tr>
<td>12. Observed for adverse responses</td>
<td></td>
<td></td>
</tr>
<tr>
<td>13. Documented procedure and patient response</td>
<td></td>
<td></td>
</tr>
<tr>
<td>14. Used body fluid precautions</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*** Not required for the VN student.
Students Name

<table>
<thead>
<tr>
<th>Skill</th>
<th>Demonstrated</th>
<th>Not Demonstrated</th>
</tr>
</thead>
<tbody>
<tr>
<td>Preparation:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Gather equipment and wash hands thoroughly with iodophor solution.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Take new container of TPN solution out of refrigerator 2 hour before infusing. Flush new tubing of all air with new solution.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Explain procedure to patient</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Position patient flat in bed (supine), remove Pillow, turn head away from site</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Teach patient to do Valsalva Maneuver</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Set up sterile field on bedside stand. Open a sterile towel or use TPN dressing kit, if available.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. Place dressing materials on sterile field or open packages so contents can be removed without breaking aseptic technique.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>a. Sterile gauze 4x4’s (2-4) and sterile gauze drain sponge (for gauze dressing)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>b. 70% isopropyl alcohol swabs (3)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>c. Transparent occlusive dressing (i.e., Op-site - Ensure)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>d. Betadine swab sticks (3)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>e. Acetone swab sticks (s)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>f. Tincture benzoin (optional for gauze dressing)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>g. 2 pr. sterile gloves</td>
<td></td>
<td></td>
</tr>
<tr>
<td>h. Tape</td>
<td></td>
<td></td>
</tr>
<tr>
<td>i. Impermeable plastic bag</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Skill</th>
<th>Demonstrated</th>
<th>Not Demonstrated</th>
</tr>
</thead>
<tbody>
<tr>
<td>Procedure:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Place mask over your nose &amp; mouth and put on</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Step</td>
<td>Action</td>
<td></td>
</tr>
<tr>
<td>------</td>
<td>--------</td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td>Take off old dressing carefully and dispose of it and gloves in plastic bag</td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td>Put on new sterile gloves</td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td>Cleanse skin around insertion site with acetone taking care not to allow acetone contact plastic tubing or catheter</td>
<td></td>
</tr>
<tr>
<td>5.</td>
<td>Apply betadine solution to skin working in circular motion outwardly. Allow to dry for 2 minutes.</td>
<td></td>
</tr>
<tr>
<td>6.</td>
<td>Cleanse area with alcohol to prevent burning from betadine</td>
<td></td>
</tr>
<tr>
<td>7.</td>
<td>Turn off IV flow</td>
<td></td>
</tr>
<tr>
<td>8.</td>
<td>Instruct patient to do Valsalva. Disconnect old tubing quickly and carefully, being careful to keep the distal 4-5&quot; of connector tubing sterile.</td>
<td></td>
</tr>
<tr>
<td>9.</td>
<td>Apply occlusive transparent or gauze dressing to site</td>
<td></td>
</tr>
<tr>
<td>10.</td>
<td>Tape tubing loop to skin or outside of dressing</td>
<td></td>
</tr>
<tr>
<td>11.</td>
<td>Label tubing and dressing with date and your initials</td>
<td></td>
</tr>
<tr>
<td>12.</td>
<td>Use blood and body fluid precautions throughout procedure</td>
<td></td>
</tr>
</tbody>
</table>

*** Not require of the VN student
Skills Demonstration
Physical Assessment of the Abdomen

Students Name

<table>
<thead>
<tr>
<th>Skill</th>
<th>Demonstrated</th>
<th>Not Demonstrated</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Washed hands</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Explained procedure to patient</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Positioned and draped patient</td>
<td></td>
<td></td>
</tr>
<tr>
<td>a. Bladder empty</td>
<td></td>
<td></td>
</tr>
<tr>
<td>b. Recumbent</td>
<td></td>
<td></td>
</tr>
<tr>
<td>c. Arms at sides</td>
<td></td>
<td></td>
</tr>
<tr>
<td>d. Knees flexed</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Inspection</td>
<td></td>
<td></td>
</tr>
<tr>
<td>a. General contour</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1) concave/protuberant</td>
<td></td>
<td></td>
</tr>
<tr>
<td>b. Symmetry</td>
<td></td>
<td></td>
</tr>
<tr>
<td>c. Skin lesions/stria</td>
<td></td>
<td></td>
</tr>
<tr>
<td>d. Visible pulsations/peristalsis</td>
<td></td>
<td></td>
</tr>
<tr>
<td>e. Hernia</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Auscultation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>a. Bowel sounds - all four quadrants</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1) hyperactive - rushing, high pitched</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2) decreased motility - below normal frequency (&lt;q 2-6 sec.)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3) absence - paralytic ileus</td>
<td></td>
<td></td>
</tr>
<tr>
<td>b. Abdominal bruit - (stethoscope bell)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1) abdominal aorta - epigastrium</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2) femoral arteries - inguinal areas</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Percussion</td>
<td></td>
<td></td>
</tr>
<tr>
<td>a. Liver - dull</td>
<td></td>
<td></td>
</tr>
<tr>
<td>b. Spleen - dull</td>
<td></td>
<td></td>
</tr>
<tr>
<td>c. Gastric air bubble - tympanic</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Skill</td>
<td>Demonstrated</td>
<td>Not Demonstrated</td>
</tr>
<tr>
<td>-------</td>
<td>--------------</td>
<td>------------------</td>
</tr>
<tr>
<td>6. Percussion (cont.)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>e. Bladder &gt; mass/fluid</td>
<td></td>
<td></td>
</tr>
<tr>
<td>f. Uterus &gt; mass/fluid</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. Palpation - verbalized</td>
<td></td>
<td></td>
</tr>
<tr>
<td>a. Abnormalities</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1) masses - free fluid - tenderness - umbilical hernia</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2) tenderness</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3) increased/increasing girth</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4) Masses C size-location-mobility-sensitivity-consistency</td>
<td></td>
<td></td>
</tr>
<tr>
<td>b. No palpation over bruit</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. Documentation</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
## Skills Demonstration
### Colostomy Irrigation

<table>
<thead>
<tr>
<th>Students Name</th>
<th>Skill</th>
<th>Demonstrated</th>
<th>Not Demonstrated</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Checks physician=s order</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>2.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Assembles equipment</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>3.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Explains procedure to patient</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>4.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Fills container with tepid water (no warmer than 105°F)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>5.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Expels air from tubing</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>6.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Removes old pouch or stoma cap, fastens irrigation sleeve to patient, places bottom of sleeve in commode, toilet, or bedpan</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>7.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Lubricates catheter or cone with water-soluble jelly</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>8.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Inserts cone or catheter while water runs slowly. (catheter no more than 3-4 inches into stoma)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>9.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Slowly lets water run in. (approx. 15 minutes)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>10.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Provides adequate instillation pressure without discomfort. (water container no higher than shoulder level or 18&quot; above stoma)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>11.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Removes cone or catheter after instillation and closes top of sleeve as water returns</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>12.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>After irrigation, washes and dries stoma, applies stoma pouch and charts</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>13.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Uses body fluid precautions</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>14.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
## Applying Fecal Ostomy Pouch

### Skills Demonstrated

<table>
<thead>
<tr>
<th>Skill</th>
<th>Demonstrated</th>
<th>Not Demonstrated</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Explained procedure to patient</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Prepared clean pouch (measured and cut stoma pattern)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Gloved and removed old pouch (retained binder clip)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Cleansed skin and stoma area</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Dilated stoma (as directed)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Applied skin barrier</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. Tested opening for optimal fit (before removing protective backing)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. Removed protective backing from adhesive surface, centered and applied stoma bag</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9. Smoothed adhesive backing firmly to skin (working from center outward)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10. Inserted deodorant (as needed)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>11. Closed and secured end of pouch</td>
<td></td>
<td></td>
</tr>
<tr>
<td>12. Picture-framed faceplate</td>
<td></td>
<td></td>
</tr>
<tr>
<td>13. Attached belt to faceplate of pouch (as needed)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>14. Washed hands</td>
<td></td>
<td></td>
</tr>
<tr>
<td>15. Used body fluid precautions</td>
<td></td>
<td></td>
</tr>
<tr>
<td>16. Documentation</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
## Skills Demonstration
### Gastronomy Tube Feeding

<table>
<thead>
<tr>
<th>Students Name</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Skill</th>
<th>Demonstrated</th>
<th>Not Demonstrated</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Verbalized rationale for alternate feeding</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Checked physician’s orders - formula, calories and amount</td>
<td></td>
<td></td>
</tr>
<tr>
<td>a. Washed hands</td>
<td></td>
<td></td>
</tr>
<tr>
<td>b. Explained procedure</td>
<td></td>
<td></td>
</tr>
<tr>
<td>c. Positioned patient - right side - high Fowler’s</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Checked tube placement</td>
<td></td>
<td></td>
</tr>
<tr>
<td>a. 30 cc syringe with 10-20 cc air</td>
<td></td>
<td></td>
</tr>
<tr>
<td>b. Stethoscope below sternum</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Aspirated for residual</td>
<td></td>
<td></td>
</tr>
<tr>
<td>a. Hold feeding if +50-100 ml/1/2 of prior feeding</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Irrigated tube with 30-60 ml water before intermittent feeding</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Infused formula slowly - gravity flow/infusion pump</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. Verbalized nursing observations/precautions</td>
<td></td>
<td></td>
</tr>
<tr>
<td>a. Tubing did not run dry</td>
<td></td>
<td></td>
</tr>
<tr>
<td>b. Observed for adverse reaction-diaphoresis, glycosuria, N-V, diarrhea, aspiration, cramping- abdominal distension/ ileus, hyper-glycemia, hypovolemia, electrolyte imbalance</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. Washed equipment after every use</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9. Irrigated tube every 4-6 hours with 20-25 ml water if feeding is continuous</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10. Used body fluid precautions</td>
<td></td>
<td></td>
</tr>
<tr>
<td>11. Washed hands</td>
<td></td>
<td></td>
</tr>
<tr>
<td>12. Documented on patient record</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Students Name

<table>
<thead>
<tr>
<th>Skill</th>
<th>Demonstrated</th>
<th>Not Demonstrated</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Verbalized rationale for alternate feeding</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Checked physician’s orders - formula, calories and amount</td>
<td></td>
<td></td>
</tr>
<tr>
<td>a. Washed hands</td>
<td></td>
<td></td>
</tr>
<tr>
<td>b. Explained procedure</td>
<td></td>
<td></td>
</tr>
<tr>
<td>c. Positioned patient - right side - high Fowler’s</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Checked tube placement</td>
<td></td>
<td></td>
</tr>
<tr>
<td>a. 30 cc syringe with 10-20 cc air</td>
<td></td>
<td></td>
</tr>
<tr>
<td>b. Stethoscope below sternum</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Aspirate for residual</td>
<td></td>
<td></td>
</tr>
<tr>
<td>a. Hold feeding if +50-100 ml / 2 prior feeding</td>
<td></td>
<td></td>
</tr>
<tr>
<td>b. Returned residual to stomach</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Irrigated tube with 30-60 ml water before intermittent feeding</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Infused formula slowly-gravity flow/infusion pump</td>
<td></td>
<td></td>
</tr>
<tr>
<td>a. Infusion time 20-35 minutes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>b. Container height 18 inches above patient</td>
<td></td>
<td></td>
</tr>
<tr>
<td>c. Followed feeding with 30-60 ml of water</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. Verbalized nursing observations/precautions</td>
<td></td>
<td></td>
</tr>
<tr>
<td>a. Tubing did not run dry</td>
<td></td>
<td></td>
</tr>
<tr>
<td>b. Observed for adverse reaction-diaphoresis, glycosuria, N-V, diarrhea, aspiration, cramping, - abdominal distention/ ileus, hyper-glycemia, hypovolemia, electrolyte imbalance</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. Washed equipment after every use</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9. Irrigated tube every 4-6 hours with 20-25 ml water if feeding is continuous</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10. Used body fluid precautions</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>---</td>
<td>---</td>
<td></td>
</tr>
<tr>
<td>11. Washed hands</td>
<td></td>
<td></td>
</tr>
<tr>
<td>12. Documented on patient record</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
# Skills Demonstration
Assessment of Skin

## Students Name

<table>
<thead>
<tr>
<th>Skill</th>
<th>Demonstrated</th>
<th>Not Demonstrated</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. Inspect and Palpate</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Color</td>
<td></td>
<td></td>
</tr>
<tr>
<td>a. Skin</td>
<td></td>
<td></td>
</tr>
<tr>
<td>b. Oral mucous membrane</td>
<td></td>
<td></td>
</tr>
<tr>
<td>c. Conjunctiva</td>
<td></td>
<td></td>
</tr>
<tr>
<td>d. Nails</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Texture</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Turgor and mobility</td>
<td></td>
<td></td>
</tr>
<tr>
<td>a. Hydration</td>
<td></td>
<td></td>
</tr>
<tr>
<td>b. Edema</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Vascularity</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Moisture and temperature</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Sensation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>B. Observe</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Lesions</td>
<td></td>
<td></td>
</tr>
<tr>
<td>a. Distribution</td>
<td></td>
<td></td>
</tr>
<tr>
<td>b. Grouping</td>
<td></td>
<td></td>
</tr>
<tr>
<td>c. Type</td>
<td></td>
<td></td>
</tr>
<tr>
<td>d. Color</td>
<td></td>
<td></td>
</tr>
<tr>
<td>C. Documentation</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Clinical Guide
Team Leader - VN Student

Focus: The role of the vocational nurse as a team leader in a clinical setting.

Behavioral Objectives:

1. Identify the scope and responsibilities of the vocational nurse as a team leader.
2. Identify skills required for the management of a selected group of patients.
3. Demonstrate the ability to accurately maintain patient records.
4. Develop skill in giving end-of-shift reports which are concise, and accurate.

Learning Activities Guide:

1. Gather data on each patient assigned to the nursing team.
2. Pass Meds (except IV), dressing and treatment and document nursing action. Delegation of assignment may be necessary.
3. Organize team assignments based upon patient status and each team member’s experience and scope of practice.
4. Evaluate each patient’s condition at beginning and end of the shift and at regular intervals other appropriate times. Report change in patients status to registered nurse in charge.
5. Assist team members in assigned responsibilities when necessary.
6. Gather data necessary to give a brief, succinct, and factual end-of-shift report.

Written assignment of student experience is due on Monday at 8:05 a.m.
Imperial Valley College  
Division of Nursing Education and Health Technologies  
LVN 132

Instructions for Written Assignments

Clinical Assignments:

1. **Comprehensive Patient Care Plans (PCP)** must carefully follow the module and supplemental guides for development of patient care plans. Documentation of references must be cited for each entry in your PCP for medical-surgical and pediatric experiences.

   The care plan will reflect each step in the nursing process which you followed in providing nursing care, significant family and patient history, psychosocial considerations, pathophysiology encountered, and family and patient education. Please attach an I.V.C Assessment Sheet to your care plan.

   PCPs are due on Friday of the clinical week spent in the medical surgical area.

2. Following the behavioral objectives for each rotation, a carefully developed written report is expected for your experience in specialty areas.

3. An in-depth case study is expected following clinical experiences.

4. A mini care plan of six (6) of your assigned patients, your working cardex for this rotation, and a brief self-evaluation are required for each leadership/team leader experience.

Professional Presentation

Objectives:

1. To demonstrate an understanding of the process of scientific inquiry.
2. To assume responsibility for self-directed learning.
3. To explore in depth one area of personal interest in professionalism and current health issues.
4. To implement the scientific process by recording in depth research of literature through a professional presentation.

Subject:

A clinical professional presentation of a minimum 20 minutes, will be conducted during module F. The presentation can be done by a group of 2-3 people. The subject shown or of particular interest of professional nursing: (ex. Roles of RH and LVN, Entry level of Nursing, Competency, Complex Clinical Disease States and how nursing can manage them, Health Care Payment/Reimbursement/Insurance, Rural Health Care on Local Problems. A reference list is required. This is require for each group member. Grading will be on introduction/closure, depth of understanding of topic. Relevancy of topic/presentation, media usage, and format.

**PLEASE CONFIRM YOUR TOPIC WITH THE INSTRUCTOR PRIOR TO BEGINNING YOUR SEARCH OF LITERATURE.**
Clinical Format
End-of-Shift Report

I. General Directions:
   a. Start on time and finish on time
   b. Use cardex
   c. Have in writing all relevant data prior to beginning report i.e. I.V. board, lab results, problem list, vital sign board, clinitest, laboratory, or diagnostic test results.
   d. Report only relevant and/or significant information for each problem
   e. Summarize problem resolutions
   f. Avoid interruption
   g. Be brief and factual
   h. Do not use it as a time to socialize
   i. Make notes so that data from previous shift is relayed accurately

II. Patient Identification:
   a. Room number
   b. Patient name
   c. Physician(s)
   d. Age
   e. Admitting diagnosis, chief c/o, significant past history
   f. Present diagnosis, surgical procedure, date of surgery, and discharge plans

III. Specific Patient Information:
   a. Specific tests and results
   b. Anticipated tests or surgery
   c. Significant vital signs
   d. Specific status changes
   e. List of problems and/or patient complains expressed during shift:
      1. Nursing interventions
   f. IV -TPN
      1. Solutions
      2. Additives
      3. Credit
      4. Condition of site
      5. Medications
      6. Tube changes
      7. Rate
      8. Started or disconnected
   g. Special equipment
      1. Equipment started or discontinued
   h. Wound or suction drainage
      1. Amount and quality
      2. Specific instructions
i. Treatments and dressing changes
   1. Treatments started or discontinued
   2. Include packing

j. Intake - Output
   1. Problems or patient assessment related to I&O
   2. Diet and diet tolerance
   3. Foley inserted or discontinued

k. Medications
   1. New orders
   2. One time orders
   3. Skin tests

l. Additional changes in patient care

m. Social/emotional adjustments
   1. Brief summary of plans, referrals made
   2. Emotional maladaptation
   3. Family needs
Focus: Management of the patient with traumatic injuries and medical emergencies.

The charge nurse will direct your learning experience.

Behavioral Objective:

Under supervision develop skills in the assessment and management of patients in the emergency care setting.

Learning Activities Guide:

1. Provide patient care as assigned to you by the charge nurse.
2. Identify methods of meeting the emotional needs of patient and family in time of crisis.
3. Identify use of emergency equipment, procedures, and protocols.
4. Develop assessment skills in areas such as: hypoxia, neurological assessment, elimination needs, nutrition needs, shock, hemorrhage, pain, level of consciousness, allergies, and chief complaint.
5. Assist in providing physiological and psychological support to the patient admitted to the emergency service.
6. Assist the nurses and physicians as directed.
7. Share emergency room learning experiences with classmates during weekly postconference.
8. Observe and assist as directed in out-patient surgical procedures.
9. Practice the principles of infection control necessary to protect the patient, self and others.

Written evaluation of ED nurse=s role is due on Wed. at 1600 hours.
Clinical Objectives
Pediatric Department

Focus: Nursing care of the hospitalized child

The charge nurse will direct your learning experience.

Behavioral Objectives:

10. Utilize the nursing process in caring for the hospitalized child.
11. Establish rapport with co-workers, the child, and the family.
12. Assess the child’s reaction to his or her illness, and compare behavioral manifestation to the norms for the child’s age.
13. Identify the impact of the child’s illness on the family members.
14. Gain skills in communication with the ill child and the family members.
15. Gain skills in pediatric procedures and in administering pediatric medications.
16. Identify clinical conditions specifically related to children, and compare the manifestations of the conditions to your theory text.
17. Promote the safety and security of the hospitalized child, self, and others.
18. Demonstrate skill in providing appropriate nursing care which meets psychosocial, psychological, cultural, and developmental needs of child and family.

Learning Activities Guide:

1. Prepare for clinical practice:
   n. Make an assessment of assigned patient (s).
   o. List the patient problems in the order of priority.
   p. Write beginning plan of care.
   q. State rationale for each action.
   r. Make drug cards for medications to be administered.
2. Keep the care plans updated as you care for assigned patients. Select one patient and write a complete care plan, including evaluation of patient goal achievement.
3. Practice making observation of ill child’s behavioral manifestations and compare with norms for that age group.
4. Practice communication skills with ill child, family, and co-workers.
5. Research the clinical diagnosis of assigned patients and compare findings/treatment with textbook.
6. Assist the sick child to meet his or her need for play and love during hospitalization.
7. Practice basic pediatric procedures, and calculation of pediatric medication.
8. Report vital signs and behavioral manifestations (both normal and abnormal) immediately to the Pediatric Charge R.N. and instructor.

Assignment due on the following Wednesday at 1600 hours.
Imperial Valley College  
Division of Nursing Education and Health Technologies  
LVN 132  

Clinical Guide  
Intensive Care Unit - VN Student

**Focus:** The role of the vocational nurse in management of the patient in an intensive care setting.

The professional nurse will direct your learning experience.

**Behavioral Objective:**

Under the direction of the professional nurse, develop skills in providing basic care to the patient in an intensive care setting.

**Learning Activities Guide:**

1. Develop knowledge of skills required to assist the professional nurse in care of the patient in an intensive care setting.
2. Assist in meeting the psychosocial needs of the patient, and family, in a crisis situation.
3. Review procedures, protocols, and special equipment used in the care of the critically ill patient.
4. Assist in maintaining infection control standards in the care of the physiologically compromised patient.
5. Identify measures which aid in maintaining a supportive environment for the critically ill person.
6. Observe administration by the nursing staff of medications, nutrients and treatments. Identify the rationale, dosage, action, and possible adverse or synergistic effects of medications administered.
7. Assist in maintaining patient records.

Written evaluation of ICU=s LVN Role is due on Wednesday at 1600 hours.
Neurological Dysfunction

I. Assessment
A. Unconscious is a state of depressed cerebral function in which the appreciation of stimuli is lost.

B. Causes of Unconsciousness

C. ER or Field Evaluation

D. Facts
1. Box in Brain
2. \( O_2 \approx 89 \)
3. \( CO_2 \approx 89 \)
4. Brain \( O_2 \)

E. Levels of Consciousness
1. Glasgow Coma Scale
2. In order of deterioration

F. Motor and Sensory Function

G. Blood Pressure & Pulse

H. Pupillary Signs

I. Reflexes

J. Temperature

K. Breathing Pattern

L. Skin

II. Brain Injuries

When the moving head is brought to an abrupt stop by hitting a solid object, the brain tissue continues to move until it is stopped short by the skull bones. This action injures the brain. * Specific brain damage following cranio-cerebral injuries is related to:

1. Mechanism of injury (how it occurs)
2. Nature of the injury (type)
3. Location of the injury

Trauma can cause the following conditions:

A. Concussion:
1. Results from violent jarring of the brain.
2. Is often associated with a loss of consciousness
3. May be followed by headache, irritability, dizzy spells, confusion and an unsteady gait.
4. Complete recovery is usual
B. **Cerebral Laceration and Contusion**
   1. More severe than a concussion. Multiple bruising of the brain.
   3. Permanent damage may result, causing impaired intellect, speech difficulties, epilepsy, paralysis, impaired gait and continuing stupor.
   4. Contusion:
      a. May cause loss of consciousness so profound that the patient dies within a few hours.
      b. The patient will characteristically:
         1) resent interference
         2) be disoriented
         3) be noisy
         4) be agitated or
         5) be violent (can last for days or weeks)
      c. Usually comes via two ways of injury, each compromised of blow and counterblow. These are:
         1) Coup and contrecoup. Bruising of the brain below site of injury and blow forcing brain against the opposite side of the skull. Injury point of impact and opposite side of brain as it rebounds.
         2) Acceleration/Deceleration. The head is hurled forward by an then against.
            Acceleration head hits stationary object
            Deceleration head is struck by a moving object

C. **Epidural (Extradural) Hematoma** (between skull and dura)
   1. Caused by arterial bleeding and occurs on top of the dura (Epi means above), usually middle, meningeal artery.
   2. True surgical emergency, Burr holes, aspirate blood.
   3. Bleeding occurs very rapidly, separating the dura from the cranium.
   4. Unless the increased intracranial pressure produced is relieved, destruction of the brain substance will take place.
   5. Characteristically, the patient will have a momentary lapse of consciousness.
   6. He may appear perfectly alert and clear after the injury and carry on a lucid conversation.
   7. Within an hour or so, he may feel drowsy.
   8. This is one of the first signs of increasing intracranial pressure, due to arterial bleeding.
   9. The patient becomes comatose.
   10. The patient should be kept in the hospital 24 hours following a head injury.
   11. Vital signs should be taken every 15 minutes.
   12. Watch for: (these neurologic symptoms are even more important than the vital signs)
      a. Decreasing consciousness
      b. Dilated pupils (normal 2-3 mm)
      c. Asymmetry of the pupils
      d. Convulsions
      e. Hemiparesis
13. Epidural hemorrhage may be treated by trephining the skull (perforating the skull with an instrument called a trephine), removing the clot and ligating the bleeding artery.

D. Subdural Hematoma
1. Occurs as a result of venous bleeding in the space below the dura. (Cortical veins)
2. The patient may appear to have recovered completely from a blow on the head.
3. Because the bleeding is more in the nature of oozing than gushing.
4. There may be no symptoms for as long as 2 months.
5. The clot that forms is gradually walled off, a physiologic defense not possible in a more rapid hemorrhage.
6. The wall acts as a tamponade for the bleeding.
7. Often the clot is absorbed by the body and no treatment is necessary.
8. When absorption fails to occur, the patient experiences symptoms of compression of the brain:
   a. Periodic episodes of memory lapse
   b. Confusion
   c. Drowsiness or personality change
   d. Affects motor and language centers
   e. Depress level of consciousness
   f. Seizures
   g. Motor weakness, paralysis
9. Burr holes are made into the cranium and the hematoma is aspirated.

E. Basal Skull Fractures
1. May be fatal because of proximity to the brainstem. (Center of respiration and circulation)
2. Direct bleeding, edema in or around the medulla may precipitate respiratory or circulatory collapse.
3. Bleeding into the meninges will irritate them and cause a stiff neck.
4. Bleeding from the ears is common:
   a. Bleeding from the ears and nose is advantageous because it lessens intracranial pressure.
   b. Bright red blood may indicate rupture of a major vessel. (Serious)
   c. Unobstructed drainage from the ears is desirable.
   d. The canal is not packed with gauze or cotton.
   e. No cleaning or swabbing - you may introduce bacteria resulting in meningitis.
F. Three cardinal signs and symptoms of I.C.P.
   1. Headache
   2. Vomiting
   3. Papilledema

III. Medical Treatment

1. Establish Airway
2. Dehydration Regimen
   a. Limited intake
   b. Hypertonic solution
   c. Diuretic drugs
      1) Mannitol (hypertonic solution)
      2) Lasix
      3) Bumex
3. Corticosteroids
4. Barbiturates
5. Positioning
6. Hyperventilation
7. Control temperature
Neurological Evaluation

<table>
<thead>
<tr>
<th>Glasgow Coma Scale</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>EYES OPEN</strong></td>
<td></td>
</tr>
<tr>
<td>Never = 1</td>
<td>C = closed by swelling, injury, patching</td>
</tr>
<tr>
<td>To Pain = 2</td>
<td>T = intubated</td>
</tr>
<tr>
<td>To Speech = 3</td>
<td>D = dysarthria, aphasia</td>
</tr>
<tr>
<td>Spontaneously = 4</td>
<td>M = muscle relaxants, barbs</td>
</tr>
<tr>
<td>Untestable (see explanation)</td>
<td>S = spinal cord injury</td>
</tr>
<tr>
<td></td>
<td>L = limb injury, immobilization</td>
</tr>
<tr>
<td></td>
<td>0 = no explanation needed</td>
</tr>
<tr>
<td><strong>BEST VERBAL RESPONSES</strong></td>
<td></td>
</tr>
<tr>
<td>None = 1</td>
<td>IF PATIENT HAS A 4, 5, OR 6 IN THE</td>
</tr>
<tr>
<td>Garbled = 2</td>
<td>MOTOR SECTION OF GCS, PLEASE</td>
</tr>
<tr>
<td>Inappropriate = 3</td>
<td>INDICATE A MOTOR RESPONSE®,</td>
</tr>
<tr>
<td>Confused = 4</td>
<td>A MOTOR STRENGTH® AND</td>
</tr>
<tr>
<td>Oriented = 5</td>
<td>A EXPLANATION® FOR EACH</td>
</tr>
<tr>
<td>Untestable (see explanation)</td>
<td>EXTREMITY</td>
</tr>
<tr>
<td><strong>BEST MOTOR RESPONSES</strong></td>
<td></td>
</tr>
<tr>
<td>None = 1</td>
<td>STRENGTH</td>
</tr>
<tr>
<td>Extension = 2</td>
<td>S = Strong</td>
</tr>
<tr>
<td>Abnormal Flexion = 3</td>
<td>D = Deceased</td>
</tr>
<tr>
<td>Withdrawal = 4</td>
<td>A = Absent</td>
</tr>
<tr>
<td>Localizes Pain = 5</td>
<td>Example for motor:</td>
</tr>
<tr>
<td>Obeys Commands = 6</td>
<td>Right Arm: 5/D/L</td>
</tr>
<tr>
<td>Untestable (see explanation)</td>
<td>Indicates patient is localizing (5) but has</td>
</tr>
<tr>
<td></td>
<td>deceased strength (D) in arm due to</td>
</tr>
<tr>
<td></td>
<td>injury or immobilization (L).</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>size (mm):</td>
<td>PUPILS</td>
</tr>
<tr>
<td><strong>Reactivity:</strong></td>
<td></td>
</tr>
<tr>
<td>BR = briskly reactive</td>
<td>Shape:</td>
</tr>
<tr>
<td>SR = sluggishly reactive</td>
<td>shape of pupil is</td>
</tr>
<tr>
<td>NR = nonreactive</td>
<td>to be round, unless</td>
</tr>
<tr>
<td></td>
<td>otherwise</td>
</tr>
<tr>
<td></td>
<td>(i.e. ovoid)</td>
</tr>
<tr>
<td>Glasgow Coma Scale</td>
<td>Explanation</td>
</tr>
<tr>
<td>--------------------</td>
<td>-------------</td>
</tr>
<tr>
<td><strong>EYES</strong></td>
<td></td>
</tr>
<tr>
<td>Never</td>
<td>=1 Self Explanatory</td>
</tr>
<tr>
<td>To pain</td>
<td>=2 Should use pain stimulus to chest or limbs a grimacing associated with supraorbital pressure may cause eye closure.</td>
</tr>
<tr>
<td>To Speech</td>
<td>=3 Response to any speech or shout, not necessarily to command.</td>
</tr>
<tr>
<td>Spontaneously</td>
<td>=4 Eyes are open but this does not imply awareness</td>
</tr>
<tr>
<td><strong>VERBAL</strong></td>
<td></td>
</tr>
<tr>
<td>No response</td>
<td>0 Self explanatory</td>
</tr>
<tr>
<td>Garbled</td>
<td>Moaning or groaning but without any recognizable words</td>
</tr>
<tr>
<td>Inappropriate</td>
<td>Intelligible articulation but no sustained conversation possible; usually shouting or sweating</td>
</tr>
<tr>
<td>Confused</td>
<td>Attention can be help; patient responds to questions in a conversational manner but the responses indicate varying degrees of disorientation and confusion.</td>
</tr>
<tr>
<td>Oriented</td>
<td>Awareness of self and environment. Should know who he/she is, where he/she is, why, the month, date.</td>
</tr>
<tr>
<td><strong>MOTOR</strong></td>
<td></td>
</tr>
<tr>
<td>No Response</td>
<td>=1 Flaccid. Important to exclude spinal cord injury.</td>
</tr>
<tr>
<td>Extension</td>
<td>=2 Decerebrate. Adduction, internal rotation of shoulder, and pronation of the forearm.</td>
</tr>
<tr>
<td>Abnormal Flexion</td>
<td>=3 Decorticate. Abnormal flexion, adduction of the shoulder (with extension of legs and feet, unless patient also has spinal cord injury)</td>
</tr>
<tr>
<td>Withdrawal</td>
<td>=4 Normal flexor response. Withdraws from pain stimulus with abduction of the shoulder</td>
</tr>
<tr>
<td>Localizes Pain</td>
<td>=5</td>
</tr>
</tbody>
</table>
Obeys = 6

Pain stimulus causes limb to move as to attempt to remove it
Self-explanatory. Take care not to interpret grasp reflex or postural adjustment as a response to a command.

---

**GLASGOW COMA SCALE SCORING**

**Eyes open**
4-Sponstaneously
3-On request
2-To pain stimuli (supraorbital or digital)
1-No opening

**Best verbal response**
5-Oriented no time, place, person
4-Engages in conversation, confused in content
3-flexes either arm
2-Extends arm to painful stimulus
1-No response

**Best motor response**
5-Obeys a command (Hold out three fingers)
4-Localizes a painful stimulus
3-Flexes either arm
2-Extends arm to painful stimulus
1-No response
## Skills Demonstration
### Cranial Nerve Check

<table>
<thead>
<tr>
<th>Students Name</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Skill</strong></td>
<td><strong>Demonstrated</strong></td>
<td><strong>Not Demonstrated</strong></td>
</tr>
<tr>
<td>1. Olfactory test smell (eyes closed)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Optic (II)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>a. Visual acuity-Snellen Chart</td>
<td></td>
<td></td>
</tr>
<tr>
<td>b. Visual fields by confrontation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. right periphery</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Left periphery</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Oculomotor (III)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>a. Pupil reaction to light</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Trochlear (IV)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Trigeminal (V)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>a. Motor – clench teeth</td>
<td></td>
<td></td>
</tr>
<tr>
<td>b. Sensory-eyes closed-light touch with cotton wisp ophthalmic</td>
<td></td>
<td></td>
</tr>
<tr>
<td>c. Maxillary</td>
<td></td>
<td></td>
</tr>
<tr>
<td>d. Mandibular</td>
<td></td>
<td></td>
</tr>
<tr>
<td>e. Corneal reflex</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Abducens (VI)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>a. Extraocular movements (EOM)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>b. Conjugate movement</td>
<td></td>
<td></td>
</tr>
<tr>
<td>c. Convergence with pencil</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. Facial (VII)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>a. Symmetry</td>
<td></td>
<td></td>
</tr>
<tr>
<td>b. Closes eyes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>c. Frowns</td>
<td></td>
<td></td>
</tr>
<tr>
<td>d. Shows teeth</td>
<td></td>
<td></td>
</tr>
<tr>
<td>e. Smiles</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Skill</td>
<td>Demonstrated</td>
</tr>
<tr>
<td>---</td>
<td>----------------------------------------------------------------------</td>
<td>--------------</td>
</tr>
<tr>
<td>8</td>
<td>Acoustic (VIII)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>a. Compares right and left</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>Glossopharyngeal (IX)</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>Vagus (X)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>a. Upward movement of soft palate and uvula saying आह?</td>
<td></td>
</tr>
<tr>
<td></td>
<td>b. Gag reflex</td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>Spinal Accessory (XI)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>a. Shrugs shoulders upward against hands</td>
<td></td>
</tr>
<tr>
<td></td>
<td>b. Turns head against hand</td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>Hypoglossal (XII)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>a. Sticks tongue out</td>
<td></td>
</tr>
<tr>
<td></td>
<td>note: asymmetry, deviation, or atrophy</td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>Motor System</td>
<td></td>
</tr>
<tr>
<td></td>
<td>a. Note gait, posture, balance, swing of arms and legs during walk</td>
<td></td>
</tr>
<tr>
<td></td>
<td>b. Romberg-feet together, eyes closed, minimal swaying</td>
<td></td>
</tr>
<tr>
<td></td>
<td>c. Muscle strength against resistance</td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>Coordination</td>
<td></td>
</tr>
<tr>
<td></td>
<td>a. Rapid rhythmic alternating movements of hand-touches thumb with</td>
<td></td>
</tr>
<tr>
<td></td>
<td>finger rapidly</td>
<td></td>
</tr>
<tr>
<td></td>
<td>b. Point to point</td>
<td></td>
</tr>
<tr>
<td></td>
<td>1) touches finger to nose with eyes closed</td>
<td></td>
</tr>
<tr>
<td></td>
<td>c. Rapid rhythmic alternating of feet</td>
<td></td>
</tr>
<tr>
<td></td>
<td>d. Point to point - leg</td>
<td></td>
</tr>
<tr>
<td></td>
<td>1) heel to opposite knee</td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>Sensory (with eyes closed)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>a. Check sensation of arms, trunk, legs to</td>
<td></td>
</tr>
<tr>
<td></td>
<td>1) pain</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2) light touch with wisp of cotton</td>
<td></td>
</tr>
<tr>
<td></td>
<td>3) position</td>
<td></td>
</tr>
<tr>
<td>16. Reflexes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>---------------</td>
<td></td>
<td></td>
</tr>
<tr>
<td>a. Babinski</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Imperial Valley College  
Division of Nursing Education and Health Technologies  
LVN 132  

**Skills Demonstration**  
**Glasgow Coma Scale for Assessing Level of Consciousness**

Circle Response and Total Score.

<table>
<thead>
<tr>
<th>EYE OPENING</th>
<th>SCORE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sponstaneously</td>
<td>4</td>
</tr>
<tr>
<td>Response to speech</td>
<td>3</td>
</tr>
<tr>
<td>Response to pain</td>
<td>2</td>
</tr>
<tr>
<td>Does not open to painful stimuli</td>
<td>1</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>VERBAL RESPONSE</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Oriented to person, place, time converses.</td>
<td>5</td>
</tr>
<tr>
<td>Not oriented to person, place, or time</td>
<td>4</td>
</tr>
<tr>
<td>Speaks words and phrases that make little sense</td>
<td>3</td>
</tr>
<tr>
<td>Responds with incomprehensible sounds</td>
<td>2</td>
</tr>
<tr>
<td>Does not respond verbally</td>
<td>1</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>MOTOR RESPONSE</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Obeys commands, squeezes hands</td>
<td>5</td>
</tr>
<tr>
<td>Purposeful movement to painful stimuli</td>
<td>4</td>
</tr>
<tr>
<td>Nonpurposeful movement to painful stimuli</td>
<td>3</td>
</tr>
<tr>
<td>Nonpurposeful response to pain by decererate movement</td>
<td>2</td>
</tr>
<tr>
<td>No motor response to pain</td>
<td>1</td>
</tr>
</tbody>
</table>

**TOTAL GCS SCORE**
I. **Brain Injuries**

When the moving head is brought to an abrupt stop by hitting a solid object, the brain tissue continues to move until it is stopped short by the skull bones. This action injures the brain. Specific brain damage following craniocerebral injuries is related to:

1. Mechanism of injury (how it occurs)
2. Nature of the injury (type)
3. Location of the injury

**Trauma** can cause the following conditions:

**A. Concussion:**
1. Results from violent jarring of the brain.
2. Is often associated with a loss of consciousness.
3. May be followed by headache, irritability, dizzy spells, confusion and an unsteady gait.
4. Complete recovery is usual.

**B. Cerebral Laceration and Contusion**
1. More severe than a concussion. Multiple bruising of the brain.
3. Permanent damage may result, causing impaired intellect, speech difficulties, epilepsy, paralysis, impaired gait and continuing stupor.
4. Contusion:
   a. May cause loss of consciousness so profound that the patient dies within a few hours.
   b. The patient will characteristically:
      1) resent interference
      2) be disoriented
      3) be noisy
      4) be agitated or
      5) be violent (can last days or weeks)
   c. Usually comes via two ways of injury, each comprised of blow and counterblow. These are:
      1) Coup and countercoup injury. Bruising of the brain below site of injury and blow forcing brain against the opposite side of the skull. Injury point of impact and opposite side of brain as it rebounds.
      2) Acceleration/Deceleration. The head is hurled forward—it is slapped "by" and then "against". Acceleration - head hits a stationary object Deceleration - head is struck by a moving object.
C. **Epidural (Extradural) Hematoma** (between skull and dura)
1. Caused by arterial bleeding and occurs on top of the dura (Epi means above), usually middle, meningeal artery.
3. Bleeding occurs very rapidly, separating the dura from the cranium.
4. Unless the increased intracranial pressure produced is relieved, distortion of brain substance will take place.
5. Characteristically, the patient will have a monetary lapse of consciousness.
6. He may appear perfectly alert and clear after the injury and carry on a lucid conversation.
7. Within an hour or so, he may state he feels drowsy.
8. This is one of the first signs of increasing **intracranial pressure**, due to arterial bleeding.
9. The patient becomes comatose.
10. The patient should be kept in the hospital **24 hours** following a head injury.
11. Vital signs should be taken every 15 minutes.
12. **Watch for:** (these neurologic symptoms are even more important than the vital signs)
   a. decreasing consciousness
   b. dilated pupils (normal 2-3 mm)
   c. asymmetry of the pupils
   d. convulsions
   e. hemiparesis
13. Epidural hemorrhage may be treated by trephining the skull (perforating the skull with an instrument called a trephine), removing the clot and ligating the bleeding artery.

D. **Subdural Hematoma**
1. Occurs as result of venous bleeding in the space below the dura.
2. The patient may appear to have recovered completely from a blow on the head.
3. Because the bleeding is more in the nature of **oozing** than gushing.
4. There may be no symptoms for as long as **2 months**.
5. The clot that forms is gradually walled off, a physiologic defense not possible in a more rapid hemorrhage.
6. The wall acts as a tamponade for the bleeding.
7. Often the clot is **absorbed by the body** and no treatment is necessary.
8. When absorption fails to occur, the patient experiences **symptoms of compression** of the brain:
   a. periodic episodes of memory lapse
   b. confusion
   c. drowsiness or personality change
   d. affects motor and language centers
   e. depress level of consciousness
   f. seizures
g. motor weakness, paralysis
9. Burr holes are made into the cranium and the hematoma is aspirated.

E. Basal Skull Fractures
1. May be fatal because of proximity to the brainstem. (Center of respiration and circulation)
2. Direct bleeding, edema in or around the medulla may precipitate respiratory or circulatory collapse.
3. Bleeding into the meninges will irritate them and cause a stiff neck.
4. Bleeding from the ears is common:
   a. bleeding from the ears and nose is advantageous because it lessens intracranial pressure.
   b. bright red blood may indicate rupture of a major vessel. (Serious)
   c. unobstructed drainage from the ears is desirable.
   d. the canal is not packed with gauze or cotton.
   e. NO cleaning or swabbing - you may introduce bacteria resulting in meningitis.

F. Three Cardinal Signs & Symptoms of I.C.P
1. Headache
2. Vomiting
3. Papilledema

II. Signs and Symptoms
A. There are three cardinal signs and symptoms of increased intracranial pressure:
   1. Headache
      a) pain is usually intermittent
      b) constant headache indicates a grave prognosis
      c) coughing, sneezing, or straining at stools increases the headache
      d) lying quietly, head elevated reduces intracranial pressure and thus relieves headache
      e) as pressure increases - tension is applied to the intracranial blood vessels
   2. Vomiting
      a) occurs without forewarning of nausea and without any relation to eating
      b) may be projectile
   3. Papilledema
      a) edema of the optic nerve at the point at which it enters the eyeball is caused by obstruction of venous drainage from the globe by the increased intracranial pressure.
      b) all patients who have received trauma to the head should be considered to have a fracture, and they should be watched for the development of signs of increased intracranial pressure
      c) edema and hyperemia of the optic disk (choked disk) usually associated with increased intracranial pressure
III. Neurological Assessment

A. State of Consciousness
1. Alert, oriented to time, place, person.
2. Restless
3. Sleep-like state, drowsy, lethargic
4. Responds to verbal commands
5. Responds to painful stimuli
   a) Purposeful
   b) Nonpurposeful:
      1. decorticate-the cortex is nonfunctioning
      2. decerebrate-the cerebrum is nonfunctioning
6. Babinski Reflex
7. No response, no gag or cough reflex
8. During the time the patient does not move himself:
   a) position him in good body alignment
   b) turn him from side to side to prevent pneumonia and decubiti
   c) start passive exercise to prevent contractures

B. Voluntary Motor Control
1. Upper extremities: extend arm in front of him with eyes closed
2. Lower extremities: plantar flex against hand pressure steady, constant

C. Involuntary Motor Control
1. Babinski Sign: dorsiflexion of toes after stroking the soles of the feet, indicates damage to pyramidal tract.
2. Meningeal irritation - Kernig’s sign
   a) Lower leg is extended while thigh is flexed on abdomen, complaint of pain in neck and back.
   b) Rigidity in neck
   c) Fever, nausea, headache, photophobia

D. Assessment of Functional Level of 12 Cranial Nerves. Important in Determining Presence of Intracranial Pressure.
1. Olfactory I - smell
2. Optic II
   a) Visual fields
   b) Confrontation
3. Oculomotor III
   a) Pupil constriction
   b) Consensual light reflex
   c) Accommodation
   d) Opens eye lid-levator palpebrae
   e) Ptosis
4. Trochlear IV, Abducens VI and Oculomotor III-are tested as a group.
5. Trigeminal V
   a) Sensory-sensation of forehead, face, cornea and jaw
   b) Motor-closure of jaw, anterior 2/3 of the tongue

6. Trigeminal V-corneal reflex, wisp of cotton, tearing and blinking
   a) sensory reflex carried by fifth corneal nerve
   b) motor response seventh cranial nerve

7. Facial Nerve VII
   a) Inspect face at rest and during conversation
   b) Note asymmetry and abnormal movements
   c) Orbicularis oculi (Motor)-shuts eye lid to protect cornea
   d) Movement of facial muscles, scalp movement
   e) Taste (Sensory)- anterior 2/3 of the tongue

Ask patient:
1) To raise eyebrows
2) To frown
3) To close eye tightly
4) Show teeth
5) Smile
6) Puff out his cheeks

8. Acoustic VIII
   a) Cochlea-controls hearing (watch ticking)
   b) Vestibular-controls equilibrium

9. Glossopharyngeal and Vagus IX
   a) Ask the patient to say, "ah" or to yawn
      1) Note asymmetry
      2) Note upward motion of soft palate and uvula
   b) Stimulate gag reflex
   c) Swallowing

10. Accessory X
    a) Shrug shoulders upward-note strength and contraction of Trapezius muscle.
    b) Turn the head to each side against your hand. -Observe contraction of opposite Sternomastoid.

11. Hypoglossal XI
    a) Stick out tongue
       1) Note asymmetry
       2) Note deviations
       3) Note atrophy

   1. Superior rectus (3)
   2. Inferior oblique (3)
   3. Medial rectus(3)
   4. Superior oblique (SO4) 4 cranial nerve
   5. Inferior rectus (3rd)
6. Lateral rectus (L6) 6th cranial nerve

E. Blood Pressure and Pulse
1. As cranial pressure rises, cerebral blood flow diminishes
2. This sets off compensatory changes
3. To maintain cerebral blood flow, the blood pressure begins to rise as a direct reflex effect of anoxia
4. The pulse slows reflexly as the blood pressure rises

F. Temperature
1. Does not give useful information on the state of intracranial pressure.
2. Prime importance of following the temperature carefully is because hyperthermia increases the metabolic needs (6-7% for each degree)
3. Early temperature rising after head injury usually due to pressure or trauma to hypothalamus and not to infection.
4. Later temperature elevation more often indicates respiratory or urinary infection. Also dehydration causes fever. Blood in the spinal fluid causes moderate rise in temperature.
5. Treatment Hyperthermia (between 28.5°C and 30°C)
   a) Hypothermia blanket
   b) Ice, alcohol sponges
   c) Shivering
      1) Maintains heat-increases venous and cerebrospinal fluid pressure and oxygen requirements.
      2) Chlorpromazine, curare and succinyl-choline may be used to control shivering.
         - Thorazine, watch blood pressure decreases
         - Curare and succinylcholine, watch respiration
6. Temperature of 28.0°C will decrease cerebral O₂ consumption by 50%

G. Respiration
1. Altered quality of respirations
   a) At first snoring (stertorous)
   b) Terminally - the Cheyne-Stokes type
2. Cheyne-Stokes
   a) The direct effect of pressure and anoxia in the respiratory center in the medulla.
3. A clear air is the most important nursing accomplishment in the face of intracranial hypertension.
4. Adequate suction important with sterile technique.
   a) Suck up oxygen
   b) Infection-increased metabolism
H. **Pupils**
1. Observe for:
   a) Size
   b) Shape
   c) Quality
2. Note if pupils react briskly or sluggishly to light
3. Doll's eye maneuver
   a) Normally unconscious patient's eyes move in opposite direction from which the head is turned.
   b) Abnormal if pupils fixed in midline position as head is turned.
4. Injury to the **pons** will result in small non-reactive pupils bilaterally due to paralysis of the sympathetic fibers
5. Midbrain damage - the pupils dilate because of damage to parasympathetic fibers.
6. Dilated and fixed pupils are indicative of prolonged oxygen lack or brain damage.
7. A dilated pupil ipsilateral to the pressure results from compression or stretching of the oculomotor (3rd) nerve.

I. **Nothing by Mouth (NPO)**
1. If the patient is given food or fluid by mouth, he may vomit.
2. Vomiting, sneezing, coughing, and hiccupping cause increased intracranial pressure.
3. Sudden increase in pressure may precipitate herniation of the cerebellar tonsils through the foramen magnum, with medullary compression.
4. Vital cardiopulmonary center is contained in the medulla. Pressure on this center will cause irregular respiration or apnea.
5. The unconscious patient may aspirate fluids if given by mouth.
6. When there is marked increase in intracranial pressure, the fluid intake may be restricted. Overhydration of I.V. infusion that runs too rapidly can increase intracranial pressure.
7. Head injury is always followed by a period of negative nitrogen balance (catabolism exceeds anabolism). No correlation with severity of injury, not influenced by caloric intake, very little affected by increasing protein intake. Increasing protein will not be utilized, therefore, it must be excreted along with an appropriate amount of water.

J. **Elevate the head of the bed 30° and maintain the patient's head to the side.**
1. This promotes return of venous drainage of blood and cerebrospinal fluid.
2. Improved ventilation.
3. Patients with basal skull fractures may be kept flat.
4. In no instance should the patient's head be allowed to rest below the level of the rest of the body.

5. Maintain a patent airway because carbon dioxide retention causes cerebra vasodilation and consequent swelling and congestion of the brain.

K. Dehydration Regimen
1. Cerebral edema may be treated in high doses or with a hypertonic intravenous solution, such as Mannitol (50% Glucose) or Urea.

2. Dehydrating drugs: Diuretic-Lasix (Furosemide)

3. Limited fluid intake 800 to 1200 ml per 24 hours.

4. Magnesium Sulfate by mouth or retention enema (30 ml saturated solution P.O.)

5. Lasix
   a) Produce diuresis in 1/2 to 1 hour (oral last 8 hours) Injection 15 min. I.V. n 5 min last 2-4 hours.
   b) Check on plasma levels of:
      1) Chloride ion
      2) Potassium ion
      3) Sodium ion


7. Overhydration (water intoxication) and dehydration can produce symptoms indistinguishable from those of head injury.
   a) Dehydration, once recommended in the hope of reducing cerebral edema, will reduce blood volume, stimulate aldosterone secretion-increase salt retention increasing hypernatremia.
   b) First three or four days limited fluid to 1,500 ml plus loses.
   c) Most common cause of difficulty with fluid balance failure is inaccurate intake and output.

L. Medication
1. Dilantin is the most widely used anticonvulsant.
   a) Superior to Phenobarbital in that it produces no drowsiness.
   b) Used in treatment of seizures.
   c) Used as a precautionary measure against seizures following brain surgery or trauma.
   d) Dosage range usually 60 mg to 400 mg.
   e) Frequent side effects are hypertrophy of the gums, dermatitis and a staggering gait.

2. Seizures increase intracranial pressure.

3. Bleeding, edema, infection and tumors impinging on the corticospinal tracts may cause seizures.
4. Opiates and sedatives are avoided, because they tend to depress the level of consciousness, mask the symptoms of increased intracranial pressure and depress respirations.

5. Lowered respirations increase intracranial pressure.

V. Diagnostic Studies

A. Electroencephalography (EEG) - a graphic record of the electrical activity of the brain.
   1. Disease or injury leaves prints as distinctive as fingerprints.
   2. At the age of 3 or 4 years of age a child’s brain print acquires individual features that he will carry to adulthood.
   3. Convulsant omitted for 48 hours (in actual practice, medication is rarely omitted)
   4. Should most fast before test.

B. Echoencephalography (Echo)-method of recording reflected ultrasound from reflecting surface. Projected on an oscilloscope.
   1. Midline structures of the brain are reflected. Any shift of these can be visualized.
   2. Method is simple, rapid and safe.

C. Brain Scan-Tracer substance is greater in the pathological region. 90% of brain tumors can be localized.

D. Lumbar Puncture-hollow needle with stylet into the lumbar subarachnoid space to measure cerebrospinal fluid pressure, to detect bleeding and to obtain fluid for examination.
   1. Epidural hematoma-no bleeding will be detected.
   2. Seldom done in patients with increased intracranial pressure-causes herniation.

E. Cerebral Angiography-injection of a radiopaque substance into the cerebral circulation in conjunction with special roentgenological studies of the intracranial and extracranial vessels.
   1. Carotid system to outline arteries and returning venous circulation.
   2. Vertebral artery to outline vertebral-basilar system in the posterior fossa.
   3. Purpose is to determine site, size, nature of pathological process and to localize tumors, hematomas.
   4. Distort the normal cerebral vascular patterns
      a. Vessels diverted by pressure
      b. Bleeding - leakage of dye
   5. Nursing responsibilities
      a. Consent signed
      b. Sensitivity test
      c. NPO 6 hours before the test
      d. Post-operative. Check swelling of neck. Ice bag to neck to prevent swelling.
Test motion and strength of extremities.

e. Keep on side until conscious

Nursing Management

A. Neurological Assessment
1. LOC
2. Pupillary Size & Lightreaction
3. Eye Movement
4. Motor Functions
5. Sensory Function
6. V/S
   a. BP widening pulse pressure
   b. P
   c. T causes O₂

Establish baseline of neurological signs. Perform periodic assessments and compare to previous findings. Subtle changes in neurological signs can indicate deterioration or improvement.

Positioning

A. Raise head of Bed 30° Semi-Fowlers position
   1. Promote venous drainage from brain
   2. Higher than 30° will impair arterial flow to brain - O₂
B. Avoid head rotation and neck flexation
   1. Flexion venous drainage and ICP
C. Avoid hip flexion of more than 90° or use of footboards.
   1. Increases intra-abdominal pressure, venous drainage ICP
   2. Push against footboard initiateValsalva maneuver.

Hypoxia

A. Assess rate, depth and pattern of respirations (14 to 16 per minute)
   1. Indicates airway patency.
B. Auscultate chest.
   1. Indicates lung expansion.
C. Administer O₂
   1. Prevents CO₂ which cause vasodilation.
   2. Hyperventil patient reduce PCO₂ level to 25 to 30 mmHg cause vasoconstriction and subsequent ICP.
   3. Monitor ABGs.
D. Avoid sedation which ventilation causing CO₂ retention and ICP.
E. Assess skin for cyanosis (Mouth, earlobes, nails) indicates O₂ - CO₂ exchange.
Suctioning

A. Don't suction unnecessarily.

B. Hyperventilate patient before and after. Prevents CO$_2$ build-up.

C. Suction quickly. No more than 15 seconds.
   1. Prevents buildup of CO$_2$. CO$_2$ cerebral vasodilation which ICP.

Valsalva Maneuver

1. Defined to be the exertion against a closed epiglottis.

2. This increases intrathoracic pressure which impedes venous return from the brain which ICP.

3. Avoid Valsalva Maneuver
   a. Avoid straining at stools, give stool softener.
   b. Omit coughing from C, T, DB exercises.

Movement

A. Avoid movement. Keep as still as possible.
   1. Turn q2o to aid respiration and prevent skin breakdown.
   2. Assist patient in moving and turning. Prevents valsealva maneuver. O$_2$ need of M.S.
   4. Avoid restraints. Causes patient to perform V.M. and ICP.

General

A. Plan nursing care so activities are not clustered together.

B. Keep noise to a minimum. If you talk, Talk to patient.

C. Check stool for occult blood Decadron can cause GI bleeding.

D. Check urine for sugar and acetone. Decadron can cause hyperglycemia.

E. Monitor blood level of Anticonvulsive drug.

F. Inspect legs for signs of thrombophlebitis. Applystocking.

G. Monitor urine specific gravity or osmolarity. Gives indication of development of diabetes insipidus.
   a. Diabetes insipidus is a condition of abnormal decreased secretion of ADH.
   b. Symptoms
1. Polyuria-4 to 10 liters daily. 200ml/hr.
2. Low urine specific Gravity (1.001 to 1.005)
3. Low urine osmolarity.
4. Dehydration.
5. Polydipsia.
6. Elevated Serum Sodium (145 Meg/1)

SIADH (Posterior Pituitary-Neuro Control)

Path: Hypernatruria in presence of Hyponatremia leading to hypo-osmolality and Cellular swelling. (ADH reabsorption H2O from Distal tubule and collecting ducts of nephron)

Lab: Serum osmolality < 135 Meq/L
Urine Osmolality > Serum Osmolality
Urine NA+ >25 MEq/L

Medical Treatment

1. Establish Airway
2. Dehydration Regimen
   a. Limited intake
   b. Hypertonic solution
   c. Diuretic drugs
      1) Mannitol (hypertonic solution)
      2) Lasix
      3) Bumex
3. Corticosteroids
4. Barbiturates
5. Positioning
6. Hyperventilation
7. Control Temperature
The Meaning of Blood Values

BUN (Blood Urea Nitrogen) - (8 - 20mg%)

Urea is an end product of protein metabolism. It is increased by high dietary intake of protein but also results from tissue breakdown if diet is inadequate. Serum value may fluctuate considerably according to what is eaten. It may play a part in the disequilibrium syndrome because it does dialyze easily; the blood level falls more rapidly than the intra-cellular level causing a shift of water and intracellular swelling.

CREATININE - (0.7 - 2.0MG%)

Creatinine is a waste product of muscle metabolism and as a general rule, the more muscle mass a person has, the greater the amount of creatinine produced daily. The normal kidney excretes creatinine produced daily, but when kidney function is impaired, creatinine accumulates in the blood. Creatinine is a small molecule and diffuses readily through the artificial kidney membrane.

Periodically, blood is sampled before dialysis to give an estimate of the amount of creatinine accumulated between dialysis and as a indication of the efficiency of dialysis.

Each patient produces daily an amount of creatinine directly proportionally to his muscle mass. The amount produced each day is relatively constant and independent of dietary intake. Therefore, the blood creatinine level is a relatively good indicator of artificial kidney effectiveness.

SODIUM - (135 - 150 mEq/L)

Sodium is the main cation in serum and extracellular fluid and is important in maintaining water balance between the interior of cells and surrounding body fluid. Sodium level is closely controlled by normal kidney function. In renal failure, an excess sodium intake increases thirst, hence fluid intake with increased total body water, elevation of blood pressure and stress on the heart.

POTASSIUM - (4.1 - 5.6 mEq/L)

Potassium is the most plentiful cation (positive ion) in the body. The concentration within the cells is much higher than in the blood. Potassium is present in varying amounts in most foods and any excess is excreted by the normal kidney. Low serum potassium may cause weakness, while an elevation may result in cardiac arrhythmias and even death. Therefore, one particular aim of dialysis is to remove excessive potassium from the body.

CHLORIDE - (95 - 105 mEq/L)

Most of the chloride in the body is present as sodium chloride or salt. Therefore, the technique in regulating the blood chloride level is the same as for that of sodium. The sodium and chloride leave the body via the ultrafiltered water.
CALCIUM (8.5 - 105 mEq/L)

Although this looks like a situation where calcium would diffuse from blood into dialysate, such is not the case. This is because about 40% of all the calcium in the blood is bound to protein molecules. This means that of the 10 mg% in the blood, only 6 mg% is available for diffusion, since protein molecules are far too large to cross the membrane. If there are only 6 mg% of calcium available for diffusion and there are 6 mg% of calcium in the dialysate, then the net exchange is zero. In this regard, calcium seeks to maintain the normal concentration in the blood.

Probably you are aware that calcium is needed for healthy teeth and bones. In the patient with kidney failure, calcium in the diet tends to be absorbed poorly, and calcium may be released from bone to supply internal needs.

Bone replacement is usually slowed also. Calcium-phosphorus metabolism is complex and there may be excess calcium deposits in skin (which may aggravate itching) and other tissue at the same time bone is being robbed of calcium.

PHOSPHORUS (2.5 - 4.5 mg%)

Phosphorus is produced from protein metabolism and, like calcium, regulates the integrity of the bones. The normal adult level is 2.5 - 4.5 mg%. Often a high phosphorus level may result in a low calcium level or vice versa. The products of the blood levels (calcium in mg% multiplied by phosphate in mg%) should never exceed 70, or calcium deposits may occur in soft tissues and around the joints. In many patients, dialysis alone will not be sufficient to lower the blood phosphate to near normal levels and it may be necessary to lower the phosphate level in the blood further by antacid drugs called phosphate binders. These latch on to dietary phosphate in its passage through the body, and cause it to be excreted in the stool.

MAGNESIUM (1.5 - 2.5 mEq/L)

Magnesium is essential for certain cellular functions even though it is present in small amounts. However, it can depress nervous system function if 5-10 times the normal concentration is present in blood. As a result during dialysis, the dialysate level is set slightly lower than the blood concentration, so that a small amount of magnesium is removed during dialysis to make up for the small amount of magnesium present in food between dialysis. The patient should be careful to avoid taking too much magnesium-containing medicines, such as milk of magnesia, and certain antacids (e.g., MaaloxR), although such drugs can be safely used if necessary under a physician=s instructions.

HEMATOCRIT (35 - 48%)

Blood is composed of cells (mostly red blood cells) and plasma. The cells may be separated from the plasma when the blood specimen is spun down. That proportion of a whole blood sample represented by the packed cells is expressed as a percent of the total, and is the hematocrit.

Substances that we usually associate with acid are sour to the taste, such as vinegar, lemons and grapefruit. The ancient Germans used the word Asaure®, and the ancient Romans Acidus®. The ancients also knew that this sourness could be neutralized by a substance called Apotash® obtained from the ashes of plants burned in pots. The word Alkali® is derived from an Arabic term Al-galay®, which means literally Ato roast in a pot®. Eventually the word alkali came to mean all substances with neutralized acids, include lime (the kind you find in cement)
and baking soda (bicarbonate of soda).

What does neutralize mean? This can be demonstrated by a simple taste test. Take some tap water, add to it about a quarter teaspoonful of baking soda, stir and taste. This has a flat taste. If you add to it a couple drops of vinegar, you will see a chemical reaction taking place resulting in bubbling. Shake. Continue adding vinegar and shaking until the bubbling stops, at which point there is no more chemical reaction occurring, and the alkali solution begins to taste more and more sour; the solution has become acid. This acid solution can be neutralized again by adding some more baking soda. When the bubbling reaction stops again, you have neutralized the solution once more.

All living organisms produce acid. When fats and carbohydrates are burned in the body, they produce two waste products, carbon dioxide and water. Carbon dioxide, a volatile acid, mostly evaporates into the air in the same way that the carbon dioxide bubbles in a glass of 7-up disappear with time. Thus, the waste products from carbohydrates and fats are evaporated through the lungs as carbon dioxide and water vapor. Unfortunately, not all the acid produced in the body can be passed out into the atmosphere by our lungs.

By now you may have guessed that the artificial kidney has to deal with the acids formed in the body. The breathing out of carbon dioxide and water by the lungs remains intact in the dialysis patient. Metabolic acids are small molecules, and some are removed during the dialysis process. The remainder are neutralized by diffusion of alkali form the dialysate in the blood to replace the bicarbonate formed in the normal kidney. Unfortunately, bicarbonate cannot be used in dialysate as this would react with calcium in the dialysate to form chalk (the kind used on the blackboard). Instead, therefore, we use acetate, a chemical precursor of bicarbonate, which is changed to bicarbonate as soon as it enters the blood.

Since the concentration of bicarbonate or acetate in the blood is less than the concentration in the dialysate, acetate will travel through the membrane into the blood to form bicarbonate and neutralize the excess acids in the body.

URIC ACID - (3 - 7 mg%)

Uric acid is a crystalline acid, occurring as an end-product of purine metabolism. It is formed from purine bases derived form nucleoproteins. It is a common constituent of urinary and renal calculi, and gouty conditions.
SMALL INTESTINE

Three Division
   Duodenum (10 inches)
   Jejunum (8 feet)
   Ileum (12 feet)

1) Villi-finger-like projection
   (Mucosa and Submucosa)
   Increase absorption area 600 times

2) Ileocecal valve-terminal end of Ileum at junction of cecum and colon. Controls flow of contents into large intestine, prevents reflux in to ileum.

3) 90% of nutrients and 50% H₂O and Electrolytes are absorbed in jejunum (NG⁺, K⁺, C₁⁻ HC₀³⁻ MqH P₀⁴⁻)

4) Water-soluble vitamins (C&B complex) absorption occurs in all parts of small intestine

5) Iron-uptake all areas

6) Vitamin B12 requires intrinsic factor absorbed in ileum

7) Fat-soluble vitamin (A,D,E,K) require bile salts absorbed in jejunum

8) Ca++ requires Vitamin D absorbed in desodeum
LARGE INTESTINE

Division

Cecum
Ascending Colon
Transverse Colon
Descending Colon
Sigmoid Colon
Rectum

Two Flexures

Hepatic
Splenic

Two Sphincters

Ileocecal
Anal

FUNCTION – ABSORPTION OF:

1) $H_2O +$ Electrolytes
   $Na^+$ and Cl absorbed
   $K^+$ and $CO_3^-$ secreted

2) Urea breakdown – blood urea metabolic waste product is broken down to $NH_3$
   by mucosal cells of colon

3) Bacteria breakdown cellulose and synthesize vitamins (folic acid, riboflavin,
   vitamin K, Nicotinic acid)

4) Factors that enhance colonic motility
   High residue diet
   Irritation of colon

5) Factors that inhibit, motility
   Low residue diet
   Anticholinergic drugs-Atropine, Propantheline
**GALL BLADDER**

- Serves as passageway for bile
- From liver intestine
- Regulates bile flow
- Collects conc. and stores bile
- Bile responsible for emulsification of fats
- Major bile pigment is bilirubin
- Bile moves form liver canaliculi

----> Hepatic duct -----> cystic duct to G.B. for storage

Stimulation GB secretes bile into cystic duct -----> common duct -----> duodenum

**PANCREAS**

Pancreatic duct joins common bile duct before entrance into duodenum – Ampulla of Vater

Pancreatic secretion

- **Exocrine**
  - Acinar cells secrete a high Concentration of NaHc0₃
  - H₂O H⁺ K⁺ and digestive Enzymes (Lipase, Amylase, Trypsin, Ribonuclease)

- **Endocrine**
  - Beta cells-secrete insulin
  - Alpha cells secrete glucagon

- **Control of secretion**
  1. Vagal-parasympathetic impulse result in moderate secretion of pancreatic enzymes during cephalic and gastric phases
  2. Hormonal-entrance of food into small intestine stimulates pancreatic secretions via hormonal influence (secretion, cholecystokinin)
LIVER DYSFUNCTION

Edema due to hypoalbuminemia results from Hepatic production of serum Albumin

GI, bleeding, bruising, nosebleed, bleeding wounds form inability of liver cells to use vitamin K, A, D, E

Abnormal glucose metabolism.
Hyperglycemia after meals and hypoglycemia after fasting because hepatic glycogen reserves and gluconeogenesis

Decrease metabolism of Drugs

Decrease metabolism of estrogen ----> gynecomastia testicular atrophy, loss of pubic hair, menstrual irregularities spider angiomata, reddened palms

Bilirubin not converted into urobilin regurgitated back into blood
Mod A  Neuro

*Med-Surg Nursing I*

- Unconscious head injury

*Ped Sim*

Meningitis
Toddler with seizure
Child with cerebral palsy

*Critical Concepts & Skills*

Neurological
Neurological Assessment & Head Trauma
Nervous System 1992

*A visual guide to physical examination*

Neurological System: Cranial Nerves & Sensory
Neurological System: Motor System & Reflexes

Mod B  Renal

*Med-Surg Nursing II*

Chronic Renal Failure

*Arterial Blood Gas Interpretation: A Systematic Approach 1997*

*Phyz Whiz - Renal system*

Mod C/D  GI

*Pediatric Simulation*

Infant Vomiting

*Med-Surg Nursing I*

- ABD Pain
- Surgical ABD

*Critical Care Concepts & Skills (1992)*

Gastrointestinal
Phys whiz

The Gastrointestinal System

Enteral Feeding Tubes I & 2

Implantable Ports

Operation of the Flexible Quantum Enteral

Flexible Gastroscopy tube & Stomate Insertion & Tubal Stomal Care

A Visual Guide to Physical Examination:

Abdomen
Male Genitalia: Rectum & Hernias
Female Genitalia: Anus and Rectum

Mod E  Skin

Prevention, Assessment, & Treatment of Pressure

Ulcer M169
# Professional Presentation Grading

<table>
<thead>
<tr>
<th>CRITERIA</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Introduction (5)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Content (10)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Relevance (10)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Conclusion (5)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Outline/References (5)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Media use (5)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
SPECIAL NEEDS OF THE RENAL PATIENTS

I. Daily Weights VERY IMPORTANT
   A. Weigh immediately upon admission offers a baseline or norm for the patient.
      1. Use same scale
      2. Weigh at same time each day
      3. Weigh with same clothing
   B. Fluid overload is the cause for many symptoms in the patient.
      1. Increase BP
      2. SOB
      3. Edema
      4. CHF
   C. One pound = 454 cc = s
      Daily fluid allowance = 500 cc plus urine output
   D. Accurate weight aids in the prescription of dialysis. By knowing the weight, assessment of dialyzer need can be made pre-dialysis procedure.

II. Diet VERY restricted
   A. Decrease protein
      Decrease sodium
      Decrease potassium
      Decrease fluid intake
      Increase calories
   B. Diet objective
      1. Protein necessary for tissue build-up
         a. Minimize protein catabolism by providing proteins containing essential amino acids.
      2. Decrease sodium, potassium control electrolyte balance
      3. Calories patients use calories for energy instead of protein. Prevent negative nitrogen balance
      4. Fluid intake control fluid intake
   C. Typical Renal Diet
      1. HBV (High Biologic Protein - Essential Amino Acids) = 60-80 gms.
      2. Sodium - 2 gms
3. Potassium - 1-2 gms
4. Calories - 2,000 - 2,500
5. Fluid - 1,000 - 1,500 ml/day
D. Nursing Interventions
1. Check tray - question dietician if you feel diet is incorrect
   a. Milk, juices, coffee - breakfast
   b. Food high in potassium - banana, fruits, etc.
2. If a non-nephrologist orders a renal diet - check with patients nephrologist.
3. Check visitors - visitors may bring in foods not on the patients diet.
4. Advise visitors to check with nurse before giving the patient any food or fluids.
5. If patient is not eating - nausea/vomiting
   a. Give antiemetics before meals
   b. Order small frequent meals
   c. Consult dietician - patient preference
6. Coordinate meals with dialysis treatments
   a. Order early trays
   b. Advise dialysis personnel if this is not possible for possible change in treatment time

III. Hygiene

A. Uremic Breath
   1. Good oral hygiene
   2. Use swab sticks instead of tooth brush if patient has sores in his mouth

B. Daily baths
   1. Use warm water
   2. Emollient creams
   3. Assess skin while bathing
      a. Bruises
      b. Scratch marks

C. Reduces infection rate in access if patient is clean

D. Gives patient a feeling of well-being especially young patients

IV. Fluid Management

A. Accurate 24 hour urine collection
   1. Results determine degree of renal failure
   2. Results determine if patient will start dialysis or continue on conservative management.
   3. Very important to be accurate - start over if a urine specimen is lost
B. Careful monitoring of IV solutions
   1. IV fluids limited - excessive fluid gains
      a. Prevent run-away IVs
      b. IMED utilized if possible - desired practice with this type of patient
   2. Be aware of what is in the IV solution
      a. Sodium content
      b. Potassium content
      c. Sugar content
   3. Be aggressive if you question an IV order by a non-nephrologist

V. Special Handling of an ESRD Patient
   A. ESRD Patients have lowered resistance to infections
      1. Uremia - perfect environment for bacterial growth
      2. Uremic state renders the patient with lowered resistance
      3. If there is an infected patient (dialysis or non-dialysis) do not place a dialysis patient in the same room.
      4. Be extremely careful - wash hands between patients.
      5. Wear gloves when handling the following from any patient.
         a. Blood/transfusion
         b. Urine/feces
         c. Sputum
         d. Open wounds/secretions
      6. Vascular access
         a. Wear sterile gloves
         b. Wash hands
      7. Hepatitis C dialysis patients are a high risk group because of blood transfusion. Hemodialysis precautions:
         a. Gloves - for everything
         b. Hand-washing before any procedure/handling of patient
         c. Needles - not capped
      8. Alert physician of any signs of infection
         a. Access - redness, inflammation, pus
         b. Temperatures
         c. Chills, etc.

VI. Vascular Access
    A. Aseptic Technique
    B. No venipuncture on extremity with access
    C. No blood pressures on extremity with access
    D. Check bruits
VII. Administration of Medications

A. Dialyzable or Non-dialyzable

B. Medications held before dialysis
   1. Antihypertensives - unless otherwise ordered
   2. Vitamins/Folic Acid
   3. Laxatives (BP decrease)
   4. Diuretics (difficult to get up on commode)
   5. Narcotics (BP decrease)
      a. Morphine
      b. Demerol
   6. Electrolyte preparation - oral calcium/rocaltrol

C. IM Injections
   1. Give pre or post dialysis only
   2. Can cause huge hematomas in presence of heparin
   3. Ask dialysis nurse before giving any IM injections

VIII. Common Problems Secondary to Uremia:

A. Nausea/vomiting (previously or anxiety)

B. Diarrhea
   1. Caused by Hyperkalemia or anxiety
   2. Pre-existing gastrointestinal problem
   3. Intervention
      a. Dialysis
      b. Lomotil
      c. Tranquilizers

C. Hyperkalemia
   1. Causes=
      Dietary
      G.I. Bleeding
      Hemolysis - transfusion reaction
      Infections
      Catabolic state
   2. Symptoms = K > 6 - 7 mEq
      EKG changes: Peaked T-Wave
      Widened QRS
      Arrhythmias - Cardiac arrest
      Nausea/vomiting - compensation mechanism to remove excess potassium
      Muscle weakness/facial type paralysis
3. Treatment - Dialysis  
Exchange resins - Kaexylate  
Glucose/Insulin infusion  
Calcium gluconate

D. Hypokalemia

1. Causes: GI - loss (N/G suctioning)  
Nausea/Vomiting  
K-sparing diuretics

2. Symptoms - K < 3mEq  
Depressed ST segment  
Flat or inverted T-Waves  
Prolonged PR interval and QRS complexes  
Anorexia  
Muscle weakness, muscle cramps  
Arrhythmia  
Lethargy  
Predisposition to digitalis toxicity

3. Treatments - Dietary Intake (preferred)  
IV supplement - KCL  
Correct cause

E. Hypothermia

1. Uremia affects the temperature control center of the brain - hypothalmus

2. Temperature 94, 95, or 96 F not unusual

3. Dialysis corrects this problem - patients temperature returns to normal post dialysis

F. Headaches

1. Causes - 8 Blood Pressure  
Disequilibrium syndrome

2. Treatment - Control B/P  
20% Mannitol during dialysis prevent dysequilibrium syndrome  
Analgesics - Tylenol

G. Insomnia (usually first symptom of uremia)

1. Cause is obscure  
a. Patients usually do not have deep sleep (REM sleep)  
b. Patient has interrupted sleep which is interpreted as no sleep  
c. Patient usually sleep during dialysis or during the day
2. **Treatment**  
   a. Encourage patient not to sleep during the day  
   b. Administer hypnotics only if severe (patient response usually poor to hypnotica)

**H. Restlessness**  
1. **Causes-**  
   - Uremic neuropathies  
   - Fluid overload  
   - Under dialyzed  

2. **Treatment-**  
   - Adequate dialysis  
   - Valium (only if severe enough)

**I. Hypertension**  
1. **Causes-**  
   - Insufficient B/P medication  
   - Anxiety  
   - Fluid overload  
   - Renin release  

2. **Treatment-**  
   - Reevaluate B/P medication  
   - Sedative  
   - Dialysis for fluid overload  
   - Nephrectomy (only in extreme cases)

**J. Hypotension**  
1. **Cause -**  
   - Too much B/P medications  
   - Volume depletion  
   - Cardiac Tamponade (rare) (if pulse rapid)  

2. **Treatment -**  
   - Reevaluate B/P medication  
   - Volume infusion- NS, 5% albumin  
   - Fericardial tap (cardiac tamponade)

**K. Seizure**  
1. **Causes -**  
   - Severe azotemia  
   - Severe hypotension  
   - Hypoglycemia  
   - Rapid dialysis  

2. **Treatment -**  
   - Anticonvulsant (Phenobarb, Dilantin)  
   - Slow dialysis  
   - Prevent hypoglycemia

**L. Hemodialysis Schedule**  
1. All patients have scheduled time  
2. Normal prescription - 4 hours, 3 x week  
3. Hemodialysis nurse calls nursing floor  
4. Order tray early
5. Advise hemodialysis if physician orders procedure which will interfere with dialysis schedule
6. Advise HDU if renal patient is admitted
7. Hold appropriate medications
8. Post dialysis
   a. Patient feels *washed out*
   b. B/P may be low - fluid removal
   c. May have headache
KIDNEY FUNCTION

I. Two Prime Functions

A. Regulation of balance between fluid and electrolytes.

B. Elimination of metabolic waste products.

II. Kidney Function

A. Removal of excess fluid

B. Electrolyte Balance = potassium (K), chloride (Cl), sodium (Na), magnesium (Mg), calcium (Ca), phosphate (PO₄), hydrogens (H)

C. Removal of waste products (toxins)
   1. Urea (BUN)
      a. End-product of protein metabolism
      b. BUN level increases with
         (1) Dietary intake of protein (meat)
         (2) Catabolic state (negative nitrogen balance, infection)
         (3) Hyperalimentation
         (4) GI bleeding (blood is protein)
   2. Creatinine
      a. End-product of muscle metabolism
      b. Creatinine level is directly proportional to muscle mass
      c. Good indicator of renal failure
   3. Uric Acid
      a. End-product of purine metabolism (nucleoproteins)
   4. Other essential amino acids

D. Acid Base Balance
   1. Excess hydrogen ions are exerted by the kidney
   2. Kidney regenerates bicarbonate

E. Endocrine Functions
   1. Erythropoietin production decreases
      a. Erythrocyte stimulating factor
      b. Stimulates production of red blood cells
      c. Produced by the kidney
   2. Production of active metabolite of Vitamin D
      a. Converts Vitamin D to an active form which then aids in absorption of calcium from the gut.
      b. Degradation of insulin
      c. Degradation of gastrin
      d. Renin production
F. Other functions
1. Blood pressure control
   a. Renin
   b. Aldosterone
   c. Antidiuretic hormone

III. Functions of the Artificial Kidney

A. Fluid Balance
1. Hydrostatic pressure
   a. Positive - from blood side
   b. Negative - suction of dialysis side

B. Electrolyte Balance
1. Potassium
2. Sodium
3. Chloride
4. Magnesium
5. Phosphorus
6. Calcium

ESRD Patient

<table>
<thead>
<tr>
<th></th>
<th>Pre-Dialysis Level</th>
<th>Dialysate Level</th>
<th>Post-Dialysis Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>K</td>
<td>5 - 7 mEq</td>
<td>1.5 mEq</td>
<td>3.2</td>
</tr>
<tr>
<td>Cl</td>
<td>90 - 110 mEq</td>
<td>104.7 mEq</td>
<td>100</td>
</tr>
<tr>
<td>Na</td>
<td>136 - 140 mEq</td>
<td>139.7 mE</td>
<td>138</td>
</tr>
<tr>
<td>Mg</td>
<td>0.7 - 1.5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PO₄</td>
<td>5 - 10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ca</td>
<td>9 - 11 Mg %</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

C. Acid - Base Balance
1. Acetate converts to bicarbonate as it enters the patient from the dialysate compartment.

D. Removal of Waste Products
1. Urea
2. Creatinine
3. Phosphorus (that produced with protein metabolism)
4. Uric Acid

E. Removal of other non-electrolyte products
1. Glucose
2. Water-soluble vitamins

IV. Clinical symptoms of E.S.R.D.

A. Integumentary System
1. Yellow-tan skin color
   a. Urocrome - pigment that gives urine its color
2. Pruritis
   a. Intense itching caused by retained toxins in the skin
   b. Signs
      (1) Numerous scratch marks
      (2) Continuous scratching
      (3) Complaint of itching
      (4) Rough and dry skin
3. Dry, coarse, scaly skin
   a. Inactive sebaceous glands
   b. Due to itching
4. Ecchymoses
5. Cutaneous and conjunctivial calcifications
   a. Secondary to hyperparathyroidism
   b. Calcium deposits
6. Uremic Frost (advanced unattended renal failure)
   a. A whiter powdery substance on the skin
   b. Urate crystals secreted via the skin

B. Reproductive System
1. Male
   a. Impotence - uremia, medication
   b. Sterility - low sperm count
   c. Lack of libido - hormonal changes
2. Female
   a. Menstrual dysfunction - very little or complete absence of menses, hormonal change
   b. Sterility - anovulatory

C. Muskuloskeletal System
1. Osteodystrophy = defective bone formation
   a. Abnormal calcium/phosphorus balance
   b. Pathological fractures
   c. Bone pain
2. Joint Disorders
   a. High uric acid levels with subsequent goutlike involvement of
one or more joints.

b. Inflamed swollen joints

3. Cramps - neuromuscular irritability

D. Hematologic System
1. Pallor - low hematocrit
2. Easily fatigued - low hematocrit
3. Shortness of breath - low hematocrit and hemaglobin
4. Bruises - metabolic imbalances interfere with adhesiveness of platelets, prolonged clotting time
5. Laboratory finding
   a. Low hematocrit (18-26%)
   b. Low hemaglobin
6. Red blood cell - decreased longevity
   a. Uremic environment shortens the RBC life span - they become more fragile
   b. Lack of erythropoietin
   c. Older patients
      (1) Decrease erythropoietin plus old bone marrow = Decrease RBC production
      (2) Poor cardiovascular systems, therefore require increased hematocrit
      (3) Require numerous transfusions
      (4) Try to keep their HCT=s above 25-27% depending on the patient

E. Respiratory System
1. Shortness of breath
   a. Fluid overload
   b. Decrease HCT and HGB
2. Pulmonary Edema (fluid in the lungs)
3. Pleuritis - pain on inspiration

F. Cardiovascular System
1. Hypertension
   a. 85% due to fluid overload
   b. Over secretion of renin - inappropriate activation of renin angiotension system
   c. Anxiety
2. Uremic Pericarditis
   a. Toxins irritate pericardium
   b. Substernal pain on inspiration
   c. May lead to cardiac tamponade - life threatening
   d. Signs
      (1) Chest pain associated with pericardial rub
      (2) Chest sounds - 2 pieces and paper rubbing together
3. Congestive heart failure
   a. Impaired salt/water excretion
   b. Anemia/hypertension increased demand on the heart
c. Coronary artery disease  
   (1) Arteriosclerosis - caused by abnormal lipid metabolism  
   (2) Metabolic derangement interfer with myocardial performance  

d. Signs of CHF  
   (1) Dyspnea  
   (2) Orthopnea  
   (3) Fluid retention  
   (4) Chest x-rays show vascular congestion and edema  

d. Arrhythmias  
   a. Electrolyte imbalance  
   b. Fluid overload  

F. Gastrointestinal System  
1. Most common and distressing  
   a. Nausea  
   b. Vomiting - not necessarily accompanied by nausea, occurs in the morning  
2. Prone to diffuse patchy ulcerations along the GI tract  
3. GI bleeding  
   a. Increased hydrochloric acid potency  
   b. Anxiety/nervousness  
4. Constipation  
   a. Aluminum hydroxide - phosphate binders are constipating  
   b. Renal diet is a very dry diet  
5. Ascites - rare  
   a. Due to repeated fluid overload  
   b. Poor nutritional status  
6. Uremic breath  

G. Neurological System  
1. Central Nervous System  
   a. Mild intellectual impairment  
      (1) Inability to concentrate  
      (2) Disorientation  
      (3) Apathy - not interested in anything  
      (4) Very difficult to do patient-teaching during this time prior to initiation of dialysis  
   b. Agitation  
      Frank psychosis  
      More advance uremic state  
      Convulsion  
   c. Lethargy/comatose  
   d. Asterixis - peculiar flapping motion of the band with extended fingers - hyperextended  
   e. Muscle cramping  
2. Peripheral Nervous System
a. Numbness - tingling/burning sensation in extremities
   A restless leg syndrome
b. Painful walking
c. Paraplegia
d. Foot drag
e. Nerve conduction velocity lists show slower response
f. Changes in gait
g. Slower reflexes

**PRIMARY SKIN LESIONS**

**Macule**
A circumscribed, flat discoloration that may be brown, blue, red, or hypopigmented.
- **Brown**: fixed drug eruption, freckle, lentigo
- **Blue**: ink (tattoo), mongolian spot
- **Red**: drug eruptions, juvenile rheumatoid arthritis, rheumatic fever, secondary syphilis
- **Hypopigmented**: post-inflammatory psoriasis, radiation dermatitis, tinea versicolor

**Papule**
An elevated solid lesion up to 0.5 cm in diameter; color varies, papules may become confluent and form plaques.
Example:
- **White**: flat wart, nevi (dermal), skin tags
- **Brown**: melanoma, nevi, seborrheic keratosis, warts
- **Red**: acne atopic dermatitis, cat scratch disease, eczema, psoriasis, scabies
- **Blue**: blue nevus, lymphoma, kaposi=s sarcoma, melanoma

**Plaque**
A circumscribed, elevated, superficial, solid lesion more than 0.5 cm in diameter, often formed by the confluence of papules.
Example: Eczema, paget=s disease, psoriasis, tinea versicolor

**Nodule**
A circumscribed, elevated solid lesion more than 0.5 cm in diameter; a large nodule is referred to as a tumor. Example: Basal cell carcinoma, furuncle, kaposi=s sarcoma, lymphoma, melanoma, metastatic carcinoma, squamous cell carcinoma, warts.

**Pustule**
A circumscribed collection of leukocytes and free fluid that varies in size. Example: acne candidiasis, chicken pox, folliculitis, herpes simplex, herpes zoster impetigo, psoriasis, scabies, varicella.

**Vesicle**
A circumscribed collection of free fluid up to 0.5 cm in diameter. Example: chicken pox, eczema (acute), herpes simplex, herpes zoster, impetigo.
**Bulla**  
A circumscribed collection of free fluid more than 0.5 cm in diameter. Example: Bullae in diabetics, fixed drug eruption, lupus erythematosus.

**Wheal (Hive)**  
A firm edematous plaque resulting from infiltration of the dermis with fluid. Wheals are transient and may last only a few hours. Example: angioedema, hives, dermographism.

**Scales**  
Excess dead epidermal cells that are produced by abnormal keratinization and shedding. Fine to stratified: psoriasis, seborrheic dermatitis, syphilis (secondary), tinea versicolor. Scaling in sheets (desquamation) Kawasaki syndrome, scarlet fever (hands and feet), staphylococcal scalded skin syndrome, Toxic shock syndrome.

**Crust**  
A collection of dried serum and cellular debris. Example: Atopic (face), Impetigo (honey colored), tinea capitis.

**Erosion**  
A focal loss of epidermis; erosions do not penetrate below the dermoeidermal junction and therefore heal without scarring. Example: dermatophyte infection, eczematous disease, senile skin, candidiasis.

**Ulcer**  
A focal loss of epidermis and dermis; ulcers heal with scarring. Example: chancroid, decubitus, neoplasms, syphilis (chancre), stasis ulcers.

**Fissure**  
A linear loss of epidermis and dermis with sharply defined, nearly vertical walls. Example: chapping, eczema

**Atrophy**  
A depression in the skin resulting from thinning of the epidermis or dermis. Example: aging discoid lupus erythematosus, striae, topical and intralesional steroids.

**Scar**  
An abnormal formation of connection tissue implying dermal damage, after injury or surgery scars are initially thick and pink but with time become white and atrophic. Example: Acne, burns, herpes zoster, keloid.

**SPECIAL SKIN LESIONS**

**Excoriation**  
An erosion caused by scratching; excoriations are often linear.

**Comedone**  
A plug of sebaceous and keratinous material lodged in the opening of a hair follicle; the follicular orifice may be dilated (blackhead) or narrowed (whitehead or closed comedone).

**Milia**  
A small, superficial keratin cyst with no visible opening.
<table>
<thead>
<tr>
<th><strong>Cyst</strong></th>
<th>A circumscribed lesion with a wall and a lumen; the lumen may contain fluid or solid matter.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Burrow</strong></td>
<td>A narrow elevated, tortuous channel produced by a parasite.</td>
</tr>
<tr>
<td><strong>Lichenification</strong></td>
<td>An area of thickened epidermis induced by scratching; the skin lines are accentuated so that the surface looks like a washboard.</td>
</tr>
<tr>
<td><strong>Telangiectasia</strong></td>
<td>Dilated superficial blood vessels. Example: Basal cell carcinoma, keloid, vascular spiders, pregnancy and cirrhosis.</td>
</tr>
<tr>
<td><strong>Petechiae</strong></td>
<td>A circumscribed deposit of blood less than 0.5 cm in diameter.</td>
</tr>
<tr>
<td><strong>Purpura</strong></td>
<td>A circumscribed deposit of blood greater than 0.5 cm in diameter. Example: platelet abnormalities, scurvy, senile (traumatic) purpura, rocky mountain spotted fever.</td>
</tr>
</tbody>
</table>
EVENTS THAT INFLUENCED THE NURSING PROFESSION

600 A.D. Birth of Buddha
0 A.D. Birth of Christ
58 A.D. Phoebe, the first visiting nurse
330 A.D. Emperor Constantine the Great founded a large hospital
370 A.D. Largest hospital in Asia Minor, the Basilies, was built by St. Basil of Athens
380 A.D. Fabiola established the first general hospital in Rome
476 A.D. Fall of the Roman Empire
660 A.D. Founding of Hotel Dieu, Paris; Benedictine monastery established
900 A.D. Monesticiam; early English Monastery
1000 A.D. Knights of St. John, the Teutonic Knights, and the Knight of St. Lazarus
1100 A.D. First Crusade; St. Clare founded nursing group, the Second Order of St. Francis
1170 A.D. The Beguines were founded; Founding of St. Bartholomew's Hospital, London
1300 A.D. Plague, St. Catherine of Siena
1639 A.D. Augustinian order founded Hotel Dieu in Quebec City, Canada
1644 A.D. Jeanne Mance founded Hotel Dieu in Montreal, Canada
1836 A.D. Kaiserswerth School founded
1844 A.D. Sairey Gamp, Charles Dickens's portrayal of a nurse
1853 A.D. Crimean War
1864 A.D. Scuteri
1859 A.D. La source program founded
1860 A.D. Nightingale School of Nurses established, St. Thomas Hospital, London
1861 A.D. Dorothea Lynde Dix appointed superintendent of Women Nurses for all Military Hospitals
1873 A.D. Linde Richards became first trained nurse in America; First three schools of nursing patterned after Nightingale school established in America; Bellevue Hospital, Massachusetts General Hospital and Connecticut Training School
1879 A.D. First black professional nurse in America graduated
1881 A.D. Clare Barton formed the American Associated of the Red Cross
1888 A.D. First nursing textbook published
1893 A.D. Henry Street Settlement in New York City founded; The Nightingale Pledge formulated
1912 A.D. National Organization for Public Health Nursing founded; National League of Nursing Education became new name for the American Society of Superintendents of Training Schools for Nurses organized in 1895
1919 A.D. First practical nurse program offered in a vocational school; First baccalaureate nursing program in United States, University of Minnesota
1922 A.D. Sigma Theta Tau was granted its charter as an honor society in nursing
1923 A.D. Winslow Goldmark Report
1931 A.D. American Association of Nurse Anesthesists founded
1934 A.D. Association of Collegiate Schools of Nursing organized
1935 A.D. Catholic University of America in Washington, D.C. granted approval for conferring of a master's degree in nursing education
1936 A.D. Frontier Nursing Service began midwifery program, in Kentucky
1938 A.D. First mandatory nurse practice act passed, New York
1942 A.D. National Association for Practical Nurse Education and Service, Inc. organized, Chicago Illinois
1943 A.D. Cadet Nurse Corps established
1945 A.D. Formation of an international health program, World Health Organization (WHO)
1948 A.D. Brown Report, Nursing for the Future, published
1949 A.D. National Federation of Licensed Practical Nurses founded
1952 A.D. Beginning of the Associate Degree Nursing Program; National League for Nursing formed as the result of the merger of six national nursing groups
1953 A.D. National Student Nurses' Association formed, Cleveland, Ohio
1959 A.D. Sigma Theta Tau admitted to the Association of College Honor Societies
1963 A.D. Equal pay Act (EPA) enacted
1964 A.D. Title VII of the Civil rights Act (Title VII) of 1964
1965 A.D. American Nurses' Association published position paper on Nursing Education promoting baccalaureate degree program as basic education for professional nurses
1973 A.D. University of the State of New York presented the Regents External Degree Program for Nurses; American Nurses' Association established a national Academy of Nursing; American Hospital Association developed the Statement on a Patient's Bill of Rights
1974 A.D. American Nurses' Association developed standards of practice for each of the five division of practice; Amendment to the National Labor Relations Act (NLRA)
1976 A.D. American Nurse's Association Code for Nurses; U.S. Postal Service issued first commemorative stamp to honor an individual nurse, Clara, Massachusetts
1978 A.D. Some hospital schools of nursing began to award associate degrees
1979 A.D. American Nurses' Association offered first school nurse practitioner certification
1980 A.D. First hospital based BSN Program established
<table>
<thead>
<tr>
<th>Year</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>1896 A.D</td>
<td>American Nurses– Association founded as the Nurse Alumnae of the U.S and Canada</td>
</tr>
<tr>
<td>1899 A.D</td>
<td>International Council of Nurses founded in London during the meeting of International Council of Women</td>
</tr>
<tr>
<td>1900 A.D</td>
<td>American Journal of Nursing Established</td>
</tr>
<tr>
<td>1903 A.D</td>
<td>First nurse practice act passed, North Ca</td>
</tr>
<tr>
<td>1981 A.D</td>
<td>National Council Licenture Examination (NCLEX) first administered</td>
</tr>
<tr>
<td>1983 A.D</td>
<td>Diagnosti-related groups (ORGs) patient classification system set up by Medicare to contain cost of health care</td>
</tr>
<tr>
<td>1986 A.D</td>
<td>Sunset review scheduled for eighteen regulatory boards consolidated under Department of Profession Regulation</td>
</tr>
<tr>
<td>1911 A.D</td>
<td>American Nurses– Association adopted its present name</td>
</tr>
</tbody>
</table>
ETHICAL ISSUES

Ethics is a way of thinking that helps us deal with questions of human conduct. To those of us involved in the health professions, ethics pertains to the questions asked about what is right or what ought to be done in situations involving moral decisions relating to patients. In the past, nursing ethics dealt primarily with codes of conduct and professional etiquette. American Nurses’ Association (ANA) adopted its first Code of Ethics in 1950. The 1976 revised edition is printed below.

American Nurses’ Association Code of Ethics for Nurses

1. The nurse provides services with respect for human dignity and the uniqueness of the client unrestricted by considerations of social or economic status, personal attributes, or the nature of health problems.

2. The nurse safeguards the client’s right to privacy by judiciously protecting information of a confidential nature.

3. The nurse acts to safeguard the client and the public when health care and safety are affected by the incompetent, unethical, or illegal practice of any person.

4. The nurse assumes responsibility and accountability for individual nursing judgements and actions.

5. The nurse maintains competence in nursing.

6. The nurse exercises informed judgement and uses individual competence and qualifications as criteria in seeking consultation, accepting responsibilities, and delegating nursing activities to others.

7. The nurse participates in activities that contribute to the ongoing development of the profession’s body of knowledge.

8. The nurse participates in the profession’s efforts to implement and improve standards of nursing.

9. The nurse participates in the profession’s efforts to establish and maintain conditions of employment conducive to high quality nursing care.

10. The nurse participates in the profession’s effort to protect the public from misinformation and misrepresentation and to maintain the integrity of nursing.
11. The nurse collaborates with members of the health professions and other citizens in promoting community and national efforts to meet the health needs of the public.