Hazleton Area Career Center Practical Nursing Program

|  |  |
| --- | --- |
| COURSE TITLE: | ADMINISTRATION OF INTRAVENOUS THERAPY |
| PLACEMENT: | Level 111 |
| TOTAL 110t)Rks: | 30 Hours |
| DESCRIPTION OF COURSE: | This course will include theory and skills in the administration of intravenous therapy.  Integrated in this course will be class demonstrations and practice on simulated models in the skills laboratory. |
| METHODS OF INSTRUCTION: | To implement the program, the instructor will utilize the following methods of instruction:   1. Lecture and discussion 2. Visual aids 3. Use of chalk board and bulletin board 4. Handouts and related readings and discussion of readings 5. IV Therapy Video |
| METHODS OF EVALUATION: | 1. Class participation 2. Achievement of thc course objectives 3. Successfully perform a venipuncture on a simulated arm/hand |

TEXTS:

Linton, Introduction to Medical Surgical Nursing, Elsevier 7th Edition, 2020

Linton, Introduction to Medical Surgical Nursing Study Guide, Elscvicr 7 th Edition, 2020

Wolters Kluwer: IV Therapy madc Incredibly Easy 5 th Edition, Lippincott, Williams, Wilkins, 2018

Revised 2021

OBJECTIVES:

At the completion of this course, the student practical nurse will:

1. Define Intravenous Therapy
2. Discuss Indications for IV Therapy.
3. Identify the role of the L.P.N. regarding PN rules and regulations in the administration of intravenous therapy.
4. Identify those IV solutions that under state legal limitations, LPN's cannot administer.
5. Discuss principles of fluid and electrolyte balance.
6. Identify general fluid maintenance requirements.
7. Assess the patient for symptoms of fluid and electrolyte imbalances.
8. State the effects of isotonic, hypotonic and hypertonic fluid infusions on body cells.
9. Discuss IV medications and compatibilities/incompatibilities.
10. Utilize universal precautions in the administration of IV therapy.
11. Identify the equipment necessary for intravenous administration.
12. Discuss procedure for venipuncture & maintenance of intravenous solutions to include site care, tubing and IV solutions maintenance.
13. Identify types of vascular access devices.
14. Identify local and systemic complications of intravenous therapy.
15. Discuss methods of trouble-shooting intravenous therapy.
16. Identify the various types of central venous catheters.
17. Discuss central venous catheter care & maintenance.
18. Identify the role of the LPN in the maintenance of central cathctors.
19. Successtillly perfòrm venipuncture on a simulated arm/hand in the clinical laboratory.
20. Discuss how to document the venipuncture and documentation of IV Maintenance.
21. Discuss what is involved in patient teaching concerning IV Therapy.
22. Receive an I.V. certificatc -I:òr successful venipuncture perfOrmance.

3

COURSE OUTLINE

|  |  |  |  |
| --- | --- | --- | --- |
| Objectives | Content | Teacher Activi | Student Activit |
| The student practical nurse upon completion of the course, will:  Review the PN Law, Rules and Regulations. | 1. Discuss 49 PA Code CH. 21  21.145, 21.145a, 21.145b  Il. Legal implications of IV Therapy   1. Discuss the prohibited acts for   LPNs in performing IV Therapy.   1. Legal implications of IV Therapy    1. Review guidelines and agency policies. Regarding LPN IV administration and maintenance.    2. Proper use of IV equipment.    3. Accurate documentation of IV administration. | Lecture  Discussion  Handouts | The student will:   1. Discuss the function of the LPN in the administration of IV Therapy 2. Identify State legal limitations for LPN's in administering IV therapy 3. Identifÿ prohibited acts for LPNs. |
| Define IV Therapy and indications for IV administratio | l. Describe the process of infusing intervenous fluids and maintenance of IV Equipment  Il. Identilÿ indications fòr IV Therapy.   1. IV Fluid replacement. 2. Administration ot'IV medications. 3. Long Term IV Therapy 4. Short Term IV Therapy | Lecture | The student will:   1. Discuss the process of involved in venipuncture and IV Therapy maintenance. 2. Identify reasons for IV Therapy. |
| Discuss the anatomy & physiology associated with the vascular system. | I. Circulatory System   1. Structure    1. Heart    2. Arteries    3. Veins 2. Function   I . Cardiac circulation | Lecture  Discussion  Simulations  Handouts | The student will:  I . Identifÿ the Vascular System.   1. Identity on. a diagram major veins on the fOrearm and hand. 2. Recognize the guidelines for vein selection. |

4

|  |  |  |  |
| --- | --- | --- | --- |
| 0b •ectives | Content | Teacher Activity | Student Activi |
|  | Il. Electrolytes   1. Sodium 2. Potassium 3. Calcium 4. Magnesium 5. Chlorides 6. Phosphates 7. Bicarbonate   Ill. Laboratory Values  1 .EIectrolytes  2.Hematocrit  3.BUN  4.Serum Creatinine  5.Serum Osmalality  6.Urine Specific Gravity |  | 1. Discuss assessment techniques for detecting fluid imbalance 2. List nursing interventions to prevent or correct electrolyte imbalance 3. State normal electrolyte laboratory values. 4. Identify normal laboratory values. |
| Identify Acid-Base Imbalances | IV. Acid-Base Balance   1. Ph of blood 2. Buffering pathways    1. Metabolic Acidosis/   Alkalosis   * 1. Respiratory Acidosis/   Alkalosis   * 1. Metabolic and   Respiratory Compensation | Handout  Exam #1 | The student will:  Interpret Arterial Blood Gases |

6

|  |  |  |  |
| --- | --- | --- | --- |
| Objectives | Content | Teacher Activi | Student Activi |
| Discuss compatibility and incompatibility of IV drugs and solutions | I. Incompatibilities  Il. Nursing Interventions  A. Adverse reactions |  | The student will:   1. Identify the drug incompatibilities and the undesired chemical/physical reaction betwccn drug and solution and IV solution and IV solution. 2. Discuss adverse reactions and nursing interventions. |
| Discuss universal precautions, aseptic technique, infection control, safety in the administration of IV fluids | Ill. Universal precautions  A. Occupational hazards associated with intravenous therapy   1. Physical    1. Sharp instruments and needles    2. Disposal of used equipmcnt 2. Chemical exposurc    1. Anti-neoplastic drugs 3. Infectious Hazards    1. Hepatitis B    2. Acquired Immune Deficiency    3. Staphylococcus Aureus | Lecture Discussion Handouts | The student will:   1. Practice universal precautions for the protection of client and self. 2. Utilize asceptic technique for venipuncture procedure/IV maintenance/disposal of. equipment. 3. Discuss Occupational Hazards related to IV Therapy. |

8

|  |  |  |  |
| --- | --- | --- | --- |
| 0b •ectives | Content | Teacher Activi | Student Activi |
|  | l. Infusate Container   1. Bags 2. Bottles   2, Infusion Sets  a. Spiking and priming a basic infusion set   1. Use of filters 2. Use of electronic devices    1. IV infusion pumps    2. PCA pumps   G. Vein Selection  l. Needle/cannula selection  2. Vein dilatation methods   1. Tourniquet 2. Gravity 3. Milking 4. Tapping 5. Fist clenching 6. Warm compresses   r. Initiating Intravenous Therapy  (cont'd)   1. Skin Preparation    1. Shaving    2. Cleansing of Site       1. Povidonc-iodinc       2. 70 0/0 Alcohol 2. Vein Entry    1. Direct method    2. Indirect method 3. Methods of Stabilization    1. Chevron method    2. "U" method | Handouts  Simulate starting IV on manikin in skills laboratory | an infusion site   1. Describe the actions involved in starting an intravenous infusion 2. Calculatc infusion rates using common drop factors 3. Demonstrate proper technique in starting an intravenous infusion on manikin in skills laboratory 4. State procedure for proper documentation of intravenous therapy |

3. "Il" method 10

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Objectives | Content | Teacher Activi | Student Activi | |
|  | VI. Intermittent administration set   1. Secondary 2. Piggy back 3. Volume Controlled |  |  | |
| Describe local and systemic complications of intravenous therapy | l. Maintaining and Discontinuing intravenous Therapy   * 1. Solution   2. Tubing   3. Needle/Cannula/Catheter   4. Dressings/Site assessment   5. Piggyback Solutions   6. Nursing Interventions      1. Observations      2. Patient education      3. Documentation   G. Discontinuing Intravenous  Therapy  1. Heparin Locks   * + - 1. Convcrsion of continuous infusion to   Heparin Lock   * + - 1. Maintenance of Heparin   Lock with N.S.S. and  Heparin Flush  (i.e. SASH method)  H. Documentation | Lecture  Discussion | The  l .  2.  3.  4.  5. | student will:  Describe actions involved in caring for venipuncture site, changing infusion containers, changing infusion tubing, attaching a piggyback solution, discontinuing an infusion and documentation  List possible local and systemic complications of intravenous therapy  Discuss nursing interventions related to complications  Evaluate the cffècts of intravenous therapy on a patient in the clinical area  Identity nursing interventions related to local and systemic complication. |

12

|  |  |  |  |
| --- | --- | --- | --- |
| Objectives | Content | Teacher Activity | Student Activi |
| Identify physiological means of evaluating IV therapy infusion | IV. Monitoring Patients   1. Vital Signs 2. Laboratory Values 3. Balance Between Intake and   Output   1. Skin Turgor 2. Edema |  | therapy infusion |
| Identify the elements of Nursing Management of central venous catheters | Il. Catheter maintenance   1. Site care    1. Principles    2. Dressing changes    3. Flushing 2. Central venous catheter care kits 3. Male adaptor changes 4. Needle & tubing changes 5. Heparinization (flushing ports) 6. Assessment of site | Lecture  Handouts | The student will:   1. Discuss site care & specific protocol for each device 2. Identify catheter care kit for dressing changes 3. Discuss heparinization protocol |
| Discuss potential complications of centrally inserted catheters | Ill. Nursing Assessments   1. Air cmbolism 2. Catheter dislodgment 3. Catheter migration 4. Catheter occlusion 5. Catheter sepsis 6. Infiltration 7. Vessel thrombosis | Lecture  Discussion | The student will:   1. Identify the symptoms of an air embolus 2. Discuss catheter dislodgment, migration & occlusion 3. List the symptoms of' catheter sepsis 4. Identity a vcsscl thrombosis 5. Identify signs of infiltration |







