NE 101
LEVEL I NURSING SKILLS LAB

Skills to Accompany
NE 135/NE 135L: Nursing Fundamentals
and
NE 138: Introduction to Pharmacology for Nurses

FALL 2010
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College of Marin
Registered Nursing Program

Course Number and Title: NE 101: Level I Nursing Skills Lab

Student Units: 1.0 unit

Student Hours: 3 hours/week for 16 weeks (total of 36 hours). See the College of Marin Schedule of Classes for section numbers, meeting days and times, and instructors.

Nursing Skills Lab Course Progression:

- NE 101: Level I Nursing Skills Lab (For students in first year, first semester)
- NE 102: Level II Nursing Skills Lab (For students in first year, second semester)
- NE 103: Open Skills Lab (elective course, strongly recommended but not required)
- NE 203: Level III Nursing Skills Lab (For students in second year, third semester)

Course Description:

This course provides opportunities for first-year registered nursing students (Level I) to learn and practice beginning assessment and technical skills fundamental to professional nursing across the lifespan in the safety of a simulated clinical environment. Instruction includes presentation of evidence-based practice and scientific rationales for performance of technical skills, skill demonstrations, and the opportunity for guided/supervised student practice. In addition to the achievement of technical skill competency, emphasis is placed on integrating the use of the nursing process, communication and documentation skills, client care management skills, and critical thinking and problem solving skills through the use of clinical simulations and case scenarios.

Philosophy:

Skills Lab courses are provided to assist students to learn and practice the skills and procedures used in everyday nursing practice with accuracy and increasing speed and confidence in a mock-hospital environment. These courses are intended to provide an opportunity to integrate theory, clinical judgment and technical skills prior to their application in the clinical setting, and thereby assist the student in transitioning from the classroom to the clinical setting. (For example, the NE 101 Level I Skills Lab is linked to the content in NE 135 and NE 138, and is designed to help prepare students to function safely in current and future clinical settings.) The Skills Lab is intended to provide a non-threatening learning environment where mistakes may safely be made and corrected, professional attitudes and behaviors modeled and adopted, and critical thinking and decision-making skills developed. It is also intended to be a place where students may receive the encouragement and support that they need to grow into competent, compassionate nurses. The goal is for the student to learn the basic purpose, indications, principles and concepts involved in performing a skill while acquiring the required psychomotor abilities, rather than having the student just memorize and perform the steps in a procedure.

Experience has shown distinct advantage obtained by students who spend time in the Lab practicing their skills. Students who achieve proficiency in skills develop a sense of mastery and begin to integrate the nursing role and identity into their clinical practice more easily. This subsequently helps them to be more confident and independent and to enjoy greater participation in clinical assignments.

Because the only way to achieve competency in psychomotor skills and create “muscle memory” is practice, attendance and participation in the lab, as well as preparation and practice outside of the lab, are required of each student. Everyone learns and develops psychomotor skills at a different rate but the time available for practice in each lab is limited. Therefore student preparation through reading, viewing
assigned media, and reviewing the theory related to the skills being presented in the lab prior to class, and practice outside of class, is essential to achieve competency and proficiency in skills.

While the content of each level of the skills lab courses offered during the College of Marin Registered Nursing Program differ, the overall course objectives remain the same. Upon completion of the selected skills lab course, the student will be able to:

1. Perform selected nursing skills at a competent level as evaluated by the instructor using predetermined criteria.
2. Identify biological, humanistic, and behavioral principles that substantiate nursing actions performed in nursing skills.
3. Act out patient teaching situations that serve to educate patients concerning procedures.
4. Demonstrate increasing proficiency in manipulation of equipment.
5. Implement pediatric, geriatric, and home health variations of nursing interventions.

**NE 101 Level I Nursing Skills Lab Course Objectives:**

Upon completion of this course, the student will be able to demonstrate competency in the performance of the following clusters of skills, including the incorporation of relevant scientific, physiological, and psychosocial concepts:

1. Application of principles of asepsis and infection control: OSHA’s required annual review of prevention of transmission of bloodborne pathogens using universal/standard precautions, needlestick prevention strategies, and caring for patients with contact, respiratory, and airborne transmission precautions.
2. Providing for safety and basic human needs: providing patient hygiene, toileting, transferring, repositioning, ROM/mobility, feeding, fall and aspiration precautions
3. Performing physical assessment skills: vital signs, including pain and pulse oximetry, and basic head-to-toe “shift assessment” (level of consciousness/mental status/Glasgow coma scale; lung assessment; cardiac assessment; gastrointestinal assessment; skin and peripheral circulation assessment.
4. Drug dosage calculation and administration techniques: drug dosage calculations and techniques for medication administration via the enteral, parenteral, inhalation, and topical routes.
6. Selection and application of dressings using sterile technique: wound care dressings and intravenous peripheral and central line dressing changes.
7. Assessment of, indications for, and placement and management of urinary catheters.

**Required References:**

- NE 101: Level I Skills Lab Course Syllabus
- NE 135: Nursing Fundamentals Course Syllabus
- NE 138: Introduction to Pharmacology Syllabus.
Special Student Materials:
- Watch
- Stethoscope
- Pen light
- Gait belt

Master Check-Off List

The NE 101 Level I Nursing Skills Lab Master Check-off is a list of skills presented and evaluated in the skills lab course which represent the minimum content that the student must learn to pass the course. Students are given a skills check-list, a demonstration of the required equipment and the nursing skill/procedure in class, and are then given an opportunity to practice. Students are required to spend additional time outside of their scheduled lab hours practicing in order to achieve competency.

Procedure and Skill Check-lists

Procedure and skill checklists provide research-based guidelines and rationales to assist the student to acquire new skills. The theory, purpose, and principles related to these skills are discussed, the appropriate application of the nursing process is described, required equipment is identified, and the series of steps to be followed in a regular, definite order are listed.

Performance checklists contain the essential steps of the skills in order for the student’s performance of the skill to be evaluated according to set criteria. Performance checklists may be found in the syllabus, in required texts, or may be handed out to students by the instructor when the procedure is taught (e.g. the policy and procedure of a particular agency where students have clinical experiences may be used). Please note that there are a variety of correct ways to perform various procedures, thus the procedures and performance checklists outlined by various authors may differ to varying degrees though adhering to the same principles. In the interest of clarity, the instructor will inform students which author’s checklist is being utilized for a skill check-off.

Skill Check-Off/Testing:

Competency is evaluated when the student performs the skill or procedure in a “skill check-off” testing situation for an evaluator (the instructor or a student who has already successfully demonstrated the skill during an official skill test or “check-off.”) The student is evaluated or “checked-off” on his/her ability to correctly perform the skill without guidance according to a skill performance check-list and the competency criteria outlined under Grading (see Competency Standards below). Failure to satisfactorily perform any of these critical elements constitutes an unsatisfactory rating and the student must practice, obtain tutoring, and retest. Re-testing may be done during the same class period only after the other students in the class have been given an opportunity to be tested and checked-off.

The student needs to competently perform and be checked-off on each skill on the Master Check-Off List that has been taught prior to Final testing. The student needs to turn in the completed Master Check-Off form to the instructor at the end of the semester.

Link Between NE 101, NE 138, and NE 135L:

The NE 101 Skills Lab course is linked with the NE 138 Introduction to Pharmacology for Nurses course and the NE 135L Clinical course in that NE 138 and NE 101 teach and reinforce the knowledge and techniques required to safely administer medications to actual patients in NE 135L. This link is specifically manifested in the following ways:
There is a medication research assignment that will be submitted for a grade to the instructor of the NE 138 Introduction to Pharmacology for Nurses course but will be discussed and used in NE 101. The student is advised to make two (2) copies of this assignment, one to keep and use in the NE 101 Skills lab, and one to submit to the NE 138 instructor for a grade.

A student will not be allowed to administer PO medications in their NE 135L clinical setting until he/she has:

- Passed the PO medication administration check-off in the NE 101 lab.
- Passed the Medication Dosage Calculation exam in NE 138.

The NE 135L clinical instructors will be kept informed by the NE 138 and NE 101 instructors of students who have passed the requirements for administering medications in clinical.

Lab Attendance and Practice:

Lab preparation, attendance, punctuality, and participation are expected in order for students to become competent in psychomotor skills.

- Attendance will be taken, and tardiness may be counted as an absence.
- Absences must be made up through completion of a Tutoring Session, and missed quizzes must be made up in the Testing Center. Absences in excess of the guidelines outlined below, and/or failure to make up absences, submit documentation of tutoring sessions, and/or make-up written tests may result in a No Credit for the course (see Grading).
- Students are required to take responsibility for the development of their own strengths and abilities by using the Lab beyond their assigned lab hours to practice,
  - Students may enroll in the NE 103 Open Skills Lab (see the College of Marin Schedule of Classes) for additional instructor guided practice.
  - Students may use the Lab for practice when it is not in use by a scheduled class by 1) obtaining permission from a nursing instructor who is on campus and is willing to be responsible for the students in the lab, and 2) by signing out the key. The key and sign-out book are located on top of the file cabinets located outside the Nursing Department Office, Harlan Center Room 111. Please return the key immediately to the sign out book. Be sure to return supplies to their proper places, turn off the lights, and close and lock the door when you have finished using the lab.
  - Certain lab equipment may be checked out for student practice at home. Any equipment, supplies, or written materials taken from the Lab must be signed out with the Lab Assistant and returned within one week. Check for the Skills Lab Assistant’s hours of availability which is posted each semester.

Absence Procedure:

The student is responsible to notify the instructor of an absence in any course and to make up the missed work. If you are absent from a Skills Lab session, you must:

1. Notify the instructor that you will be absent from the lab.
2. Arrange to be tutored by a classmate who attended the class you missed and has successfully performed the skill. Review course content, perform the procedure satisfactorily for the tutoring classmate and get it signed-off on the Master Check-list, and complete the “Tutoring Session Record” form.
3. Submit the "Tutoring Session Record" to the instructor prior to the Final skills demonstration and written examination that is given at the end of the course.
4. Make an appointment to take any quiz that you may have missed through the Distance Learning Testing Office Make-up Test Appointment Booking Site. The Distance Learning Testing Office, located in the Learning Resource Center, in Room 121 of the Media Center, provides testing services for students who have 1) missed an exam or 2) who need to re-test after doing some kind of remediation. Note that appointments to test in the Distance Learning Testing Office must be made on-line; they cannot be made in person, by phone, or by email. To access the Distance
Learning Testing Office Make-up Testing Appointment Booking site go to

http://www.comlearningcenter.com/reg/setappt.cfm?CFID=13092223&CFTOKEN=93407656and

and follow the directions to schedule an appointment to make up the quiz. Confirmation of your appointment will be sent via email to both your instructor and to you. To ensure that your make-up quiz will be at the testing office at the time of your appointment, you should also confirm with your instructor the date and time of your appointment.

**Grading:**

Grading in the Nursing Skills Laboratory course is Credit/No Credit. To receive a grade of Credit for the course, the following criteria must be met (also refer to the *College of Marin RN Program Student Handbook*):

1. The Skills Lab participation requirements must be met:
   - Students must attend and participate in 75% of the skills laboratory course hours in order to learn the purpose and application of the skills being taught, observe the skill demonstrations, and practice the skills.
   - Make-up work for any missed class must be completed through a Tutoring Session Record. A student missing a skills lab class must arrange with a classmate for a demonstration and practice session on the particular skill missed and complete a Tutoring Session Record. The completed Tutoring Session Record is to be submitted to the skill lab instructor prior to the Final skills demonstration and any Final written examination.

2. As noted above, all missed quizzes must be made up in the Distance Learning Testing Office located in the Learning Resource Center, in Room 121 of the Media Center. The Distance Learning Testing Office provides testing services for students who have 1) missed an exam or 2) need to re-test after doing some kind of remediation.

Appointments to test in the Distance Learning Testing Office must be made on-line; they cannot be made in person, by phone, or by email. To schedule an appointment for a make-up test or a re-test after remediation you must first discuss taking the test with your instructor, and then go to the College of Marin Distance Learning Testing Office Make Up Testing Appointment Booking Site located at

http://www.comlearningcenter.com/reg/setappt.cfm?CFID=13092223&CFTOKEN=93407656and

Follow the directions to schedule your appointment. Confirmation of you appointment will be sent via email to both your instructor and to you.

Please note that it is the student, not the instructor, who is responsible for contacting the Distance Learning Testing Office to arrange an appointment, and for informing the instructor of the date and time of the appointment so that the make-up quiz can be put in the Distance Learning Testing Office.

3. All of the course skills (the skills on the Master Check-off List) must be successfully demonstrated and documented on the skills checklist prior to taking the Final skills exam. It is the student’s responsibility, not the instructor’s, to ensure that all of the nursing skills are completed, skill check-off’s documented, and any tutoring, testing or re-testing is arranged.

   - **Competency** (see also the Skills Lab Competency Rubric elsewhere in the syllabus)
     - To “pass” a skill, the student must demonstrate competency. Competency in a skill/procedure is demonstrated by meeting the following criteria:

       1. Be able to state principles and rationales for each skill.
       2. Demonstrate therapeutic communication.
       3. Provide relevant patient teaching.
5. Perform the critical steps of the procedure correctly, which achieves desired outcome within allotted amount of time.
6. Provide accurate and complete documentation.

Note: Satisfactory performance is guided by the above criteria but is ultimately determined by the evaluator.

- Three (3) opportunities are given to pass/demonstrate competency on the selected final skill or exam during the first semester. For first semester students only, if the third attempt is unsuccessful, or if the student fails to contact the instructor within one week for retesting, the student receives a No Credit for the course.
- Two (2) opportunities are given to pass/demonstrate competency on the selected final skill or exam during the second, and third semesters. For the second and third semester students, if the second attempt is unsuccessful, or if the student fails to contact the instructor within one week for retesting, the student receives a No Credit for the course.
- The student who fails during an attempt to demonstrate competency on the selected skill is given an opportunity to practice and obtain peer tutoring prior to being retested. Retesting can be done during the same testing period or within one week of the testing period, at the instructor’s discretion.

4. Total points earned on any written quizzes must be 73%* of total points (*new standard: 75%).

5. The student must pass the Final skills examination. Final testing will be done during Final Exam Week (unless otherwise specified by the instructor). Students should consult with the instructor and refer to the College of Marin Schedule of Classes for the letter code listed next to the lab section in which they are enrolled to determine the date and time the Final Exam is scheduled. Instructors may have students make appointments during the scheduled block of time for the Final Exam to perform their skill. One skill is selected at random by the instructor from among the skills taught during the course for the student to perform competently in a testing situation (without verbal or written guidance).

6. If the Final skills lab exam includes a written test, the written test must be passed with a score of 72% or higher.

Failure to meet the attendance and participation requirement, to make up missed time/ work, and/or to competently demonstrate all skills and pass the final skills and written exams by the end of the semester will result in a “No Credit” for the course, and the student will not be allowed to progress in the program.

It is the student’s responsibility, not the instructor’s, to ensure that nursing skills are completed, skill check off’s documented, and any testing or re-testing is arranged.

Release/Waiver of Liability

Each student will be asked to sign a Release/Waiver of Liability for any invasive procedure taught in the lab. This includes procedures such as Blood Glucose Monitoring involving a finger puncture, and possibly the practice of injections, venipuncture, or other procedures. A copy of the Release/Waiver form is included at the end of this syllabus for you to submit to your lab instructor when requested.

Computer Assisted Instruction

Learning programs on CD-ROMS are available in the Science Center. Check with the Science Center for days/hours of operation, or go to http://www.marin.cc.ca.us/student_services/learning_resources.htm#computer
Nursing Video Library:

The Media Center in the Learning Resource Center houses the Nursing Video Library. A wide range of nursing subjects are included in the library. Check with the Media Center for days/hours of operation, or go to [http://www.marin.cc.ca.us/distance/media_center.htm](http://www.marin.cc.ca.us/distance/media_center.htm)

OSHA Requirements:

The Occupational Safety and Health Administration mandates that all persons working in healthcare institutions (including students and instructors) receive information regarding any possible exposure to blood and blood-borne pathogens. You will be required to annually attend a class that describes the important blood-borne pathogens, how to prevent exposure using Universal Precautions, and the steps to take in the event of an exposure. Students are responsible for protecting themselves against exposure in both the hospital and the lab by learning and using Standard and Universal Precautions and other CDC and OSHA guidelines for the prevention of transmission of disease. Sharps containers, red bio-hazard waste bags, disposable gloves and covered trash bins are provided for your safety in the lab, and OSHA requirements are enforced. Due to possible contamination, drinking and eating, putting on lip balm or other cosmetics, or putting in/removing contact lenses is not allowed in the Skills Lab.

Guidelines and Miscellaneous:

- **STUDENTS ARE EXPECTED TO PURCHASE** (or download and print), **READ, AND BRING TO CLASS THE COURSE SYLLABUS** (which contains articles, hospital chart forms, skill check-offs, waivers, course evaluation forms, etc.) **AND APPROPRIATE REFERENCES, SUCH AS NURSING DRUG REFERENCE BOOKS AND THE SKILLS LAB TEXTBOOK.**

- **EATING IS NOT ALLOWED** in the lab, as ants, garbage and clutter are a problem. (Also, IV solutions containing dextrose are generally not available in the Lab for this reason.) Further, eating in the Lab is prohibited by OSHA, which forbids eating where blood exposure is possible. **BEVERAGE CONTAINERS WITH CLOSED TOPS** (e.g., water bottles with screw-on tops, cups with lids) **ARE ALLOWED** in class when skills/procedures that might involve blood exposure are not being conducted.

- **PERFORMANCE OF ANY SKILL THAT INVOLVES POTENTIAL EXPOSURE TO BLOOD/BODILY FLUIDS MUST ALWAYS BE PERFORMED USING UNIVERSAL/STANDARD PRECAUTIONS ACCORDING TO OSHA GUIDELINES, USING STERILE EQUIPMENT/SUPPLIES/MATERIALS WHOSE SHELF-LIFE HAS NOT EXPIRED (ALWAYS CHECK EXPIRATION DATES!)**

- **DO NOT RECAP NEEDLES! DO NOT SAVE OPEN (SEAL BROKEN) OR UNCAPPED NEEDLES** anywhere, including skill boxes. Syringes that have not had contact with blood/bodily fluids may be saved from one lab to another for practice, but needles must be disposed of in a Sharps container immediately.

- **UTILIZE SHARPS CONTAINERS APPROPRIATELY.** Medical waste is expensive to process and dispose of. Do not put items other than sharps (e.g., gloves, dressings) into the sharps containers. To prevent injury, make sure sharps drop down into the container, and do not overfill the container. Notify the instructor or the Lab Tech when a sharps container is becoming full so it can be changed and injuries can be avoided. (Note: In the hospital, students and nurses should notify whomever is in charge of changing the sharps containers on the unit whenever they find that a sharps container is greater than ¾ full.)

- **TEACHING STUDENTS TO PRACTICE NURSING IN A COST EFFECTIVE MANNER IS A GOAL OF THE COLLEGE OF MARIN NURSING REGISTERED PROGRAM.** Standards of
medical and surgical asepsis require the use of significant amounts of single-use supplies in the clinical setting, and the use of these single-use products impacts direct health care costs and creates significant amounts of medical waste. **WHILE NO COMPROMISE IN INFECTION CONTROL MEASURES/ASEPSIS MAY BE USED IN THE CLINICAL SETTING, WHEN STUDENTS ARE PRACTICING SKILLS IN THE SKILLS LAB ON THE MANNEQUINS THEY MAY BE ASKED TO RE-USE VARIOUS SUPPLIES WHEN DOING SO WILL NOT COMPROMISE THE HEALTH AND SAFETY OF THE STUDENTS.**

- **THE SKILLS LAB STRIVES TO PROVIDE A SIMULATED CLINICAL SETTING. THEREFORE, STUDENTS ARE EXPECTED TO BEHAVE IN THE SAME COURTEOUS AND PROFESSIONAL MANNER AS THEY WOULD IN THE CLINICAL SETTING.** The mannequins should be treated respectfully (as though they were “real” patients), and equipment and patient care areas should be kept neat, clean, and in working order just as they would be expected to be maintained in a clinical setting.

- Students are expected to assist the instructor during the first and last ten minutes of each skills lab class to set-up for skills practice and clean up and return supplies to their appropriate storage areas after skills practice. **STUDENTS MAY NOT LEAVE THE LAB UNTIL SUPPLIES AND EQUIPMENT HAVE BEEN RETURNED TO THEIR PROPER STORAGE AREAS AND THE LABS HAS BEEN CLEANED UP!**

- **COLLABORATION AND TEAM WORK ARE ENCOURAGED—EXCEPT DURING TESTING!** But please work together *quietly*; when several groups are working at once, unmonitored voice levels can become so loud that it becomes difficult to concentrate and communicate.

- **PLEASE CONCENTRATE ON THE WORK AT HAND, AND UTILIZE SKILLS LAB TIME PRODUCTIVELY.** Class time is for learning and practicing skills with the instructor and classmates, not for socializing, completing tutoring sessions, studying for exams, or doing work for other classes.

- **ROOM 161, OUR LAB ASSISTANT’S OFFICE AND SUPPLY ROOM, IS NOT OPEN TO STUDENTS EXCEPT WITH SPECIFIC PERMISSION.** Constant traffic through this area is disruptive and compromises the security of supplies. We expect that students will not enter this room without specific permission, nor use it as a passageway between the hallway or Room 174 (the lab) and Room 163.
## Skills Lab Grading Rubric

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Pass</th>
<th>Not Pass</th>
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<tbody>
<tr>
<td>1. Able to state principles and rationale for each skill.</td>
<td>1. Student is able to verbalize principles/reasons for each step in performance skill.</td>
<td>1. Student is unable to verbalize principle/rationale for steps in performance of skill without prompting by the teacher, or verbalized principle/rationale is inaccurate.</td>
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<tr>
<td>2. Demonstrates therapeutic communication</td>
<td>2. Student assesses for pain and discomfort and prepares patient psychologically for procedure; student acknowledges patient’s experience (thoughts, feeling) before, during and after procedure.</td>
<td>2. Student focuses on performance of skill itself and does not respond to the patient’s comfort or psychological needs before, during, or after the procedure.</td>
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<tr>
<td>3. Provides patient teaching</td>
<td>3. Student provides appropriate “anticipatory guidance,” accurately explaining procedure to patient prior to beginning procedure and providing accurate post-procedure teaching.</td>
<td>3. Student fails to provide pre-procedure or post-procedure teaching, or student provides inaccurate information/explanation.</td>
</tr>
<tr>
<td>4. Maintains safety</td>
<td>4. Student follows all safety precautions for individual skill, including properly identifying patient, implementing appropriate infection control measures, following correct body mechanics, protecting patient from falls or injury, and preventing needle sticks.</td>
<td>4. Student fails to follow one or more safety precautions.</td>
</tr>
<tr>
<td>5. Accomplishes therapeutic outcome within the allotted time frame.</td>
<td>5. Student correctly performs all of the critical steps of the procedure, which accomplishes the desired therapeutic outcome for the patient. Student completes the skill within the allotted time frame.</td>
<td>5. Student does not perform one or more of the critical steps of procedure, and/or fails to accomplish the therapeutic outcome of skill. Student is unable to complete the skill within the allotted time frame.</td>
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<tr>
<td>6. Documents skill</td>
<td>6. Student correctly and completely documents the skill using PIE format to describe Patient assessment findings and/or Problem, Intervention (including technique and equipment used and problems encountered), and Evaluation of patient’s response.</td>
<td>6. Student fails to document the skill, fails to document skill correctly or completely (including date, time, signature), and/or fails to use PIE format.</td>
</tr>
</tbody>
</table>
The following is the proposed schedule for the course. Generally a skill is introduced one week, and tested on during the following week(s), though some skills may need multiple weeks for practice, and others may be practiced and checked off the same week. The instructor may need to adjust the schedule slightly to accommodate variable or unanticipated events and situations, including holidays or the need for students to spend more or less time than anticipated on a particular skill area.

WEEK 1: Orientation to Course and Promoting Infection Control

1. **Orientation to course:** Review of NE 101 syllabus and discussion of course requirements
   **Student Preparation:**
   - Read pages 1-16 of the syllabus prior to class

2. **Promoting Infection Control:** Discussion of hand washing, standard and universal precautions, isolation precautions, and medical and surgical asepsis. Demonstration and practice of infection control techniques.
   **Student Preparation:**
   - Read Week 1 of NE 101 Syllabus
   - Read Perry, Anne Griffin and Potter, Patricia A. *Clinical Nursing Skills & Techniques.*
     - Chapter 7: Medical Asepsis
     - Chapter 8: Sterile Technique
   **Student Lab Practice:**
   - Skill Performance Check-List: Hand washing
   - Skill Performance Check-List: Donning and Removing Clean and Contaminated Gowns and Gloves
   - Skill Performance Check-List: Applying Sterile Gloves*

WEEK 2: Vital Signs and Patient Assessment

1. **Assessment and Documentation of Vital Signs, O2 Sat, and Pain:** Discussion of normal and abnormal vital signs and their use and interpretation. Demonstration and practice of techniques for accurately measuring and recording vital signs.
   **Student Preparation:**
   - Read Week 2 of the NE 101 Syllabus, sections on vital signs, O2 sat, and pain.
   - Read Perry, A.G. and Potter, P. A. *Clinical Nursing Skills & Techniques.*
     - Chapter 4: Reporting and Recording
     - Chapter 5: Vital Signs
     - Chapter 15: Pain Assessment and Basic Comfort Measures
   **Student Lab Practice:**
   - Skills Performance Checklist Review Assessment and Documentation of Vital Signs (VS)

2. **Guidelines for Organization of the Clinical Shift.** Discussion of organization of the shift, with focus on basic client assessment, including environmental assessment, and head to toe physical assessment.
   **Student Preparation**
   - Read Week 2 of NE 101 Syllabus, sections on assessment and organizing the clinical shift

3. **Performing a Basic Client Assessment:** Discussion of organization of the clinical shift. Demonstration and practice of techniques for assessing vital signs and doing a basic assessment
   **Student Preparation**
   - Read Week 2 of NE 101 Syllabus, sections on basic and focused physical assessment.
   - Read Perry, A.G. and Potter, P. A. *Clinical Nursing Skills & Techniques.*
     - Chapter 6: Health Assessment
   **Student Lab Practice:**
   - Assessing the client’s environment of care and safety, and performing and documenting vital signs and client head-to-toe assessment
4. **Skill Check-off** (skills introduced and practiced during the previous week/weeks):
   - **Skill Performance Check-List:** Applying Sterile Gloves*

**WEEK 3: The Medical Record, Documentation and Communication Systems; Admitting and Discharging Patients**

1. **The Medical Record, Kardex, and Documentation and Communication Systems:** Discussion of the purpose and components of the medical record, reading and transcribing physician’s orders, the purpose and use of the Kardex/Rand, and documentation systems and communication guidelines. Practice transcribing physician orders to the Kardex, writing a nursing note, and using SBAR.

   **Student Preparation**
   - Read Week 3 of the NE 101 Syllabus, sections on the Medical Record, Kardex, Documentation Systems and SBAR
   - Read Perry, Anne Griffin and Potter, Patricia A. *Clinical Nursing Skills & Techniques.*
     - Chapter 2: Admitting, Transfer, and Discharge
     - Chapter 4: Reporting and Recording

   **Student Lab Practice:**
   - Practice transcribing physicians orders to the Kardex
   - Practice writing a nursing note using SOAP, SOAPIE, or PIE

2. **Admitting, Transferring, and Discharging Patients:** Discussion of the process of admitting, transferring, and discharging patients.

   **Student Preparation**
   - Read Week 3 of the NE 101 Syllabus, sections Admitting and Discharging Patients
   - Read Perry, Anne Griffin and Potter, Patricia A. *Clinical Nursing Skills & Techniques.*
     - Chapter 2: Admitting, Transfer, and Discharge

3. **Student Skill Check-off:**
   - **Skill Performance Check-List:** Applying Sterile Gloves*
   - **Skill Performance Check-list:** Vital Signs (Skill Performance Check-list Temperature Pulse, Respirations, BP, and Pain* and Skill Performance Check-off: Skill Performance Check-list: O2 Saturation*)

**WEEK 4: Assessing and Promoting Fluid Balance and Nutrition**


   **Student Preparation**
   - Read Week 4 of the NE 101 Syllabus, section on I&O
   - Read Perry, A.G. and Potter, P. A. *Clinical Nursing Skills & Techniques.*
     - Chapter 6: Health Assessment, Skill 6-7, Assessing I&O

   **Student Lab Practice**
   - Case studies on I&O
   - **Skill Performance Check-List:** Measuring, Documenting, and Analyzing Intake and Output*

2. **Assessing and Promoting Nutrition:** Discussion of methods for feeding patients, assessing and documenting nutritional intake, and special precautions

   **Student Preparation:**
   - Read Week 4 of the NE 101 Syllabus, section on nutrition
   - Read Perry, A.G. and Potter, P. A. *Clinical Nursing Skills & Techniques.*
     - Chapter 30: Oral Nutrition

3. **Student Skill Check-off** (skills introduced and practiced during the previous weeks):
   - **Skill Performance Check-List:** Applying Sterile Gloves*
   - **Skill Check-off:** Vital Signs (Skill Performance Check-list: Temperature Pulse, Respirations, BP, and Pain*; Skill Performance Check-list: O2 Saturation*)
WEEK 5: Positioning, Transferring, and Ambulating Patients Safely

1. Positioning, Transferring, and Ambulating Patients Safely: Review of principles of body mechanics. Discussion of assessments to be done prior to moving patients. Demonstration and practice of techniques for safely moving patients in bed, transferring patients in and out of bed, ambulating patients.

   Student Preparation
   - Read Week 4 of the NE 101 Syllabus, section on Positioning, Transferring, and Ambulating Patients Safely.
     - NurseWeek.com article: “Size Matters”
     - Assessments to Make Prior to Transferring and Positioning Patients
     - Progressive Mobilization Care path: Kaiser Permanente, San Rafael
     - Safety: Fall Prevention
     - Fall Risk Tool and Risk for Falls Assessment Tool
   - Read Perry, A.G. and Potter, P. A. Clinical Nursing Skills & Techniques.
     - Chapter 9: Safe Patient Handling, Transfer, and Positioning
     - Chapter 10: Exercise and Ambulation

Student Lab Practice
- Skill Performance Check-List: Moving a Partially Mobile Client Up in Bed
- Skill Performance Check-List: Moving a Partially Mobile or Immobile Client Up in Bed Using a Pull Sheet or Draw Sheet
- Skill Performance Check-List: Transferring a Client from Bed to Wheelchair, Commode, or Chair*
- Practice: Using Arjo “Maxi Move” Patient Lift

2. Student Skill Check-offs (skills introduced and practiced during the previous weeks):
   - Skill Performance Check-list: Vital Signs (Skill Performance Check-list: Temperature Pulse, Respirations, BP, and Pain*; Skill Performance Check-list: O2 Saturation*)
   - Skill Performance Check-list: Measuring, Documenting, and Analyzing Intake and Output*

WEEK 6: Preparation for Medication Administration and Introduction to Medication Administration Skills and Techniques

1. Preparation for Medication Administration: Discussion of medication orders, legal prescribers, types of medication orders, components of medication orders, commonly used and “do not use” abbreviations, 24 hour clock, MARs, scheduling administration times, documentation of administration and of holding medications.

   Student Preparation
   - Read Week 6 of the NE 101 Syllabus, section on Preparation for Medication Administration
   - Read Perry, A.G. and Potter, P. A. Clinical Nursing Skills & Techniques.
     - Chapter 20: Safe Medication Administration

2. Medication Administration Equipment, Skills, and Techniques: Introduction to methods and equipment used for medication administration by various routes, including:
   - Med carts and Pyxis machines
   - soufflé and med cups
   - pill cutters and crushers;
   - needles (various gauges and lengths); filter needles
   - syringes: luer-lock syringes and Toomey/Irrigation syringes; TB syringes; insulin syringes;
   - Carpuject/Tubex holders and pre-filled syringes.
   - Inhalers and spacers
   - Transdermal medications and Nitropaste
   - Topical medications: Skin, vaginal, eye, ear

WEEK 7: Researching Medications, Transcribing Medication Orders onto MARs, and Safe Oral/PO Medication Administration

1. **Researching Medications:**
   - **Student Preparation:**
     - Complete the medication research portion of the *NE 138/NE 101 Assignment on Preparation for Medication Administration: Researching, Transcribing and Scheduling, Administering Medications*.
   - **Student Lab Practice:**
     - Discuss results of medication research from homework assignment.

2. **Transcribing Medication Orders onto the MAR and Scheduling Administration Times**
   - **Student Preparation:**
     - Read Week 7 of the NE 101 Skills Lab Syllabus.
   - **Student Lab Practice:**
     - Complete the *In Class Assignment*: Preparation for Medication Administration: Practice Interpreting, Transcribing, and Scheduling Ordered Medications Practice, an exercise on reading, interpreting, and transcribing a medication order onto an MAR, and scheduling the medication administration times.

3. **Safe Oral/PO Medication Administration:**
   - **Student Preparation:**
     - Review Skill Check-list for Administration of PO Medications*.
   - **Student Lab Practice:**
     - With a buddy, practice administering an oral medication and charting it using the *Summary Guidelines for Administration of PO Medications*.

4. **Student Skill Check-offs** (skills introduced and practiced during the previous weeks):
   - **Skill Performance Check-list: Vital Signs**.
   - **Skill Performance Check-list: Measuring, Documenting, and Analyzing Intake and Output*.

5. **Homework for Week 7:** Complete the medication research portion of the *NE 138/NE 101 Assignment on Preparation for Medication Administration: Researching, Transcribing and Scheduling, Administering Medications*.

WEEK 8: Reconstituting Dry Powder Medication and Administration of Subcutaneous Medication (exoxaparin/Lovenox and heparin)

1. **Reconstituting medications**
   - **Student Preparation:**
     - Read Week 8 of NE 101 Syllabus on Reconstituting Dry Powder to and administration of SQ injections.
   - **Student Lab Practice:**
     - Using ampoules and filter needles.
     - Reconstituting powder medication to liquid, calculation of volume of diluents with consideration to drug dosage and resulting concentration, and volume.
     - Labeling vial of reconstituted medication.
     - Drawing up drug dosage.
2. **Administration of SQ Medications**  
   **Student Preparation:**  
   - Review Skill Check-off for Administration of SQ Medications*

   **Student Lab Practice:**  
   - With a buddy, practice drawing up and administering a SQ medication. Site selection, administration technique for subcutaneous Heparin/Enoxaparin and charting

3. **Student Skill Check-offs** (skills introduced and practiced during the previous weeks):  
   - **Skill Performance Check-list: Administration of Oral Medications***
   - **Skills Performance Check-list: Reconstitution of Medication from Powder to Liquid**  
   - **Skills Check-List: Administration of Subcutaneous Medications**

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**WEEK 9: Assessing and Promoting Optimal Management of Diabetic Patients**

1. **Review of Prevalence and Pathophysiology of Diabetes**  
   **Student Preparation:**  
   - Read Week 8 of NE 101 Syllabus: *Overview of Diabetes; Diabetes: Evidence Supports Tight Glycemic Control During Hospitalization.*
   - Read Perry and Potter

   **Student Lab Practice:**  
   - Practice determining insulin requirements based on blood glucose results

2. **Measuring Blood Glucose**  
   **Student Preparation:**  
   - Review Skill Performance Check-List for Measuring Capillary Blood Glucose Levels Using Glucometer*

   **Student Lab Practice:**  
   - With a buddy, practice using glucometer to test blood sugar/CBS using a glucometer and documenting on the diabetic flow sheet

3. **Drawing up Insulin**  
   **Student Preparation:**  
   - Review Skill Performance Check-list for Administration of SQ Medications*

   **Student Lab Practice:**  
   - With a buddy, practice drawing up and administering SQ insulin, including CBS, drawing up correct insulin dosage, double checking dosage, site selection and prep, administration, and charting

4. **Mixing Regular and NPH Insulin**  
   **Student Preparation:**  
   - Review Skill Performance Check-list for Mixing Regular and NPH Insulin*

   **Student Lab Practice:**  
   - With a buddy, practice drawing up Regular and NPH insulin in a syringe, including drawing up correct insulin dosage, double checking dosage, site selection and prep, administration, and charting

5. **Student Skill Check-offs** (skills introduced and practiced during the previous weeks):  
   - **Skill Performance Check-list: Administration of Oral Medications***
   - **Skills Performance Check-list: Reconstitution of Medication from Powder to Liquid**  
   - **Skills Check-List: Administration of Subcutaneous Medications**

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**WEEK 10: Administration of Intramuscular Medications**

1. Read Week 10 of NE 101 Syllabus  
   - Site selection  
   - Technique and practice  
   - Z track  
   - **Skill Check-off: Administration of PO Meds**
• **Skill Check-off**: Use of a Glucometer,
• **Skill Check-off**: Drawing Up and Administering Regular and NPH insulin

**WEEK 11: Administration of Medications via Various Routes**

1. **Administration of Medications via Various Routes**
   **Student Preparation**
   - Review NE 101 Syllabus sections on medication administration
     o Chapter 20: Safe Medication Preparation
     o Chapter 21: Oral and Topical Medications
     o Chapter 22: Parenteral Medications
   **Student Lab Practice**
   - Practice medication administration

2. **Student Skill Check-offs** (skills introduced and practiced during the previous weeks):
   - **Skill Performance Check-list: Administration of Oral Medications**
   - **Skills Performance Check-list: Reconstitution of Medication from Powder to Liquid**
   - **Skills Performance Check-List: Use of a Glucometer**
   - **Skills Performance Check-List: Administration of Subcutaneous Medications**
   - **Skills Performance Check-list: Administration of Intramuscular Medications**

**WEEK 12: Assessing and Promoting Skin Integrity and Wound Healing**

1. **Assessing and Promoting Skin Integrity and Wound Healing**
   **Student Preparation**
   - Read Week 12 of NE 101 Syllabus on Assessing and Promoting Skin Integrity and Wound Healing
     o Chapter 12: Support Surfaces and Special Beds, Procedural Guidelines: Selection of Pressure Reducing Surfaces
     o Chapter 18: Pressure Ulcer Care, Risk Assessment, Skill 18-1: Skin Assessment and Prevention Strategies; Skills 18-2: Treatment of Pressure Ulcers
     o Chapter 38: Wound Care and Irrigations
     o Chapter 39: Dressings, Bandages, and Binders
   **Discussion and Demonstration**
   - Review of purpose of dressings and drains
   - Various types of dressings, and methods for securing dressings
   - Techniques for emptying drains
   - Wound irrigations using 20 mL syringe and 18 gauge angiocath with stylet removed
   **Student Lab Practice**
   - Practice identifying various types of dressings and drains
   - Practice Skill Performance Check-List: Wound Care: Assessing Wounds and Performing Dressing Changes (focus on Wet to Moist Dressing Change
   - Wound Care and Infection Control Critical Thinking and Practice Exercises

2. **Student Skill Check-offs** (skills introduced and practiced during the previous weeks):
   - **Skill Performance Check-list: Administration of Oral Medications**
   - **Skills Performance Check-list: Reconstitution of Medication from Powder to Liquid**
   - **Skills Performance Check-List: Use of a Glucometer**
   - **Skills Performance Check-List: Administration of Subcutaneous Medications**
   - **Skills Performance Check-list: Administration of Intramuscular Medications**

**WEEK 13: Sterile Dressing Changes: Performing a Central Line Dressing Change**

1. **Performing a Central Line Dressing Change**
Student Preparation:
• Read Week 13 of NE 101 Syllabus on Overview of Central Venous Catheters (CVCs) and Vascular Access Devices (VADs)
• Read Perry and Potter, Clinical Nursing Skills and Techniques, 7th edition
  o Chapter 28, Skill 28-6: Insertion and Care of Central Venous Access Devices
  o Chapter 8: Sterile Technique, Skills 8-2 Preparing a sterile field; Skill 8-3 Sterile Gloving

Discussion and Demonstration:
• Overview of Central Lines and Venous Access Devices

Student Practice
• Practice Skill Performance Check List: Central Venous Line Dressing Change

2. Student Skill Check-offs (skills introduced and practiced during the previous weeks):
• Skill Performance Check-list: Administration of Oral Medications*
• Skill Performance Check-list: Reconstitution of Medication from Powder to Liquid*
• Skill Performance Check-List: Use of a Glucometer*
• Skill Performance Check-List: Administration of Subcutaneous Medications*
• Skills Performance Check-list: Administration of Intramuscular Medications*

WEEK 14: Assessing and Promoting Optimal Urinary Elimination

1. Assessing and Promoting Optimal Urinary Elimination
   Student Preparation:
   • Read Perry and Potter, Clinical Nursing Skills and Techniques, 7th edition
     o Chapter 33: Urinary Elimination
   • Complete Homework Assignment on Assessment and Promotion of Optimal Urinary Elimination
   Discussion and Demonstration:
   • Purpose of urinary catheters and demonstration of insertion of Foley catheter using sterile technique
   Student Practice
   • Skill Performance Check List: Inserting an Indwelling Catheter: Male*
     • Skill Performance Check-List: Inserting an Indwelling Catheter: Female*

2. Student Skill Check-offs (skills introduced and practiced during the previous weeks):
• Skill Performance Check List: Central Line Dressing Change

WEEK 15: Assessing and Promoting Optimal Functioning of Clients Experiencing Alterations in Neuro/Sensory Systems

1. Assessing and Promoting Optimal Functioning of Clients Experiencing Alterations in Neuro/Sensory Systems
   Student Preparation:
   • Read Week 15 of NE 101 Syllabus on Assessing and Promoting Optimal Functioning of Clients Experiencing Alterations in Neuro/Sensory Systems:
     o Glasgow Coma Scale
     o Mini Mental Status Exam
     o Assessment of Causes of Changes in Level of Consciousness
     o Appropriate Use and Alternatives to Restraints
     o Seizure Precautions
   • Read Perry and Potter, Clinical Nursing Skills and Techniques, 7th edition
     o Chapter 13: Safety
   Discussion and Demonstration:
   • Assessment of patients experiencing alterations in Neuro/Sensory Systems: Using the Glasgow Coma Scale, Mini-Mental Status Exam
   • Keeping Patients Safe: Appropriate Use and Alternatives to Restraints and Seizure Precautions
   Student Practice
   • Glasgow Coma Scale
   • Mini Mental Status Exam
• Applying Restraints
• Responding when a patient has a seizure

2. Student Skill Check-offs (skills introduced and practiced during the previous weeks):
   • Skill Performance Check-list: Inserting and Indwelling Catheter Male or Female*
   • Skill Performance Check-List: Central Line Dressing Change*

WEEK 16: Clinical Simulation: Assessment of the Post Op Patient

1. Assessment of the Post-Op Patient
   Student Preparation:
   • Read Perry and Potter, Clinical Nursing Skills and Techniques, 7th edition, Chapter 36:
     Preoperative and Post-Operative Care
     o Skill 36-2: Demonstrating Post-operative Exercises
     o Skill 36-3: Performing Post-Operative Care of a Surgical Patient
   10. Urinary Elimination
   • Read Week 16 of the NE 101 Syllabus. Exercise and Simulation on Care of the Postoperative Patient and review the nursing care of the post-op appendectomy patient in your medical surgical textbook as directed in the exercise.
   Discussion and Demonstration:
   • Assessment and care of post-operative patients
   Student Practice
   • Complete the Exercise and Simulation on Care of the Postoperative Patient

2. Student Skill Check-offs (skills introduced and practiced during the previous weeks):
   • Skill Performance Check-list: Inserting and Indwelling Catheter Male or Female*
   • Skill Performance Check-List: Central Line Dressing Change*

WEEK 17: FINAL EXAM
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# NURSING SKILLS LAB

**MASTER CHECK-OFF LIST for NE 101 SKILLS**

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WEEK 1

WEEK 1: Orientation to Course and Promoting Infection Control

1. **Orientation to course**: Review of NE 101 syllabus and discussion of course activities and requirements
   
   **Student Preparation**: Read pages 1-16 of the syllabus prior to class

2. **Promoting Infection Control**: Discussion of hand washing, standard and universal precautions, isolation precautions, and medical and surgical asepsis. Demonstration and practice of infection control techniques.

   **Student Preparation/Homework**:
   - Read Week 1 of NE 101 Syllabus:
     - Promoting Infection Control
     - Medical Asepsis and Surgical Asepsis/Sterile Technique
     - Critical Thinking About Infection Control
   - Read Perry, Anne Griffin and Potter, Patricia A. *Clinical Nursing Skills & Techniques*.
     - Chapter 7: Medical Asepsis
     - Chapter 8: Sterile Technique

   **Student Lab Practice**:
   - Skill Performance Check-List: Hand washing
   - Skill Performance Check-List: Donning and Removing Clean and Contaminated Gowns and Gloves
   - **Skill Performance Check-List: Applying Sterile Gloves**
Promoting Infection Control

I. Hand washing:

*The most important means of preventing the spread of microorganisms is hand washing.*

Hand washing is the single most important procedure for preventing nosocomial infections (infections acquired in the hospital.) Environmental control measures are also essential to prevent the spread of infection.

Hand washing is defined as a vigorous brief rubbing together of all surfaces of hands lathered with soap or detergent, followed by rinsing under a stream of water. Hand washing with plain soaps or detergents suspends microorganisms and allows them to be rinsed off; this process is often referred to as mechanical removal of microorganisms. Hand washing with antimicrobial containing products kills or inhibits the growth of microorganisms; this process is often referred to as chemical removal of microorganisms. When resistant microorganisms have been identified, or in areas where there are likely to be a high number of microorganism present, antimicrobial hand washing agents are often used.

*Effective hand washing calls for at least 10 seconds of vigorous friction with water and soap.*

II. Personal Protective Equipment—Using Barrier Protection:

**Gloves:** Gloves prevent the transmission of pathogens by direct and indirect contact. Gloves reduce the possibility of personnel coming in contact with the infectious organisms that infect clients, reduce the likelihood that personnel will transmit their own endogenous flora to clients, and reduce the possibility that personnel will become transiently colonized with microorganisms that can be then be transmitted to other clients. It is particularly important for care providers to wear gloves when they have breaks in their skin. Gloves must be worn when there is a risk for coming in contact with blood or other body fluids. It should be remembered, however, that gloves are not a substitute for hand washing!

**Masks:** Masks should be worn when splashing or spraying of blood or body fluid into the face is anticipated. Also, a mask protects the care provider from inhaling microorganisms from the client’s respiratory tract and prevents transmission of pathogens from the care provider’s respiratory tract to the client.

Surgical masks protect the wearer from inhaling large-particle aerosols that travel short distances (3 feet) and small-particle droplet nuclei that remain suspended in the air and travel longer distances. They also protect clients from inhalation of pathogens. Masks may protect wearers from infection that results from direct contact with mucous membranes. Masks also discourage the wearer from touching their eyes, nose, or mouth. A surgical mask that becomes moist does not provide a barrier to microorganisms, and thus is ineffective and should be discarded. Surgical masks should not be re-used.

Disposable particulate respiratory masks and HEPA (High efficiency Particulate Air) masks are used to protect personnel from pathogens spread by the respiratory route, especially tuberculosis. HEPA masks are fitted to the individual worker and can be used repeatedly. When not in use, the HEPA mask can be stored in a zip-lock bag in a designated area.

**Protective eyewear and face shields:** Protective eyewear is available in the form of plastic glasses or goggles. The eyewear should fit snugly around the face so that fluids cannot enter between the face and glasses. Some surgical masks are fitted with a clear plastic shield above the top of the mask to protect the eyes and forehead from splashes or sprays.

**Gowns:** Gowns are worn to prevent soiling clothes during contact with infected material, blood, or body fluids. Gowns are required for contact isolation. Some gowns are re-usable, but most are for one-time use and are disposable.
III. Standard Precautions/Universal Precautions:

Standard Precautions/Universal Precautions apply to blood, body fluid, excretions (except sweat), non-intact skin, and mucous membranes.

**Hands are washed:**
- before and after client contact
- after contact with blood, bodily fluids, secretions, and excretions
- after contact with equipment or articles contaminated by blood, bodily fluids, secretions, and excretions
- immediately after gloves are removed
- before and after preparing any medications or IV’s
- before and after touching food
- before and after using the bathroom

Gloves are worn when there is the potential to come in contact with:
- blood
- body fluids
- secretions
- excretions
- non-intact skin
- mucous membranes
- contaminated linens

Gloves must be removed, and hands washed, between client care.

Masks, eye protection or face shields are worn if client care activities may generate splashes or sprays of blood or body fluids.

Gowns are worn if soiling of clothing is likely from blood or body fluids. Gloves are worn with gowns, and glove cuffs are brought over the edge of the gown sleeves. Avoid gown becoming wet as moisture allows organisms to travel through gown to uniform. Wash hands after removing gown.

Client equipment is properly cleaned and reprocessed and single-use items are discarded. Example: if a stethoscope is to be reused, clean diaphragm or bell with 70% alcohol or liquid soap. Set aside on a clean surface. Place pens, reusable plastic syringes (e.g., carpuject), etc. on clean towel for eventual removal and disinfection. Do not place a contaminated gloved hand in pocket to retrieve a pen or alcohol prep pad.

All sharp instruments and needles are discarded in a puncture resistant container called a Sharps container. Needles may be disposed of uncapped, or a mechanical device for recapping may be used.

A private room is unnecessary unless the client’s hygiene is unacceptable, or unless the client is on Protective, Airborne, Droplet, or Contact Precautions. (Patients on Droplet Precautions can be placed together; patients on contact precautions can be placed together.)

IV. Types of Precautions:


**Standard Precautions:**
Use Standard Precautions for the care of all patients.
Airborne Precautions:

In addition to Standard Precautions, use Airborne Precautions for patients known or suspected to have serious illnesses transmitted by airborne droplet nuclei. Examples of such illnesses include:

1. **Measles**: caused by a paramyxovirus; transmitted by direct contact with droplets spread from the nose throat mouth.

2. **Varicella** (including disseminated herpes zoster): caused by a herpesvirus which causes a primary infection of varicella (chickenpox) and herpes zoster when the latent virus is reactivated. Spread by direct contact or droplets.

3. **Tuberculosis**: caused by mycobacterium tuberculosis; transmitted by the inhalation or ingestion of infected droplets and usually affect the lungs, the infection of multiple organ systems can occur.

Airborne Precautions require:
- a private room
- negative airflow of at least six air exchanges per hour
- use of a respiratory or mask

Droplet Precautions:

In addition to Standard Precautions, use Droplet Precautions for patients known or suspected to have serious illnesses transmitted by large particle droplets. Examples of such illnesses include:

1. Invasive *Haemophilus influenzae* type b disease, including meningitis, pneumonia, epiglottitis, and sepsis

2. Invasive *Neisseria meningitidis* disease, including meningitis, pneumonia, and sepsis

3. Other serious bacterial respiratory infections spread by droplet transmission, including:
   a. Diphtheria (pharyngeal)
   b. Mycoplasma pneumonia
   c. Pertussis
   d. Pneumonic plague
   e. *Streptococcal pharyngitis, pneumonia, or scarlet fever in infants and young children.*

4. Serious viral infections spread by droplet transmission
   a. Adenovirus
   b. Influenza
   c. Mumps
   d. Parvovirus B 19
   e. Rubella

Droplet Precautions require:
- a private room or cohort clients
- a mask when closer than 3 feet from patient

Contact Precautions:

In addition to Standard Precautions, use Contact Precautions for patient known or suspected to have serious illnesses easily transmitted by direct patient contact or by contact with items in the patient’s environment. Examples of such illnesses include:
1. Gastrointestinal, respiratory, skin, or wound infections or colonization with multi-drug-resistant bacteria judged by the infection control program, based on current state, regional, or national recommendations, to be of special clinical and epidemiologic significance. Current examples include:
   a. MRSA (methicillin resistant staphylococcus aureus)
   b. VRE (vancomycin resistant enterococcus)
   c. C. dif (clostridium difficile)

2. Infections with a low infectious dose or prolonged environmental survival including:
   a. Diptheria (cutaneous)
   b. Herpes simplex virus (neonatal or mucocutaneous). Can be spread both by direct contact and droplets
   c. Impetigo
   d. Major (non-contained) abscesses, cellulitis, or decubiti
   e. Pediculosis (lice)
   f. Scabies
   g. Staphylococcal furunculosis in infants and young children
   h. Zoster (disseminated or in the immunocompromised host)

5. Viral/hemorrhagic conjunctivitis

6. Viral hemorrhagic infections (Ebola, Lassa, or Marburg)

Contact precautions require
   - a private room or cohort clients
   - gloves, gowns

V. Preparation for Caring for a Patient Requiring Airborne/Droplet/Contact Precautions:

1. Check chart and/or Kardex for client’s diagnosis, differential diagnoses, lab studies, or physician’s order for isolation.
2. Obtain cart with appropriate supplies: gloves, masks, face shields, gowns, plastic laundry, trash, and specimen bags.
3. Check that all necessary equipment is available. Re-order equipment as it begins to run low.
4. Place a STOP sign, isolation card, and/or directions for visitors on the client’s door.
5. Ensure that linen hampers and trash cans are available.
6. Instruct family, visitors, and hospital personnel on procedures required.

VI: Protocol for Entering an Isolation Room:

1. Wash your hands.
2. Put on a new gown each time you enter an isolation room. Hold the gown so that the opening is in back when you are wearing the gown. Tie the strings at your neck (or slip the gown over your head). Wrap the gown around your waist, making sure your back is completely covered, and tie the strings around your waist. Pull the sleeves down to your wrist.
3. Put on clean, non-sterile gloves. If you are wearing a gown, bring the glove cuffs over the edges of the sleeves of the gown.
4. Put a mask over your mouth and nose. Bend the nose bar so that it conforms over ridge of your nose. If you are using a mask with string ties, tie the top strings on top of your head to prevent slipping. If you are using a cone shaped mask, tie the top strings over your ears. Tie bottom strings around your neck to secure the mask.
5. Apply goggles to fit snugly around face and eyes.
6. Assess if any items can be brought into the patient’s room. If organism transmission can occur on inanimate objects, dedicate equipment to the room. If equipment will be removed from the room for reuse, put it down on a clean paper towel to prevent contamination of clean items with contaminated environmental surfaces.
7. Enter the client’s room.
VII. Protocol for Leaving an Isolation Room:

Always touch/remove items below your waist (considered contaminated) and contaminated gloves before touching items near your head and face. Never remove a mask until outside a respiratory isolation room.

1. Untie the gown at the waist.
2. Remove gloves and discard. Wash hands.
3. Remove eyewear or goggles (without gloves on.)
4. Untie mask strings without gloves on, and drop mask into a trash receptacle. NOTE: Never remove a mask until you are outside of the isolation room.
5. Untie the neck strings of the gown (without gloves on). Allow gown to fall from shoulders. Without touching the outside of the gown, remove the gown and fold it with the inside out. Discard.
6. Wash hands immediately, for a minimum of 10 seconds.

VIII. Removing Trash and Linen:

Trash and dirty linen should be removed while wearing personal protective equipment. Remove the trash receptacle from the isolation room, closing the top of the bag and tying it. If the outside of the bag is contaminated, or if the contaminated material in the bag is heavy and the bag could easily break, the bag should be double-bagged for safety. To double-bag, the bag from inside the room is placed into a clean bag that is held open by a second health care worker outside the room. The second health care worker holds the clean bag open, making a “cuff” (to prevent contamination of the hands) by folding the top of the bag over the gloved hands.

IX. Transporting Isolation Client Outside the Room:

1. Try to schedule tests and procedures for clients requiring respiratory isolation and contact precautions at times when the receiving department is least full, and the patient will have the least wait. Inform the receiving department what type of isolation the client needs and what precautions personnel should follow.

1. Explain procedure to the client.
2. If the client is on respiratory isolation, or if the client is on neutropenic precautions (the patient is immunocompromised and has a critically low WBC count) instruct him or her to wear a mask for the entire time he/she is out of his/her room. Provide extra masks in case the mask gets moist and needs to be changed. The transporter does not need to wear a mask. Note: TB patients should not wear respirators with inhalation and exhalation valves. They should wear ordinary facemasks or respirators without valves because the TB bacilli are in the respirator and must be prevented from becoming airborne.
3. Cover the transport vehicle with a bath blanket (especially if there is a chance of soiling when transporting a client with a draining wound or diarrhea.) Also, be sure to cover the client with a sheet, bath blanket, or spread to maintain warmth and provide for privacy.
4. When the client returns to his/her room, remove the bath blanket and treat as contaminated linen.
5. Wipe down transportation vehicle with the approved germicidal-virucidal solution provided by the institution. Note: The EPA uses a system that classifies chemical germicides as sporicides, general disinfectants, hospital disinfectants, sanitizers, and others.

X. Obtaining Specimens from Clients on Airborne, Droplet, or Contact Precautions:

1. Label a specimen container with the client’s name, type of specimen, date, time, your initials, and the word “Isolation” before entering the patient’s room.
2. Put on gloves and other personal protective equipment as appropriate. Collect the specimen in the container, seal securely to prevent spillage and contamination of the outside of the container, and apply the label.
3. Place the specimen in a clean plastic specimen bag (labeled Biohazard). Be careful not to contaminate the outside of the bag.
4. Remove the gloves and wash your hands.
5. Send specimen to laboratory with appropriate laboratory request form.
6. All personnel handling or transporting specimens should wear gloves.
Medical Asepsis and Surgical Asepsis/Sterile Technique

I. Principles of Medical and Surgical Asepsis:


Definitions:
Asepsis is defined as the absence of disease-producing (pathogenic) organisms. The two types of aseptic technique the nurse utilizes are medical and surgical asepsis.

- **Medical asepsis, or clean technique**, includes procedures used to reduce the number of and prevent the spread of microorganisms. Hand washing, barrier techniques, and routine environmental cleaning are examples of medical asepsis.

- **Surgical asepsis, or sterile technique**, includes procedures used to eliminate all microorganisms from an area. Sterilization destroys all microorganisms and their spores. Sterile technique is practiced by nurses in the operating room, labor and delivery, and procedural areas where sterile instruments and supplies are used.

Principles of Surgical Asepsis:

1. All items used within a sterile field must be sterile.
2. A sterile barrier that has been permeated by punctures, tears, or moisture must be considered contaminated.
3. Once a sterile package is opened, a 2.5cm (1 inch) border around the edges is considered unsterile.
4. Tables draped as part of a sterile field are considered sterile only at table level.
5. If there is any question or doubt of an item’s sterility, the item is considered to be unsterile.
6. Sterile person or items contact only sterile areas; unsterile persons or items contact only unsterile areas.
7. Movement around and in the sterile field must not compromise or contaminate the sterile field.
8. A sterile object or field out of the range of vision or an object held below a person’s waist is contaminated.
9. A sterile object or field becomes contaminated by prolonged exposure to air; stay organized, and complete any procedures as soon as possible.
Critical Thinking About Infection Control

Case Studies:

1. Patient Actino Myces is admitted with a draining leg and heel wound. The wound drainage is heavy and soaks through the dressing. He is placed in a room with a post-stroke patient who has a Foley catheter. In 3 days the leg culture is discovered to have methcillin resistant staph aureus (MRSA) growing.
   - Should the stroke patient be moved out to another room?
   - What should have occurred when the patient was admitted? (Should the excessive drainage alert staff that this patient should be placed into a private room upon admission?)
   - If the wound drainage grew Pseudomonas, should the roommate be moved? What sources of information can you consult to determine the answer?
   - Demonstrate what barriers/precautions you will use when you enter his room to change his dressing?
   - How long do barriers need to be used?

2. Patient Mr. Beale has been in the hospital after having a hip replacement. He develops pneumonia and has a productive cough. He is unable to cover his mouth while coughing and is producing a lot of sputum. His roommate is also recovering from hip surgery.
   - Should the roommate be moved? Why/why not?
   - Demonstrate what barriers you will use when you enter his room to take his Vital signs.
   - What kind of disinfection/decontamination procedures need to be done? Do the housekeepers need to be instructed to do anything differently when cleaning?
   - You used the Hoyer lift to get this patient out of bed; how should it be cleaned?

3. Patient Mr. Sudo Monas has been admitted for rule out myocardial infarction (MI). Mr. Monas has been in the hospital for about 4 days when his urine culture comes back positive for methcillin resistant staph aureus (MRSA). He does not have a Foley catheter and he is incontinent of urine.
   - Does he need to be moved to a private room? Why/Why not?
   - Demonstrate what barriers you will use when you go into his room to give him a bath.
   - How long do these precautions need to be used?
Skill Performance Check-List:

Hand washing

Student Name: ___________________________________ Date: ______________________________

_____1. Remove jewelry. Push up sleeves.
_____2. Assess hands for hangnails, cuts, or breaks in the skin, and areas that are heavily soiled.
_____3. Turn on water; adjust flow and temperature.
_____4. Wet hands and lower forearms thoroughly by holding under running water. Keep hands and forearms in the down position.
_____5. Apply liquid soap; lather thoroughly.
_____7. Rinse with hands in the down position. Rinse in the direction of wrist to fingers.
_____8. Blot hands and forearms to dry thoroughly. Dry in the direction of fingers to wrist and forearms.
   Discard paper towels in proper receptacle.
_____9. Turn off water faucet with a clean, dry paper towel.

Score ___________ Instructor: ________________________________________________

Estimated time to complete the skill: 3 minutes
Skill Performance Check-list:

Donning and Removing Clean and Contaminated Gowns and Gloves

Student Name: ___________________________________ Date: ________________________________

_____1. Wash hands
_____2. Don gown before donning cap, mask, or gloves. Apply cap to head being sure to tuck hair under cap. Males with facial hair should use a hood to cover all hair on head and face. Secure mask around nose, mouth.
_____3. Put on clean gloves. Pull cuffs on gloves over edge of gown sleeve.
_____4. Enter the client’s room and explain the rationale for wearing a gown and gloves.
_____5. After performing necessary tasks, untie gown at waist, then remove gloves and wash hands.
_____6. Untie gown at neck, and remove cap, goggles, and gown before leaving the room. Dispose of properly. (Note: Do not touch clothing or body, especially areas near face, neck, and head, while wearing contaminated gloves.) Wash hands.
_____7. Remove mask after leaving room.
_____8. Wash hands.

Score ____________ Instructor: ________________________________

Estimated time to complete the skill: 5 minutes
Skill Performance Check-list:

Applying Sterile Gloves*

Student Name: ___________________________________ Date: ______________________________

_____ 1. Wash hands

_____ 2. Remove the outer wrapper of the package. Place the inner wrapper onto a clean, dry surface.
*Open inner wrapper to expose gloves without touching them.

_____ 3. Identify right and left hand; glove dominant hand first.

_____ 4. *Grasp the 2 inch (5 cm) wide cuff with the thumb and first two fingers of the non-dominant hand, touching only the inside of the cuff.

_____ 5. Gently pull the glove over the dominant hand.

_____ 6. *With the gloved dominant hand, slip your fingers **under** the cuff of the other glove.

_____ 7. *Gently slip the glove onto the non-dominant hand without contaminating the sterile gloved hand.

_____ 8. With gloved hands, interlock fingers to fit the gloves onto each finger.

_____ 9. Remove gloves as follows: Slip gloved fingers of the dominant hand under the cuff of the opposite hand, or grasp the outer part of the glove at the wrist if there is no cuff.

_____ 10. Pull the glove down to the fingers, exposing the thumb.

_____ 11. Slip the uncovered thumb into the opposite glove at the wrist.

_____ 12. Pull the glove down over the dominant hand almost to the fingertips and slip the glove onto the other hand.

_____ 13. Pull the glove over the dominant hand so that only the inside is exposed.

_____ 14. Dispose of soiled gloves and wash hands.

Score ___________ Instructor: ______________________________

Estimated time to complete the skill: 5 minutes
WEEK 2

WEEK 2: Vital Signs and Patient Assessment

1. **Assessment and Documentation of Vital Signs, O2 Sat, and Pain:** Discussion of normal and abnormal vital signs and their use and interpretation. Demonstration and practice of techniques for accurately measuring and recording vital signs.
   
   **Student Preparation**
   - Read Week 2 of the NE 101 Syllabus, sections on vital signs, O2 sat, and pain.
   - Read Perry, A.G. and Potter, P. A. *Clinical Nursing Skills & Techniques*.
     - Chapter 4: Reporting and Recording
     - Chapter 5: Vital Signs
     - Chapter 15: Pain Assessment and Basic Comfort Measures
   
   **Student Lab Practice:**
   - Skills Performance Checklist Review Assessment and Documentation of Vital Signs (VS)

2. **Guidelines for Organization of the Clinical Shift.** Discussion of organization of the shift, with focus on basic client assessment, including environmental assessment, and head to toe physical assessment.

   **Student Preparation**
   - Read Week 2 of NE 101 Syllabus, sections on assessment and organizing the clinical shift

3. **Performing a Basic Client Assessment:** Discussion of organization of the clinical shift. Demonstration and practice of techniques for assessing vital signs and doing a basic assessment.

   **Student Preparation**
   - Read Week 2 of NE 101 Syllabus, sections on basic and focused physical assessment.
   - Read Perry, A.G. and Potter, P. A. *Clinical Nursing Skills & Techniques*.
     - Chapter 6: Health Assessment

   **Student Lab Practice:**
   - Assessing the client’s environment of care and safety, and performing and documenting vital signs and client head-to-toe assessment

4. **Skill Check-off** (skills introduced and practiced during the previous week/weeks):
   - **Skill Performance Check-List:** Applying Sterile Gloves*
**Temperature, Pulses, Respirations, Blood Pressure, Pain, and Oxygen Saturation**

**Vital Signs:**

Temperature, pulse, respiration, blood pressure, and level of pain are the most frequent measurements obtained by health care practitioners. These measurements indicate if the circulatory, pulmonary, neurological, and endocrine systems are functioning normally. They are important indicators of the body’s physiological status and response to physical, environmental, and psychological stressors and are referred to as vital signs. Vital signs reveal both sudden changes in a client’s conditions as well as changes that occur progressively over time. Any difference between a client’s normal baseline vital signs and present vital signs can be an indication to further assess the patient, determine the potential causes for the changes, and intervene as appropriate.

I. **Temperature:**

Body temperature is the difference between the amount of heat produced by the body processes and the amount of heat lost to the external environment. The core temperature is the temperature of the deep body tissues. It is under the control of the hypothalamus and is maintained within a narrow range. Skin or body surface temperature rises and falls as the temperature of the surrounding environment changes and can fluctuate dramatically.

The measurement of body temperature is aimed at obtaining a representative average of core body temperature. Average temperature varies depending on the measurement site used. It is generally accepted that rectal temperatures are usually 0.5 °C higher than oral temperatures, and axillary and tympanic temperatures are usually 0.5-0.9 °F lower than oral temperatures.

Factors that influence temperature include: exercise, hormones, stress, environmental temperature, medications, daily fluctuations.

**Types of Thermometers:**

- **Glass Thermometers:** Mercury-in-glass thermometers has been a standard device for temperature measurement for many years. However, because of the risk of mercury exposure from accidental breakage, many health care settings have eliminated mercury-in-glass thermometers. (Mercury is highly permeable through the skin and mucous membranes; inhaled vapors diffuse rapidly into the blood and are transported to the tissues. There is a mercury spill kit in the lab as per OSHA protocol.) The time required to obtain an accurate measurement with a glass thermometer depends on the site used and the age of the client. The nurse selects the safest and most accurate site for the client. The same site should be used when repeated measurements are needed.
Site | Adults | Children
--- | --- | ---
Oral temperature: | 3 minutes | 7 minutes
Rectal temperature: | 3 minutes | 4 minutes
Axillary temperature: | 5-10 minutes | 5 minutes (4 minutes for infant)

- **Electronic Thermometers:** The length of time the probe needs to be placed to obtain an accurate reading depends on the device; be sure to read the directions for this device. Many electronic thermometers are designed to provide a **4 second predictive temperature and 3 minute standard temperature.** They have separate probes for oral and rectal use; the oral probe has a blue tip, the rectal probe a red top.

Hold the probe against the tissues (not the teeth or dentures) firmly but gently, and allow the reading to reach its maximum before removal. Most devices make an audible sound when they reach the final reading for the patient.

- **Chemical Dot Thermometers:** Chemical dot single use or reusable thermometers are disposable thin strips of plastic with a temperature sensor at one end. The sensor consists of a matrix of chemically impregnated dots that are formulated to change color at different temperatures. The chemical dots on the thermometer change color to reflect temperature reading usually within **60 seconds for oral measurements.** Though most commonly used for oral temperatures, they can also be used at axillary or rectal sites (covered by a plastic sheath at the latter), with a placement for 3 minutes.

- **Tympanic Thermometer:** An otoscope-like speculum with an infrared sensor in the tip that detects heat radiated from the tympanic membrane of the ear. After placing the device in the auditory canal and depressing a button, it will display a temperature value within 2-5 seconds and a sound signals when the peak temperature reading has been measured.

**Normal Temperature Range:**

The normal range of an oral temperature is ~ 36 – 37.5 C (97-99.5 F) or 36 C –38C (96.8 0 100.4).

An acceptable temperature range for adults depends on age, gender, range of physical activity and state of health.

**Celsius vs. Fahrenheit:**

The use of the Celsius scale and Fahrenheit scale varies from facility to facility. Therefore, you should be able to convert a temperature reading from Centigrade to Fahrenheit and vice versa using the following formulas:

\[ C = \frac{5}{9} F - 32 \quad \text{or} \quad C = F - 32, \text{ then divide by 1.8} \]
\[ F = \frac{9}{5} C + 32 \quad \text{or} \quad F = C \times 1.8, \text{ then add 3} \]

**Terminology Related to Body Temperature:**

**Fever:** A fever is generally defined as a temperature above 38 C (100.4 F) rectally, or one that is abnormally high for the patient. A temperature >= 38.5 usually requires a “fever work-up” to determine through cultures of blood, urine, stool, and sputum, and a chest x-ray, the infectious agent that is the presumed cause of the fever.) an abnormal elevation of body temperature. A fever occurs when heat loss mechanisms are unable to keep pace with excess heat production, resulting in an abnormal rise in body temperature.

**Hypothermia:** body temperature <36 C / 97 F
Hyperthermia: body temperature >38 C / 100.4 F

II. Pulses:

Location:
1. Temporal
2. Facial
3. Carotid
4. Brachial
5. Radial
6. Ulnar
7. Femoral
8. Popliteal
9. Dorsalis pedis
10. Posterior tibialis

Grading System for Pulse Strength:

<table>
<thead>
<tr>
<th>Grade</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>No pulse palpable</td>
</tr>
<tr>
<td>+</td>
<td>Barely palpable pulsation, weak thready, diminished</td>
</tr>
<tr>
<td>++</td>
<td>Easy to palpate, light touch needed; normal pulse</td>
</tr>
<tr>
<td>+++</td>
<td>Full pulsation, not easily obliterated</td>
</tr>
<tr>
<td>++++</td>
<td>Strong, bounding pulsation, unable to obliterate</td>
</tr>
</tbody>
</table>

- Always note rate, rhythm, amplitude, and symmetry of pulses.
- If pulse is irregular, take apical and radial pulse to assess pulse deficit.

Average normal pulse rate in adults:

P = Pulse (usually taken radially) = 60-100 beats per minute, regular
AP = Apical pulse (listening to the heart, usually at the apex) = 60-100 beats per minute, regular

III. Vascular Assessment: Circulation, Sensation, Movement (CSM)

Circulation:
- Color: pink, pale, cyanotic
- Temperature: warm, cool, cold
- Capillary filling time (after blanching nail bed): Rapid (<3 seconds), sluggish (>3 seconds)
- Presence and strength/grading of peripheral pulses
- Presence and degree/grading of edema

Peripheral Pulses:
- Temporal pulse – anterior to ear where the temporal artery passes over the temporal bone.
- Facial pulse – on the groove in the mandible approximately 1/3 of the way forward from angle of jaw.
- Carotid pulse – on either side of the larynx.
- Brachial pulse – medial aspect of antecubital space of either arm.
- Radial pulse- anterior medial aspect of wrist (on thumb side).
- Ulnar pulse – anterior lateral aspect of wrist (on little finger side).
- Femoral pulse – point in the middle of the groin where the femoral artery passes over the pelvic bone.
- Popliteal – posterior to patella.
- Dorsalis pedis – on the dorsum of the foot in a line between the first and second toes just above the dorsal arch.
- Posterior tibial – posterior to inner aspect of malleous (ankle).

**Pulse Grading:** (Patrick, et.al., Medical Surgical Nursing, 2nd Ed., 1991, pg. 804)

<table>
<thead>
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<td>++++</td>
<td>Strong, bounding pulsation, unable to obliterate</td>
</tr>
</tbody>
</table>

Edema can sometimes be detected by simple inspection, but to determine whether it is pitting requires palpation. The tissue is firmly pressed for 5-10 seconds. If it does not return rapidly to normal contour, pitting edema is present. Weight gain may correlate to edema.

<table>
<thead>
<tr>
<th>Grade</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1+</td>
<td>Slight pitting, no visible distortion (2 mm)</td>
</tr>
<tr>
<td>2+</td>
<td>A somewhat deeper pit than 1+, but again no readily detectable distortion (4 mm).</td>
</tr>
<tr>
<td>3+</td>
<td>The pit is noticeably deep; the dependent extremity looks fuller and more swollen (6 mm)</td>
</tr>
<tr>
<td>4+</td>
<td>The pit is very deep, lasts awhile, and the dependent extremity is grossly distorted</td>
</tr>
</tbody>
</table>

**Sensation:**
- Intact/Present
- Decreased
- Absent/Numb

**Movement:**
- Present
- Decreased
- Absent

**Clinical Decision Tool to Exclude Diagnosis of Deep Vein Thrombosis**
(Laurie Barclay, MD; Charles Vega, MD, FAAFP. “Simple Clinical Decision Rule Aids Management of Clinically Suspected Deep Vein Thrombosis.” CME/CE. Medscape Medical News, 2/19/09.

A score = or >4 is predictive of DVT:
- Male sex (1 point)
- Use of hormonal contraceptives (1 point)
- Active cancer in the past 6 months (1 point)
- Surgery in the previous month (1 point)
- Absence of leg trauma (1 point)
- Distention of collateral leg veins (1 point)
- Difference in calf circumference of 3 cm or more (2 points)
- Abnormal D-dimer assay (6 points)
IV. Respiration:

Respiration is primarily an involuntary function. We do not consciously plan to take 12 breaths per minute; however, we can voluntarily alter our respiratory rate and pattern at will. With this in mind, consider a method of observing respirations without your client’s awareness. A useful distraction is to take the radial or apical pulse first, then observe the rise and fall of the chest or abdomen with each respiration for an additional 30-60 seconds while continuing to palpate or auscultate the pulse. A similar method to count respirations is to palpate the radial pulse while placing your patient’s hand and wrist on their chest. This allows you to feel and see the patient’s chest move. Respirations can also be counted by auscultating the chest with a stethoscope, counting both the apical pulse and the respiratory rate.

Normal Respiratory Rates:

Average Adult Respiratory Rate: 12-20
Average Pediatric Respiratory Rate: Respirations in 1 y.o to 6 y.o decrease by 1 breath / minute/ year

V. Blood Pressure:

Definitions:

- Systolic blood pressure: The higher blood pressure measurement; reflects pressure within the arterial system during the period of ventricular contraction (systole).
- Diastolic pressure: The lower blood pressure measurement, which reflects the pressure consistently exerted within the arterial system during the period of ventricular relaxation (diastole).
- Hypertension: Consistent elevation of blood pressure >140-150/90 (adult)—a diastolic blood pressure > 90 or a systolic pressure > 140-150.
- Hypotension: A low blood pressure which reflects inadequate perfusion and oxygenation of body tissue. A systolic BP < 90 is usually considered hypotensive, but it is dependent upon the client’s baseline and whether there it is accompanied by dizziness and an increased pulse rate.
- Normotensive: blood pressure within normal range for patient.
- Orthostatic hypotension: 1) “A fall in systolic blood pressure of 25mm Hg systolic and 10 mm Hg diastolic, accompanied by signs and symptoms of inadequate cerebral perfusion (dizziness, lightheadedness, syncope)when arising from lying position to sitting or standing position.” (Potter and Perry). 2. “Orthostatic vital signs determination is the measurement of blood pressure and pulse rate in supine and erect positions… A positive test occurs if the patient becomes dizzy, has a pulse increase of 20 or more beats per minute, or a systolic blood pressure decrease of 20 or more mm Hg. Also know as “tilt test” or “postural vital signs.” (Taber’s Cyclopedic Medical Dictionary, 18th edition.)
- Pulse Deficit: A condition characterized by a difference between the apical pulse rate and peripheral pulse rate that results in a lack of peripheral perfusion.
- Auscultatory gap: Temporary disappearance of Korotkoff sounds when blood pressure is being auscultated. Occurs in hypertensive clients and may cause an underestimation of blood pressure.
VI. Comparison of Average Pulse Rates and Systolic BP in children:

<table>
<thead>
<tr>
<th>AGE</th>
<th>Birth</th>
<th>6 months</th>
<th>1 year</th>
<th>2 years</th>
<th>6 years</th>
<th>8 years</th>
<th>10 years</th>
</tr>
</thead>
<tbody>
<tr>
<td>PULSE (decreases with age)</td>
<td>140</td>
<td>130</td>
<td>115</td>
<td>110</td>
<td>103</td>
<td>100</td>
<td>95</td>
</tr>
<tr>
<td>SYSTOLIC BP (increases with age)</td>
<td>70</td>
<td>90</td>
<td>90</td>
<td>92</td>
<td>95</td>
<td>100</td>
<td>105</td>
</tr>
</tbody>
</table>

VII. Adult Normal Vital Sign Range

Note that “normal ranges” for vital signs vary among adults due to differences in age, gender, size, and the presence of a chronic underlying conditions. Note too that “normal ranges” may also be specified in physician’s orders as vital sign parameters that are acceptable for the patient and deviations for which the physician wants to be notified.

T = Temp 97-101.5 / 36.5-37.5 C

P = Pulse/AP = Apical pulse- 60-100 beats per minute, regular pattern

R = Respiration 14 - 24/ minute

BP = Blood Pressure

SBP = Systolic Blood Pressure 90-150

DBP = Diastolic Blood Pressure 40-90

Pain Intensity <3/10 (or below or equal to the level the client says is tolerable)

SaO2/O2 Sat =% of oxygen saturated in hemoglobin 95-100%

VIII. Pain Assessment and Management

Definition of Pain:

- “An unpleasant, subjective sensory and emotional experience associated with actual or potential tissue damage, or described in terms of such damage.” (The International Association for the Study of Pain, 1979.)
- “Pain is whatever the experiencing person says it is existing whenever he says it does.” (McCaffery, 1979)

Pain Assessment: The 5th VS

- All patients must be routinely assessed and treated for pain.
- An assessment must be done using a pain scale, and the assessment, along with interventions to provide pain relief, and an evaluation of the patient’s response to those interventions, must be documented.
- Part of a complete assessment of a patient’s pain includes an assessment of how the pain is interfering with the client’s normal functional ability.
The nurse should ask the client to describe an acceptable level of pain, and the nurse and healthcare team then work toward getting the patient’s pain decreased to at least the level the patient describes as acceptable.

Routine Clinical Approach to Pain Assessment and Management: **ABCDE**

- **A**: Ask about pain regularly
  - Assess pain systematically
- **B**: Believe the client and family in their report of pain and what relieves it
- **C**: Choose pain control options appropriate for the client, family, and setting
- **D**: Deliver interventions in a timely, logical, and coordinated fashion
- **E**: Empower clients and their families
  - Enable them to control their course to the greatest extent

(From: Jacox, A. and others: *Management of cancer pain*, Clinical Practice Guideline No. 9, AHCPR Publication No. 94-0592, Rockville, MD, 1994.)

Pain Assessment Criteria: “OLDCART” Acronym

- **O** = Onset
- **L** = Location (there may be multiple sites)
- **D** = Duration
  - How long does the pain last?
  - Is it constant?
  - Is it intermittent?
- **C** = Characteristics
  - Neuropathic or nerve (sharp, shooting, burning, electrical)
  - Nociceptive/somatic (e.g., bone pain (dull, aching)
  - Visceral (cramping, squeezing)
- **A** = Aggravating Factors (e.g., walking, sitting, turning, chewing, swallowing, urinating, defecating, breathing, coughing)
- **R** = Relieving Factors
  - What makes pain better or worse?
  - What medical and non-medical interventions relieve the pain
- **T** = Treatments
  - Medications
  - Non-pharmacological interventions (e.g., heat, cold, massage, distraction, etc.)

(From Bednash, Geraldine and Ferrell, Betty R. “Pain and Symptom Management in End of Life Care.” Course #732, Continuing Medical Education Resource, Sacramento, CA.)

Pain Assessment Documentation Tool (The 4 A’s) (Dr. S. L. Pasic)

- Analgesia (intensity of pain)
- Activity (level of functioning)
- Adverse Effects (side effects)
- Aberrant Behavior (abuse, misuse, or addiction)

Examples of Pain Scales: (see Potter and Perry)

- **Numerical:**
  - No pain
  - Severe Pain
  
- **Descriptive**
- **Visual Analog**
• Wong-Baker Faces
• Pain Ruler
• Oucher Pain Scale

Key Attitudes to Communicate to the Patient in Pain:
• I care.
• I believe you about your pain.
• I respect the way you are reacting to the pain.
• I want to explore with you what you think will help relieve your pain.
• I want to discuss with you what your pain means to you
• I am willing to stay with you even if I fail to help control your pain.
• If you cannot relate to me, I will try to find someone else for you.


Key Concepts in Pain Management

1. Use a preventive approach: The advantages of using a preventive approach with analgesics are many: the patient spends less time in pain and can direct energy to restoring health; doses of analgesic can be lower than if pain is allowed to increase or become severe; there are fewer side effects when a lower dose can be used; there is decreased patient anxiety about return of pain; there is decreased concern about obtaining relief when needed which results in decreased “clockwatching” behavior and/or craving for pain relief; increase in overall activities.

2. Titrate to effect: Adjust and individualize the analgesic drug, dose, frequency, and route for each patient to achieve pain relief with fewest side effects.
   a. Choose the appropriate analgesic. Utilize the WHO 3-Step Analgesic Ladder and the three main groups of analgesics.
      • Non-narcotics non-steroidal anti-inflammatory drugs (NSAIDS)
      • Narcotics/opioids
      • Adjuvant analgesics: Tricyclic antidepressants, anticonvulsants, anesthetics, corticosteroids, antispasmodics.
   b. Utilize an Equianalgesic Chart when changing drugs or routes.
   c. Use a flow sheet and evaluate the following patient responses:
      • Respiratory rate
      • Pain rating
      • Sedation level (e.g., asleep/easy to arouse; awake and alert; slightly drowsy easily aroused; frequently drowsy drifts off to sleep during conversation; somnolent.)
      • Pain rating before and after analgesic administered
      • Analgesic name, dosage, route, and time

4. Whenever possible, employ the principle of patient controlled analgesia. The person who feels the pain is the person who must have, to the extent possible, control of measures to relieve it. Patient controlled analgesia may be defined, in the broadest sense, as the patient’s self-administration of all forms of pain control by methods that consider safety, as well as the patient’s ability and willingness to exercise control.

5. Prevent and treat adverse effects.


7. Do no harm.

Communicating Pain Assessment Findings to Members of the Health Care Team:
• Be objective in your presentation. Have the patient’s chart, MAR, pain flow sheet, nurse’s notes, etc. with you.
• Give complete information: location, intensity, quality of pain
• Remind colleagues about the probable etiology of the pain, but do not rule out other potential causes
• Describe the effect of the pain on the patient’s function (ability to walk, eat, sleep, perform ADLs, participate in plan of care)
• List the medication dosage, route, and frequency, including the last dose administered, given for pain, the efficacy of the medication (e.g., reduction of pain rating from 8/10 to 5/10), and duration of relief.
• Ask for suggestions, and be prepared to make recommendations (requires you, the RN to be knowledgeable about pain management!)
• When faced with unhelpful responses, reframe, educate and normalize. Examples:
  o Statement: “I don’t think she has that much pain.”
  o Response: “Mrs. Smith is generally very stoic.”
  o Statement: “She has lung cancer. I don’t want to cause respiratory depression.”
  o Response: “Her respiratory rate is 24 and there is no change when she is given the morphine. She has been on opioids for several days now, and has likely developed tolerance to the respiratory depressant effect of the opioid.”
  o Statement: “That’s a very high dose of narcotic.”
  o Response: “That dose is really not unusual. Plus, we know that the correct dose of opioid is the dose that relieves the patient’s pain to an acceptable level, without unacceptable side-effects.”


PCA (Patient Controlled Analgesia) Machine

A PCA (Patient Controlled Analgesia) machine is a computerized infusion device that allows the delivery of continuous and on-demand doses of IV (intravenous) or SC (subcutaneous) narcotics/opioids. The machine can be programmed to provide:
• continuous medication (continuous/basal/ background),
• intermittent patient-controlled/on-demand bolus dose of medication (PCA dose) or
• a combination of continuous medication plus a patient-controlled doses (continuous/basal/background + PCA).

To prevent overdosing, the machine can be programmed for a delay time or “lock out” between patient-initiated doses and a maximal 4 hour dose.

Nursing responsibilities in caring for patient on PCA machines include:
• Periodically checking the syringe, infusion settings, tubing connections, and condition of the site
• Client teaching
• Client assessment and documentation of:
  o Patient’s pain rating
  o Client’s respiratory rate
  o Patient’s level of sedation
  o Basal dosage/rate
  o PCA dosage
  o # of PCA attempts
  o # of doses delivered.
  o Total # of mg patient has received
  o Amount of medication remaining in syringe
  o When PCA syringe is changed
• Evaluation of response to therapy

IX. Reporting Vital Signs, O2 Sat, and Pain
• When reporting vital signs to someone verbally, TPR (Temperature, Pulse, Respirations), BP are given in that order. **Example:** “Vital signs are: 37.6-72-20-110/68.” If given in this order, the provider does not have to specify which vital sign is which.

• O2 sat or Pulse Ox is always reported with the amount of oxygen patient was receiving when the measurement was taken. **Example:** “O2 sat is 95% on O2 @2 liters per minute.” **Example:** “O2 sat is 97% on room air.”

• Pain is listed as a numerical rating or score on a scale from 0 to 10 (with 0 no pain and 10 the worst pain imaginable). **Example:** “Patient reports a pain rating of 6 out of 10.”

**X. Documentation of Vital Signs, O2 Sat, and Pain:**

Agencies use various forms to document vital signs, O2 saturation, and pain. A few examples follow.
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<td>97</td>
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</tbody>
</table>

**GLASGOW COMA SCALE TOTAL**

**PULSE**

**RESP**

| BP    | 15   |      |      |      |      |      |      |      |
| 90    |      | 15   |      |      |      |      |      |      |
| 30    |      |      | 15   |      |      |      |      |      |

**O2 MODE**

**O2 SAT %**

**CARDIAC RHYTHM**

**PAIN MANAGEMENT**

**INTAKE AND OUTPUT**

**TPN/PDN**

**BLOOD PRODUCTS**

**VOID**

**FOLEY**

**NG**

**EMESIS**

**STOOL**

**DRAINS**

**CHEST TUBE**

**OFF UNIT**

**PHYSICIAN NOTIFICATION**

**PRINT NAME**

**SIGNATURE/TITLE**

**R.N.**
### PAIN GRAPH

#### NOC DAY EVE

| Time | 0000 | 0500 | 1000 | 1500 | 2000 | 2500 | 3000 | 3500 | 4000 | 4500 | 5000 | 5500 | 6000 | 6500 | 7000 | 7500 | 8000 | 8500 | 9000 | 9500 | 10000 | 10500 | 11000 | 11500 | 12000 | 12500 | 13000 | 13500 | 14000 | 14500 | 15000 | 15500 | 16000 | 16500 | 17000 | 17500 | 18000 | 18500 | 19000 | 19500 | 20000 | 20500 | 21000 | 21500 | 22000 | 22500 | 23000 |
|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| Date | Initials | Signature/Title | Initials | Signature/Title | Initials | Signature/Title | Initials | Signature/Title | Initials | Signature/Title | Initials | Signature/Title | Initials | Signature/Title | Initials | Signature/Title | Initials | Signature/Title | Initials | Signature/Title | Initials | Signature/Title | Initials | Signature/Title | Initials | Signature/Title | Initials | Signature/Title | Initials | Signature/Title | Initials | Signature/Title | Initials | Signature/Title | Initials | Signature/Title | Initials | Signature/Title | Initials | Signature/Title |

### Instructions

1. **No Pain:**
   - Location:
     - A
     - B
     - C
   - Quality/Characteristics:
     - 1 = Sharp
     - 2 = Dull
     - 3 = Pressure

2. **No Pain:**
   - Location:
     - A
     - B
     - C
   - Quality/Characteristics:
     - 1 = Sharp
     - 2 = Dull
     - 3 = Pressure

3. **No Pain:**
   - Location:
     - A
     - B
     - C
   - Quality/Characteristics:
     - 1 = Sharp
     - 2 = Dull
     - 3 = Pressure

---

**Summit Medical Center**

**PAIN GRAPH**
PAIN ASSESSMENT FOR PATIENTS UNABLE TO VERBALLY COMMUNICATE PAIN

If the patient is unable to communicate using the pain rating scale of 1-10, assess the following and check all that apply. If patient does not exhibit any of the indicators below, place a check in appropriate row under "no pain indicators exhibited".

<table>
<thead>
<tr>
<th>INDICATORS</th>
<th>Date</th>
<th>Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>2. Vital Signs elevated compared to baseline:</td>
<td></td>
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<tr>
<td>Pulse</td>
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<tr>
<td>Respiration</td>
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<tr>
<td>Blood Pressure</td>
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<tr>
<td>2. Patient B:</td>
<td></td>
<td></td>
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<tr>
<td>Groaning</td>
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<tr>
<td>Moaning</td>
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<tr>
<td>Crying</td>
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<tr>
<td>Breathing noisily</td>
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<tr>
<td>3. Patient displaying facial expressions:</td>
<td></td>
<td></td>
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<tr>
<td>Frowning (wrinkled forehead)</td>
<td></td>
<td></td>
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<tr>
<td>Grimacing</td>
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<tr>
<td>Fearful</td>
<td></td>
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<tr>
<td>Sad</td>
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<tr>
<td>Muscle contraction around mouth &amp; eyes</td>
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<td>5. Patient displaying physical Movements</td>
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<td></td>
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<tr>
<td>Restlessness</td>
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<tr>
<td>Fidgeting</td>
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<tr>
<td>Absence of movement</td>
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<tr>
<td>Slow movements</td>
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<tr>
<td>Cautious movements</td>
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<tr>
<td>Guarding</td>
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<tr>
<td>Rigidity</td>
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<tr>
<td>Generalized tension (not relaxed)</td>
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<tr>
<td>Trying to get attention (beckoning someone)</td>
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</table>

No pain indicators exhibited

Initials | Signature/Title | Initials | Signature/Title | Initials | Signature/Title |
----------|-----------------|----------|-----------------|----------|-----------------|

(01/02)

PAIN ASSESSMENT FOR PATIENTS UNABLE TO VERBALLY COMMUNICATE P™
PATIENT CONTROLLED ANALGESIA (PCA) — BARD
PHYSICIAN’S ORDER SHEET

Analgesia via BARD PCA Infuser
Morphine 1.0 mg/ml
Hydromorphone 0.1 mg/ml
Meperidine 10.0 mg/ml
Other

CHECK ONE
☐

(2) PLEASE BE SURE TO INDICATE BOTH “MLS” AND “MGS” WHEN ORDERING THE AMOUNT OF
MEDICATION TO BE DELIVERED. THE PUMP IS PROGRAMMED IN MLS.

(a) DOSE (Patient controlled)
range: 0.1-9.9 ml
suggested: Morphine, 0.5 - 1.5 mg (0.5 - 1.5 ml)
Hydromorphone, 0.05 - 0.2 mg (0.5 - 2.0 ml)
Meperidine, 5.0 - 10.0 mg (0.5 - 1.0 ml)

(b) DELAY (Lockout Interval)
range: 3-60 minutes
suggested: 5-15 minutes

(c) BASAL RATE (Continuous Background Infusion)

FOR ACUTE PAIN PATIENTS, BR WILL BE DISCONTINUED UNLESS REORDERED EVERY
A.M. BEGINNING 24 HOURS AFTER INITIATION:

range: 0.0-10.0 ml/hr
suggested: Morphine, 1.0 - 2.5 mg/hr (1.0 - 2.5 ml/hr)
Hydromorphone, 0.1 - 0.3 mg/hr (1.0 - 3.0 ml/hr)
Meperidine, 10.0 - 15.0 mg/hr (1.0 - 1.5 ml/hr)

(d) ONE HOUR LIMIT (total of PCA and Basal doses)
range: 1.0-30.0 ml
suggested: Morphine, 5.0 - 10.0 mg (5.0 - 10.0 ml)
Hydromorphone, 0.5 - 1.5 mg (5.0 - 15.0 ml)
Meperidine, 40.0 - 55.0 mg (4.0 - 5.5 ml)

(e) BOLUS (Loading Dose or subsequent boluses) (optional)
range: 0.0-10.0 ml
every __________ minutes for excessive pain.
suggested: Morphine, 3.0 - 5.0 mg (3.0 - 5.0 ml)
Hydromorphone, 0.4 - 0.8 mg (4.0 - 8.0 ml)
Meperidine, 20.0 - 25.0 mg (2.0 - 2.5 ml)

(f) If you have questions call Dr.

TIME: __________________________
SIGNATURE: __________________________

MGH
Massachusetts General Hospital
A Sutter Health Affiliate
250 BON AIR ROAD • GREENBRAE, CA 94901 • (415) 925-7000

PLACE LABEL HERE OR HANDWRITE

PATIENT NAME: __________________________
MEDICAL REC. NO. __________________________
# Patient Controlled Analgesics

<table>
<thead>
<tr>
<th>Date</th>
<th>Time</th>
<th>BP</th>
<th>P</th>
<th>R</th>
<th>Coma Scale</th>
<th>Pupil Size</th>
<th>Pain Level</th>
<th># of Attempted Doses</th>
<th># of Doses Received</th>
<th>Total MG Received</th>
<th>Comments Balance</th>
<th>Signature Title</th>
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Performance Check-list:

**Assessing Temperature, Pulse, Respiration, Blood Pressure, and Pain**

Student Name: ___________________________________ Date: __________________________

1. Review medical record for factors that influence vital signs
2. Identify the client.
3. Explain to the client that you will be assessing their vital signs.
4. Assess the client’s toileting needs and proceed as appropriate.
5. Gather necessary equipment.
6. Provide for privacy.
7. Wash hands and apply gloves as needed.
8. Position the client appropriately.

**Assess Oral Temperature**:

1. *Select correct probe and place disposable protective sheath over probe
2. *Place tip of thermometer under the client’s tongue and along the gum line.
3. Instruct client to keep mouth closed around thermometer.
4. *Read measurement on digital display.
5. Push ejection button to discard disposable sheath and return probe to storage well.
7. **Remove gloves.
8. (Wash hands.)

**Assess Radial Pulse**:

1. Flex client’s elbow and place lower part of arm across chest.
2. Support client’s wrist by grasping outer aspect with thumb.
3. *Place index and middle finger over the radial artery and palpate pulse.
4. Identify pulse rhythm
5. Determine pulse volume
7. Inform client of results.

**Assess Apical Pulse**:

1. Raise client’s gown to expose sternum and left side of chest.
2. Cleanse stethoscope with an alcohol swab.
3. *Locate apex of heart.
4. Instruct client to remain silent so you can listen to his heart.
5. Put earpieces of stethoscope in your ears and warm stethoscope diaphragm in your hand.
6. Place diaphragm over the PMI and auscultate for sounds
7. Note regularity of rhythm
8. *Count beats while looking at second hand of watch; determine beats per minute.
9. Share findings with client
10. *Record site, rate, rhythm, and number of irregular beats/minute.

**Assess Respiration**

1. *Observe one complete respiratory cycle; start counting with first inspiration while looking at the secondhand of watch. Count the number respirations in a minute or the number in a fraction of a minute (e.g., count respirations for 15 seconds and multiply that number by 4). Note: You can assess the client’s respirations while seeming to assess the client’s pulse by palpating his radial pulse while
you cross his arm over his chest and watch his chest go up and down. Similarly, you can place your
stethoscope on the client’s chest, and after distracting him by telling him you are listening to his heart,
you can count his respirations.
___2. Observe character of respirations
___3. *Record rate and character of respirations.

**Assess Arterial Blood Pressure**

___1. Explain the procedure to the patient.
___2. Ask if they know their usual blood pressure.
___3. Determine which extremity is most appropriate for reading (consider the presence of IVs, casts,
wounds, pain, etc.)
___4. *Select a cuff size that completely encircles upper arm without overlapping bladder ends.
___5. Position client’s arm at heart level, extend elbow with palm turned upward.
___6. *Palpate the brachial artery in the antecubital space and note its position; this is where you will
place the diaphragm of the stethoscope.
___7. Apply the cuff snugly and smoothly over upper arm about 2 inches above the antecubital fossa. If
using a portable mercury-filled manometer, position it vertically at eye level
___8. Insert earpieces of stethoscope into ears with earpieces ‘pointing toward your nose.’
___9. Relocate brachial pulse and place the diaphragm or bell of the stethoscope directly over the pulse.
The bell or diaphragm of the should not be under the cuff; the sound of them rubbing together can
impair the examiner’s hearing.
___10. Turn the valve to the closed position. Remember: “righty-tighty (closed), lefty-loosey (open).”
Inflate cuff to 30mm Hg above the patient’s usual systolic blood pressure, or their last blood pressure.
___11. *Slowly open valve to allow the mercury to fall 2-3 mm Hg per second. *Note the manometer
reading when the sounds appear and when they disappear.
___12. Remove cuff or wait 2 minutes before taking a second reading.
___13. Inform client of reading and use the opportunity for teaching.
___14. *Record the reading.
___15. Wash hands.

**Assess the 5th Vital Sign: Pain**

___1. Describe the ABCDEs of pain
___2. *Ask the patient about the presence of pain.
___3. Inquire about: onset, duration, location, intensity, aggravating factors, and relief measures.
___3. *Ask the patient to rate his/her pain, utilizing an appropriate pain with consideration of
developmental, cognitive, and sensory abilities, and cultural differences.
___4. *Question the patient about the level of pain or discomfort at which normal functional ability
would not be interfered with: “What is an acceptable level of pain for you?”
___5. *Document the pain assessment and intervention utilizing appropriate form or tool.

Score __________ Instructor: __________________________

Estimated time to complete the skill: 5 minutes
Skill Performance Check-list:
Measuring and Recording Oxygen Saturation*

Student Name: _______________________________ Date: _______________________________

1. Wash hands
2. Explain procedure to client and position client comfortably.
3. Instruct client to breathe normally and not to move as motion artifact is the most common cause of inaccurate readings.
4. Select a monitoring site that is dry and warm with good peripheral circulation. (The sensor requires a pulsating vascular bed to identify hemoglobin molecules that absorb emitted light, and moisture impedes the ability of the sensor to detect SpO2 levels. Note that nail polish and artificial nails will alter readings; place probe on a finger free of polish or artificial nails. If client is wearing fingernail polish, remove polish with acetone from the digit being used. If client has tremors or is likely to move, use ear lobe. If client is obese, the clip-on probe may not fit properly; obtain a single use (tape-on) probe. Ear lobe and bridge of nose sensors are not used for infants and toddlers. Note: Infant and toddler sensors attached to adhesive sensor pads are available and conform to fingers, palm of hand, and sole of foot.)
5. Inform client that clip-on probe feels like a clothespin on the finger but will not hurt.
6. Attach sensor probe to monitoring site.
7. Turn on machine.
9. Leave probe in place until oximeter read-out reaches a constant value and pulse display reaches full strengths during each cardiac cycle. Reading may take 10-30 seconds.
10. Discuss findings with client as needed.
11. [If continuous SpO2 monitoring is planned, verify that SpO2 alarms are on and set limits and alarm volume (alarm limits should be determined by client’s condition). Assess skin integrity under sensory probe and relocate sensor periodically.]
12. Remove probe and turn oximeter power off.
13. Assist client to return to a comfortable position
14. Wash hands
15. Document findings, noting use of oxygen therapy. (A saturation level is not useful if we do not know whether the patient is on room air or is on oxygen, and if on oxygen, how much oxygen the patient is using.)
16. Compare findings with client’s previous baseline and acceptable SpO2 parameters. Intervene as appropriate (e.g., notify MD, reposition client, adjust O2, get an order for an ABG to validate oximetry reading.)

Score _____________________________ Instructor: _______________________________
Estimated time to complete the skill: 5 minutes.
Guidelines of Organizing the Clinical Shift

1. Introduce yourself the RN and the nurse’s aid assigned to care for your patient. Also introduce yourself to the charge nurse and the unit secretary.

2. **Review the patient’s Kardex and MAR.** Update your worksheet (your summary of the patient’s current orders). Also create a schedule for you day, listing next to each hour of your shift the tasks to be accomplished (e.g., meds, dressing changes, FSBS/CBS testing).

3. **Review the patient’s chart:** check for any new orders, physician progress notes, nursing notes, and diagnostic tests or lab results that have been entered since you reviewed the chart the previous day.


5. **Talk with the RN and CNA** assigned to your patient the plan of care and your learning objectives for the day. Be very clear about how long you will be on the unit, the specific care you will and will not be providing, what you can do independently and what you will need help with.

6. Find the patient’s room and the correct bed. Note that beds are not usually labeled according to their proximity to door or the window. Instead, as you face the beds, Bed 1 or Bed A is usually on the left, Bed 2 or Bed B is usually on the right. To be sure, **positively identify the patient by asking the patient his/her name and look at the patient’s ID bracelet.** Be sure to observe any precaution signs outside (and inside) the room, and use appropriate personal protective equipment.

7. **Introduce yourself** to your patient and explain your role and how long you will be with the patient.

8. **Perform an assessment the environment of care**
   - Assess the safety of the environment. For example:
     - side rails up
     - bed lowered
     - bed brakes on
     - call light and personal items within patient’s reach
     - lines/tubes not tangled; labeled as needed
     - electrical cords intact, plugged in
     - easy access/pathway to bathroom
     - no clutter or spills on floor
     - adequate lighting
     - non-skid footwear and assistive devices available
     - Sharps container available
     - environment clean
     - trash cans and linen hampers available
     - appropriate precaution signs, personal protective equipment, designated patient supplies (e.g., BP cuffs) and disinfectant available in the patient’s room
     - supplies labeled with patient’s name
   - Assess if the **client is receiving the care that is ordered and is appropriate.** Start by comparing the orders on the Kardex and/or physician’s orders with what is being provided for the patient. For example:
     - Positioning: Is the patient positioned as ordered? Is the patient’s position appropriate for the order and the patient’s condition?
     - Oxygen: Is oxygen therapy ordered? If so, is it being appropriately provided? Assess the oxygen set up from the oxygen flow meter down to the patient. Is the flow meter turned on to the prescribed flow rate? Is the delivery device tubing connected to the flow meter? Is the correct delivery device being used? Is the oxygen being appropriately humidified? Is the patient using/wearing the oxygen delivery device appropriately?
• IV fluids and equipment: Is IV therapy ordered? If so, is it being appropriately provided? Assess the IV set up from the IV solution down to the patient (or vice versa). Is the IV solution that was ordered the IV solution that is infusing? Is it labeled with the patient’s name? Is there fluid left in the bag and is it the appropriate amount? Is/should the IV fluid be infusing on a pump? Is the infusion rate that is set the rate that was ordered? Is the IV connected to the patient? Is the IV site healthy? Check labels/stickers to determine when the IV solution, tubing, dressing, and site need to be changed.

• Drains and tubes: Does the patient have orders for any drains or tubes? If the patient has, for example, a Foley catheter, an NG tube, a JP or Hemovac drain, are they connected and draining properly? Do they need to be emptied? Note the volume and appearance of drainage.

• Assistive devices, supplies and equipment: Does the patient have orders for any assistive devices or special equipment? If so, is all the ordered/required equipment available and being utilized properly (e.g., SCDs and TED stockings on, abduction pillows in place, walkers and commodes available, suction regulator and other equipment available? Are there any additional assistive devices, supplies, or equipment that the client needs?
  - In the clinical setting, if you notice something is wrong, do not manipulate the equipment, but do inform and get help from the instructor or the RN.

9. **Perform basic head-to-toe physical assessment** (more in-depth guidelines for performing a basic and a focused physical assessment follow below)
   - Neuro/psychological
   - Vital signs
   - Heart
   - Lungs
   - Abdomen (gastrointestinal/genitourinary)
   - CSM
   - Skin

10. **Discuss goals for the day and provide anticipatory guidance.** Ask the patient what for him/her is the most important thing that be accomplished that day. Discuss your nursing care and treatment goals for the patient and outline the schedule for the day. Make appointments with your patient to perform ordered procedures or needed activities (e.g., bathing, dressing changes, ambulating in the hall.) Assess what activities your patient can perform independently and help them get started.

11. **Obtain needed supplies for your patient.** Provide fresh water, cups, straws (unless the patient is NPO or on a fluid restriction), obtain fresh linen, and get needed toiletries and dressing supplies.

12. Check the patient’s **diet** order and scheduled tests that would require them to be NPO. Ensure that the tray that was sent is the correct diet for the patient. Serve the patient his/her meal tray and open packages and assist with feeding the patient as needed. Pick up meal trays when the patient is finished eating. Record I & O and % of meal that was eaten.

13. If the patient is on **I & O**, continuously update the flow sheet throughout the shift. Engage the patient’s and family’s cooperation in monitoring I & O.

14. **Provide AM care:** toileting, oral hygiene, bathing, gown change, linen change. Remember that the patient’s room is their temporary home—keep it neat and clean.

15. Prior to their administration time, check the **availability of any medications** you will be giving on this shift. Medications may be in the Pyxis, the patient’s cassette drawer in the medication cart, the medication refrigerator, or at the patient’s bedside.
16. **Administer ordered medications** with your instructor or the patient’s RN, using the 6 rights and 3 checks.

17. Take **vital signs** as frequently as ordered at the times designated, and as needed (e.g., vital signs are always taken before a patient leaves the nursing unit for an invasive test or procedure, and upon the patient’s return.)

18. **Check-in** with your RN/team leader and team members throughout the shift. Report any abnormal findings or patient care problems to your team leader immediately. Consider what referrals might be appropriate.

19. Get in the habit of **checking for new orders in the patient’s chart** throughout the shift. Also, read the progress notes and check for new diagnostic test and lab results.

20. Near the end of the shift (at either 0600, 1400, or 2200), measure and calculate **I & O**, and document.

21. Complete your **nursing documentation**, including making an evaluative statement about your patient’s progress toward care goals.

22. Say good-bye to your patient.

23. Give end of shift **report** to the RN and any members of the team who will be assisting in the care of the patient.

24. **Clean up** your work area(s) and **double-check your work**, especially your documentation on the MAR, the graphic and I&O sheets, and your nursing flow sheet. Make sure your initials and signature are entered in all of the appropriate places.
Guidelines for Organizing the Physical Assessment

How you organize your assessment depends on the patient’s health status:

- If the patient has a **specific problem**, you may want to begin by assessing the problem first, and then go on to complete the assessment that same way you would if the patient was healthy.
- If the patient is **acutely ill**, set immediate priorities by using an approach such as the ABCs.
- If the patient is **generally well**, choose any organizational method you find convenient. For example, use the head-to-toe approach, the body systems approach, the functional health patterns approach, or follow a pre-printed assessment tool.

Assessment is an interactive, dynamic, and multisensory activity. Elements of the client assessment do not have to be done in any particular sequence, though it is helpful for the practitioner to develop a routine or system to aid thoroughness and help prevent omissions. Many practitioners find it helpful to use a **head to toe systems approach**, and to include:

- **talking to questioning the patient** about signs and symptoms
- **observing the patient** for normal and abnormal signs
- **auscultating and palpating**
- **recording findings**

Some also find it useful to use their clinical agency’s nursing assessment flow sheet as an assessment guide. (Many nursing flow sheets are designed using a head to toe or systems approach, with normal and abnormal findings listed. Initially a student may find it useful to take a blank/unused flow sheet into the patient’s room to guide assessment and documentation; this can later be transcribed onto the patient’s actual nursing flow sheet. As the student becomes more proficient, they can begin to chart assessment findings directly onto the client’s individual flow sheet. However, a draft of a narrative note should usually be written and reviewed with the student’s instructor before entering it into the client’s chart.)
Guidelines for Performing a Basic Physical Assessment:

• NEUROLOGICAL/PSYCHOSOCIAL: Start by introducing yourself and asking how the patient is feeling. Remember, “first talk then touch.” As appropriate and necessary, take care of any immediate care needs that the patient requests or requires (e.g., toileting, repositioning). Note that as you talk to the patient you are simultaneously beginning a basic assessment of the client’s neurological and psychological function.
  o Neuro: Observe whether the client is awake, alert, oriented to person (self and others) place, time, and events. Be aware of language barriers. Note if patient responds appropriately to gestures. Obtain translation cards or an interpreter (an interpreter phone is often used) as needed.
  o Psychosocial: Observe whether the client seems calm/anxious/irritable/restless, cooperative or uncooperative, smiling/optimistic or tearful/pessimistic, apathetic/withdrawn (e.g., flat affect/showing no emotion, not speaking or speaking only in one or two word answers, avoiding eye contact, keeping the room dark) or participating in conversation, and demonstrating interest and participation in self-care and a readiness to learn. Note whether patient has social support, e.g., family or friends visiting or calling.

• VITAL SIGNS: Next, assess the patient’s vital signs. Patients are familiar with and expect to have their vital signs taken and this is an easy way to begin touching the patient. Note that as you assess the vital signs, you are performing a basic assessment of the respiratory and cardiovascular systems.
  o Get in the habit of taking VS in a specific order, e.g. TPR-BP-Pain-O2 Sat, writing the assessment findings down immediately
  o If you use an automatic vital sign machine (e.g., a Dynamap) you still need to assess the apical pulse rate and rhythm for a full minute (noting if it is regular, regularly irregular or irregularly irregular) and assess the respiratory rate for 15 or 30 seconds.
  o Note the condition of the skin.

• RESPIRATORY SYSTEM: Continue your assessment of the respiratory system by auscultating the lungs.
  o Listen to the anterior upper lobes of the lungs bilaterally.
  o Ask the patient to sit up and lean forward, or to turn on their side, so you can listen to their lungs (Right upper middle and lower lobes, and Left upper and lower lobes).
  o Note the condition of the skin.

• ABDOMEN: Assess the patient’s abdomen. Note that as you assess the abdomen you are performing a basic assessment of the gastrointestinal and genitourinary systems.
  o Expose the abdomen, keeping the client’s genitalia and lower extremities covered as much as possible.
  o Look at the shape of the abdomen, note softness/firmness, and listen for bowel sounds in all 4 quadrants.
  o Note the presence and condition of dressings, drains, catheters, ostomies.
  o Note the condition of the skin.

• CIRCULATION, SENSATION, MOVEMENT: Assess the patient’s circulation, sensation, and movement (CSM) in the lower extremities.
  o Note the color and warmth of each extremity.
  o Note the presence, location, and degree of any edema.
  o Palpate for the presence of the Dorsalis Pedis and Posterior Tibialis pulses bilaterally.
  o Assess the capillary refill,
  o Ask the patient to wiggle their toes, dorsiflex and plantar flex their feet, and press down as if pressing on a car’s gas pedal) against the resistance of your hand.
  o Ask the patient to lift their leg off the bed without resistance and with resistance.
  o Note the condition of the skin.
Guidelines for Performing a **Focused In-depth** Assessment

When the patient has a known problem, or if you identify something abnormal in your initial assessment, you will want to do a more **focused, in depth** assessment of that system or systems.

**• NEUROLOGICAL SYSTEM:**
  - **Questioning:** Ask the patient to tell you their name, a significant other’s name, or your name; the date and time of day, the season or year, the name of this place/location or where they live, why they are here (recall of events). If indicated, test short term and long-term memory (ask the patient if he/she knows who the current president is, can recall when their last meal was).
  - **Observing:** Observe for facial symmetry (ask the patient to smile, stick out tongue); note vision/auditory by asking the patient to read something visual and hearing (does the client wear glasses or hearing aids?); whether speech is clear (does the client wear dentures) and makes sense;
  - **Assessing:** PERRLA; equal strength and movement and sensation in upper and lower extremities (squeeze hands, lift and hold arms out with and without resistance, lift/shrug shoulders, dorsiflex and plantar flex feet, lift legs off bed with and without resistance), etc.

**• CARDIOVASCULAR SYSTEM:**
  - **Questioning:** Any chest pain? Any numbness or tingling? Any other complaints?
  - **Observing:** color, moisture of skin; presence of jugular venous distention; presence of edema; presence of a pacemaker; presence/location of EKG leads; TEDs or SCDs on?
  - **Auscultating:** Rate and rhythm of apical pulse (regular or irregular, regularly irregular, or irregularly irregular?)
  - **Palpat ing:** warmth of skin; presence, grading and symmetry of peripheral pulses’ location, grading, symmetry of edema

**• PULMONARY SYSTEM:**
  - **Questioning:** Any SOB at rest or with exertion; pain; presence of cough (productive/non-productive, color/consistency/amount of sputum); any other distress.
  - **Observing:** Respiratory rate; O2 sat and oxygen use; use of accessory muscles/work of breathing; ability to talk in sentences; positioning (tripod or multiple pillows/orthopnea); skin color, warmth, moisture; cough (non productive or productive noting color/consistency and amount of sputum); audible wheezes or stridor; peak flow meter reading (if applicable); ICS volume inspired (if applicable).
  - **Auscultating:** lungs and note location of adventitious sounds (fine or coarse crackles, wheezes, rubs) and whether on inspiration, expiration, or both.

**• GASTROINTESTINAL/UROGENITAL SYSTEMS:**
  - **Questioning:** Any abdominal or urinary problems: Any abdominal pain, nausea or vomiting; problems with chewing/swallowing or appetite; date of last BM. Any urinary pain, burning, itching, frequency, hesitancy or urgency, problems emptying bladder; unusual color/odor of urine; recency of last urination; any unusual vaginal or penile discharge.
  - **Observing:** Observe mouth for moisture and integrity of mucous membranes, presence of any lesions; quality of dentition, absence/presence of dentures. Observe abdomen for shape (concave/convex), distention/non-distention; presence of any dressings, surgical wounds, scars; presence of catheters (urethral, suprapubic), drainage tubes (Jackson Pratt, Hemovac, Penrose, biliary) or ostomy (colostomy, urostomy, nephrostomy). When wounds are present, note presence/absence of a dressing, type/quantity of drainage, appearance of wound bed (including any measurements needed) and/or suture line.
  - **Palpat ing:** Palpate abdomen to determine whether soft/firm, tender to pressure or rebound; presence of fluid wave/ascites; bladder distention. Apply gloves and palpate along any incision lines/suture lines to assess for pus/drainage.
  - **Auscultating:** Auscultate abdomen for location and presence of bowel sounds (assess all 4 quadrants) and whether hypoactive (faint/very intermittent) active (moderately loud/intermittent) or hyperactive (loud/frequent).
• **SKIN/INTEGUMENTARY:**
  * Assessment of the skin can be done simultaneously as you are assessing the other systems (e.g., when you are assessing the circulation, lungs, abdomen, and musculoskeletal system). Assessment of the skin includes:
    o **Questioning:** Any problems with skin (broken skin, pruritis, urticaria, rashes, redness, discoloration, swelling, lumps/bumps/moles, tenderness/pain, wounds, bleeding, drainage).
    o **Observing:** Observe for evidence of potential or actual impaired skin integrity from pressure/positioning, moisture, shearing, allergy, infection, traumatic or surgical wounds, use of equipment. Observe for presence of drains, tubes. Observe for presence and location of central and peripheral IVs, including size/type of needle, and date of dressing change. Observe for presence and correct use of protective measures (alternating pressure mattress, Space Boots, elbow protectors, special cleaning products, barrier ointments, medications, dressings).
    o **Assessing:** Assess location, size, characteristics (swelling, heat, erythema/redness, tenderness, color/type/quantity/distinctive smell of drainage) of abrasions, tears, bruises, blisters, ulcers, rashes, and wounds. Assess drains and tubes for type, and amount of drainage (scant/small/moderate/large/copious, purulent/serous/serousanguinous, blood).

• **MUSCOSKELETAL SYSTEM:**
  o **Questioning:** Any pain, problems with joint mobility, weakness/loss of strength and/or sensation (paralysis/paresis), bone fractures/amputations, use of prosthetics or assistive devices.
  o **Observing:** Signs/symptoms of pain with movement, impaired mobility, weakness, lack of balance/stability, bone or joint loss/misalignment/disfigurement, disuse/favoring/limping, ataxia, tremors/spasms or rigidity, presence of prosthetics or assistive devices.
  o **Assessing:** Sensation, movement, and strength of upper and lower extremities, with and without resistance (strength and ability to squeeze two fingers of examiner’s hands, lift and hold arms out, pronate, supinate, lift legs off bed, dorsiflex and plantar flex feet); range of motion of any affected joints; ability to sit erect and hold posture; ability to stand; ability to ambulate; presence of ataxia.
WEEK 3

WEEK 3: The Medical Record and Kardex; Documentation and Communication Systems; Admitting and Discharging Patients

1. The Medical Record, Kardex, and Documentation and Communication Systems: Discussion of the purpose and components of the medical record, reading and transcribing physician’s orders, the purpose and use of the Kardex/Rand, and documentation systems and communication guidelines. Practice transcribing physician orders to the Kardex, writing a nursing note, and using SBAR.

   Student Preparation
   • Read Week 3 of the NE 101 Syllabus, sections on the Medical Record, Kardex, Documentation Systems and SBAR
   • Read Perry, Anne Griffin and Potter, Patricia A. Clinical Nursing Skills & Techniques.
     o Chapter 2: Admitting, Transfer, and Discharge
     o Chapter 4: Reporting and Recording

   Student Lab Practice:
   • Practice transcribing physicians orders to the Kardex
   • Practice writing a nursing note using SOAP, SOAPIE, or PIE

2. Admitting, Transferring, and Discharging Patients: Discussion of the process of admitting, transferring, and discharging patients.

   Student Preparation
   • Read Week 3 of the NE 101 Syllabus, sections Admitting and Discharging Patients
   • Read Perry, Anne Griffin and Potter, Patricia A. Clinical Nursing Skills & Techniques.
     o Chapter 2: Admitting, Transfer, and Discharge

3. Student Skill Check-off:
   • Skill Performance Check-List: Applying Sterile Gloves*
   • Skill Performance Check-list: Vital Signs (Skill Performance Check-list Temperature Pulse, Respirations, BP, and Pain* and Skill Performance Check-off: Skill Performance Check-list: O2 Saturation*
The Medical Record

**Purpose of the Medical Record:**

The client’s medical record or chart is a valuable source of data and information for all members of the health care team. It is a record that serves multiple purposes, including:

**Communication:** The client’s chart provides a means for members of the health care team to communicate with one another in order to provide consistency and continuity of care. The chart also provides a record in which to record information concerning the patient and the care provided. Information documented in the chart includes the patient’s medical history, physical assessment findings, care provided, tests and treatments performed, results/responses, and the plan of care. Ideally, documentation should provide a total picture of the patient and be clear to anyone reading it.

**Education:** The chart can be used to explain essential elements of the diagnosis, how the diagnosis was arrived at, and any new tests or treatments.

**Observations and Assessment:** The chart can contain information to provide a total picture of the patient.

**Legal Documentation:** The chart is a legal document. In case of a lawsuit, the medical record, not the nursing care, is on trial. Therefore, accurate documentation is one of the best defenses for legal claims associated with nursing care. It serves as a description of exactly what happened to the client. *Care that is not documented is considered care not done in a court of law.* Common documentation problems that occur in malpractice cases include: not charting the correct time when events occurred; failing to record verbal orders or failing to have them signed; charting actions in advance to save time; documenting incorrect data.

Documentation should be factual, accurate, complete, current, and organized. Charting should neither be routine and thoughtless, nor superficial. Nurses should not wait until the end of a shift of care to record the client’s care. Good documentation should ideally be done contemporaneously or at least in a timely manner.

**Research:** Documentation can provide statistical data for monitoring the frequency of clinical disorders, complications, outcomes, length of stay, deaths, and variations in responses to therapy utilizing differing nursing, medical, or surgical interventions.

**Financial billing:** Documentation can assist in the resolution of disputes regarding medical billing.

**Auditing and Monitoring:** An audit of achievement of or compliance with certain objectives and requirements can ascertain if certain accreditation or quality assurance standards have been met. Example of JCAHO mandated quality assurance standards include documentation of discharge planning, patient education, and providing information and assistance for patients to complete advance directives. Projections for seasonal patient census and use of certain equipment and supplies can also be made based on documentation.

**Major Sections of the Client’s Chart/Medical Record:**

**Face sheet:** The face sheet provides:
- patient’s name
- gender
- address
- phone number
- marital status
- occupation
- religion
- date of admission
- admitting complaint or diagnosis
- admitting physician(s) name
- address, and phone number of next of kin/significant other
- the patient’s insurance coverage

**Physician’s Orders:** The physician’s orders are generally at the beginning of the chart, and are usually organized with most current orders first. Physician’s orders are the method the physician uses to communicate requests for nursing care, laboratory and diagnostic tests, consultations, medications and IV fluids, invasive procedures and surgery, and discharge planning services. Therefore a review of the physician’s orders can provide a picture of what has been done, what is being done, or what is being planned for the patient during this admission.

A physician order sheet usually consists of three lined sheets of color-coded carbonless paper with space for an addressograph stamp or stickers with identifying patient information (e.g., name, medical record number, room number, date of birth, and physician’s name). One copy stays in the chart, one copy is usually sent to the pharmacy to notify them of a new medication order, and one copy may be given to the nurse caring for the patient to inform him/her of new orders.

When a client is admitted to a nursing unit, the physician usually follows a format to write concise admission, transfer, and/or post-operative orders. They often use the mnemonic: **ADC VAAN DIML**.

**ADC VAAN DIML** stands for:

- **A**dmit: Notes room, team, attending physician, house officer, etc.
- **D**iagnosis: Lists the admitting diagnosis, or the client’s chief complaint/signs and symptoms and differential diagnosis(es), or the surgical procedure that was performed if these are post-operative orders.
- **C**ondition: Notes the patient’s condition, e.g., stable, critical, etc.
- **V**itals: Specifies how frequently vital signs (temperature, pulse, blood pressure, etc.) and weights should be measured.
- **A**ctivity: Specifies the client’s activity, e.g., bed rest, up ad lib, ambulate qid, bathroom privileges (BRP), etc.
- **A**llergies: Notes the client’s drug, food, and/or environmental allergies or states No known drug allergies (NKDA).
- **N**ursing Procedures: Prescribes the bed position, client position, preps (e.g., enemas, scrubs, shower), respiratory care (percussion, postural drainage, pulmonary toilet/turn cough and deep breath (TC & DB))
- **D**iet: Specifies the diet the client may have, including nothing by mouth (NPO), clear liquids, full liquids, mechanical soft, regular diet, or tube feeding formula and rate.
- **I**ns and **O**uts: Specifies if the fluids that the client is receiving and eliminating should be measured, and refers to all tubes (IVs, NG tubes, Foley catheters, drains, endotracheal tubes, arterial lines, etc.) that the client may have and the care of each that is required.
- **M**edications: The medications the patient is to receive are prescribed, including the drug name, dosage, route, frequency, and special instructions. Medication orders include drugs that will be given routinely (on a prescribed schedule) and those that will only be given as needed (PRN) by the patient to relieve symptoms (e.g., laxatives, pain medications, antacids, sleeping pills).
- **L**abs: Specifies lab tests, e.g., a complete metabolic panel (CMP)/chemistry panel (chem. 8, chem. 12, chem. 23), a complete blood count (CBC) and diagnostic studies, e.g., chest x-ray (CXR), an electrocardiogram (EKG) that need to be done.

**History and Physical:** This section contains the history of the client’s present illness, the client’s past medical history, and a review of the findings of the physical examination by physiological system.

**Progress Notes:** The physician’s progress notes are used to document the client’s course of care. They usually summarize the result of physical exam and assessments, laboratory and diagnostic tests, how the patient is responding to medical, surgical, and nursing interventions, and what the physician’s plans are for further evaluation and treatment of the patient. Depending on the institution, the Progress Notes may also
containing notes by nursing, nutritional services, social services, case management, discharge planning, and consultants.

Progress notes are sometimes written as a narrative, but they are often organized using the SOAP format: Subjective, Objective, Assessment/Analysis, Plan. Alternatively, the Progress Notes may utilize a brief narrative followed by an A/I (Assessment/Impression) format.

The Progress Notes contain notes by physicians from various services and specialties (e.g., neurology, nephrology, endocrinology, cardiology, psychiatry, surgery). They also may contain notes by various members of the medical-surgical hierarchy: the medical student (and individual who is enrolled in a medical education program working toward obtaining and MD. Note: this individual can write medical orders, but these orders cannot be legally carried out unless they have been reviewed and signed by a licensed physician); the intern (an individual who has graduated from medical school and is now embarking on the first year or clinical post-graduate education; a first-year resident); the resident (a second-year or third-year resident); the fellow (a physician who has completed their postgraduate clinical education and has elected to do extra study in one special field. They may or may not be active members of the team); the attending physician (the patient’s private doctor, or the member of the teaching faculty who has completed post-graduate education. The attending physician is morally and legally responsible for the care of all patients who are admitted to their care—their name is on the chart. All major therapeutic decisions made about the care of these patients are ultimately passed by the attending physician.)

Within the Progress Notes, you will also find On-Service notes, Off-Service Notes, Preoperative Notes, Postoperative Notes, Delivery Notes, and Discharge Summary/Notes. (Discharge summaries/notes are generally dictated.)

Admission Summary: The admission summary is a summary of the above history and physical, the results of laboratory and other diagnostic tests, the diagnosis(es) or differential diagnoses, and the plan for treatment. Both the admission history and physical and the admission summary are often dictated over the phone and type by a medical transcriptionist, which makes it easier to read than some of the other chart documentation.

Laboratory Results

EKG

Radiology/Nuclear Medicine

Consultations: Consultations are notes from specialists (e.g., a cardiologist, gastroenterologist, infectious disease specialist, or pulmonologist) who has been asked by the primary care provider to talk with and examine the patient. These consultation notes are often dictated and typed by a medical transcriptionist who makes them easier to read/decipher than some of the other documentation in the chart.

Emergency Room/Department: The Emergency Room/Department notes detail the time the patient arrived in the department, the patient’s chief complaint, the history of the present complaint, a brief health history, usual meds, allergies, general appearance and condition, VS, diagnostic and lab work ordered/completed, IVs and meds given, patient’s response, intake and output, physician contacts, and disposition—either admission to the hospital or discharge—including communication/report to the nursing unit or discharge teaching and instructions for follow-up care.

Surgery: The surgery section of the chart contains pre-operative, intraoperative, and post-anesthesia recovery room documentation. It also contains a formal operative report detailing what went on during the surgery, any unusual events, how the surgery was performed, and what the pre-operative and post-operative diagnoses are.
Nurses’ Notes: Nurses’ notes from the beginning of the current admission are here, but, depending on the facility, the most recent nursing notes are often in a “bedside” chart. The bedside chart gives the nurse access to important documentation and facilitates charting as care is provided by the nursing team.

Discharge Summary/Note:

A formal discharge note is usually required for any admission that is longer than 24 hours. This note provides a framework for the complete dictated note, as well as providing a reference, if needed, before the dictated note is transcribed and filed. The discharge note generally includes the date of admission, date of discharge, admitting diagnosis and discharge diagnosis, attending physician and service caring for the patient, the referring physician, procedures performed during hospitalization, brief history, and pertinent physical and lab data, hospital course, condition at discharge, disposition (i.e., where the patient was discharged—home, another hospital, a nursing home), discharge medications, discharge instructions and follow up, and a list of active and past medical problems.
The Nursing Kardex/Rand

The Kardex:

Traditionally, the Kardex (also called the Rand) is a “card” on which all of the current, active physician orders for patient care, which are written by the physician on a blank physician order sheet in the patient’s chart, have been transcribed in pencil. Physician orders can be transcribed onto the Kardex by an RN, but they are usually transcribed by a unit clerk/secretary. The transcription is then double-checked for accuracy by an RN, usually the charge nurse, team leader, or the patient’s assigned nurse. Once orders are completed, changed or discontinued, or are no longer applicable, the orders are erased from the Kardex. Individual Kardexes for each patient are kept in a file often called the Rand where they are arranged sequentially by patient room number.

The Kardex form contains space for identifying patient information and current patient care orders. A Kardex will generally include the following:

- Patient’s room number, name, age, gender, diagnosis, and doctor(s).
- Code status
- Significant events (e.g., surgery, receipt of sacrament of the sick, placement of an IV or central line)
- Diagnostic and laboratory test orders, including the date and time the tests are to be done
- Transfusion orders
- I&O
- Weights
- Vital Signs (frequency and parameters for notifying the physician)
- Activity/turning/positioning
- Physical therapy
- Diet (PO or enteral), snack/supplements, fluid restrictions
- Respiratory therapy, including nebulizer treatments, chest PT, suctioning, and O2
- Wound care/dressing changes
- IVs, TPN, Lipids
- Medications
- Teaching

These content areas from the Kardex are what nurses use as their outline to give report and take the notes necessary to plan the care of their patients.

Today patient care orders are often entered or discontinued by the physician directly into a computer, or orders are hand-written on a Physician Order Sheet and then entered into the computer by a unit secretary. Therefore, what are called “Kardexes” can be the traditional card, or they can be a computer-generated form that is updated as orders are entered into the computer. The updated computer-generated forms are printed at the beginning of each shift so that the orders the nurse has for each patient are as current as possible.

Each chart has a color-coded system of “flags” that can indicate the presence, urgency and status of new orders (e.g., new routine orders, STAT orders, orders that need have been reviewed by the unit secretary and now need to be checked and signed off by the RN or charge nurse, etc.) Occasionally a physician will write a new order in the chart but forget to “flag” the chart. Therefore it is a good idea for the nurse to periodically check the charts of each of the patients he/she is caring for to see if there are any new orders.

When a new order is written between the time the traditional Kardex is reviewed at the beginning of the shift by the nurse—or between the time the computer-generated Kardex is printed at the beginning of one shift and updated and printed at the beginning of the next shift—a copy of the new handwritten order from the chart or a computer print-out will be provided to the nurse caring for the patient. Often the unit clerk or charge nurse will alert the nurse to a new and important order, but the nurse should not rely completely on
them, and should check for new orders frequently (e.g., hourly) in order to remain current on the patient’s plan of care.

(When working with computer generated Kardexes, if a significant number of orders have been changed during the shift, the nurse can print out a new computer-generated Kardex at some point during the shift to have a clearer, more accurate and up-to-date summary of the patient’s current orders.)

It is also a good idea to check the Progress Notes to verify an order, and/or to review the current treatment plan. The Progress Notes can also be helpful in clarifying the intent of an order. And sometimes a plan of treatment has been discussed with the patient and/or the nurse but a corresponding order has not been written. The nurse can utilize the Progress Notes to confirm the discussion or plan, and then call the doctor to ask them to write an order.
Practice Transcribing Physician Orders to Kardex

Directions: Transcribe the page of physician’s orders that follows onto the pages of one of the Rand/Kardex forms provided in the syllabus. Becoming adept at reading different handwriting, building your knowledge of medical language and abbreviations, developing accuracy and precision in transcription, and becoming familiar with the Kardex/Rand are all part of the exercise.
### Physician's Orders

**Date:** 09/07/03

**TIME:** 12:00

**ALLERGIES:** NKDA; allergic to shellfish

-omit to medicine
- P. J. Smith
- Megaphon: Penthione (vacation)
- Meds: 94 mg US
- Activity: Bedrest & BRP w/ Cremadea

**DATE**

**TIME**

**ALLERGIES:** NKDA; allergic to shellfish

- Nursing: 7 40G IV bolus
- Spr: j/2: Rest: Regular - no shellfish
- Spr: 05% NF 10 mg KCL @ 100 cc/h

**Medication:**
- Salmualin 120 mg q/8h
- Haldol 40 mg q/8h
- Ativan 0.5 mg q/8h for anxiety

**DATE**

**TIME**

- Rx: Nebulizer 94% A/C, Cent 92% q/4h
- Affinity: Staff, V. Kublermogin
- O2: 2 L/min q/10, O2 set 94%
- Labs: CRP: q/2 h, Chem 23, j/d: q/2 h, 9/16

**EKG: today**

**Sedation Smith, MD**

**Bilgere: 415-355-653**

**DATE**

**TIME**

- Discharge planning to drive to home
- Patient walks at home

**Sedation Smith, MD**

**AFFIX PATIENT**

**I.D. LABEL HERE**

67
<table>
<thead>
<tr>
<th>Long Term Goal</th>
<th>Primary Nurse</th>
<th>Family/O. Involved</th>
<th>Patient Care</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Neurological</strong></td>
<td>☐ Alert and Oriented</td>
<td>☐ Problems:</td>
<td>☐ GI</td>
</tr>
<tr>
<td>☐ Problems:</td>
<td>☐ Intervention GOAL:</td>
<td>☐ Problems:</td>
<td>☐ GI</td>
</tr>
<tr>
<td>☐ Intervention GOAL:</td>
<td>☐ Diet:</td>
<td>☐ FEED</td>
<td>☐ Assist with Feeding</td>
</tr>
<tr>
<td>☐ Skin/Wound</td>
<td>☐ Clear</td>
<td>☐ Normal Healing</td>
<td>☐ No tube</td>
</tr>
<tr>
<td>☐ Problems:</td>
<td>☐ Intervention GOAL:</td>
<td>☐ Problems:</td>
<td>☐ GI</td>
</tr>
<tr>
<td>☐ Intervention GOAL:</td>
<td>☐ GI</td>
<td>☐ Routine Bladder Function</td>
<td>☐ GI</td>
</tr>
<tr>
<td>☐ Motor-Skeletal</td>
<td>☐ Able to Move All Extremities</td>
<td>☐ Problems:</td>
<td>☐ GI</td>
</tr>
<tr>
<td>☐ Problems:</td>
<td>☐ Intervention GOAL:</td>
<td>☐ Problems:</td>
<td>☐ GI</td>
</tr>
<tr>
<td>☐ Intervention GOAL:</td>
<td>☐ GI</td>
<td>☐ Routine Bladder Function</td>
<td>☐ GI</td>
</tr>
<tr>
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<td>☐ Coping Adequately</td>
<td>☐ Problems:</td>
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</tr>
<tr>
<td>☐ Problems:</td>
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<td>☐ Problems:</td>
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</tr>
<tr>
<td>☐ Intervention GOAL:</td>
<td>☐ GI</td>
<td>☐ Routine Bladder Function</td>
<td>☐ GI</td>
</tr>
<tr>
<td>☐ Cardi-O-Vasc</td>
<td>☐ Pulsates Normal</td>
<td>☐ Skin Warm</td>
<td>☐ GI</td>
</tr>
<tr>
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<td>☐ GI</td>
</tr>
<tr>
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<tr>
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<td>☐ Routine Bladder Function</td>
<td>☐ GI</td>
<td>☐ Routine Bladder Function</td>
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</tbody>
</table>

**Other**

**Activity**
- ☐ AM
- ☐ PR
- ☐ No Activity
- ☐ Up in Chair
- ☐ ADL

**Other**
<table>
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<tr>
<th>ADVANCE DIRECTIVES</th>
<th>SPECIAL ORDERS</th>
<th>ADM. HEIGHT:</th>
<th>ADM. WEIGHT:</th>
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<tr>
<td>□ PATIENT HAS NO A.D.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>□ DOES NOT WANT A.D.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>□ REQUESTS ASSISTANCE TO COMPLETE A.D.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>REFER TO: □ SW □ RISK MGMT.</td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

| □ PATIENT HAS A.D.                                                               |                |              |              |
| □ PLACED IN CHART                                                                |                |              |              |
| □ IN PREVIOUS RECORD                                                             |                |              |              |
| COPY/VERIFY A.D. AND PLACE IN CHART                                               |                |              |              |
| DATE                         INIT                                                      |                |              |              |
| SECOND REQUEST MADE TO OBTAIN A.D. FROM:                                         |                |              |              |
| □ PATIENT □ OTHER                                                              |                |              |              |
| DATE                        INIT                                                      |                |              |              |
| UNABLE TO OBTAIN                                                            |                |              |              |
| DATE                         INIT                                                      |                |              |              |
| IF A.D. NOT AVAILABLE, NOTIFY MD TO DOCUMENT SUBSTANCE IN MEDICAL RECORD        |                |              |              |
| DATE                        INIT                                                      |                |              |              |

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| □ NEURO                |

| SPECIAL LINES |

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<tr>
<td>□ O₂ L/MIN</td>
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<td></td>
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<td></td>
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<tr>
<td>□ PRN</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>□ CONTINUOUS</td>
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</table>
Documentation Systems

Narrative Charting: Narrative charting utilizes a story-like format to document information specific to the client’s signs and symptoms, assessment and diagnostic findings, activities, and the care provided.

Charting by Exception: The goal of this form of documentation is to reduce repetition and time spent in charting. Clearly defined standards of practice and pre-determined criteria for nursing assessments and interventions are integrated into documentation forms so that most things can be documented by checking boxes and only significant findings or exceptions to predefined norms require additional documentation. Thus, the care provider writes a long-hand note only when the standardized statement on the form is not met, and, when other caregivers see long-hand entries in the chart their attention is called to the fact that something out of the ordinary has been observed or has occurred. Because the assessment criteria and measurements on these forms are standardized, all caregivers consistently evaluate the same areas and utilize the same descriptors when documenting their findings.

Graphic Sheets and Flow Sheets: Graphic sheets are utilized for documentation of vital signs. Flow sheets are forms that allow nurses to document frequently assessed parameters and routine repetitive care (e.g., baths, repositioning, ambulation, meals, safety and restraint checks) quickly and effectively. A coding system is often utilized. If something unusual occurs, or there is a significant change in the client’s condition, a focus note is needed.

Focus Charting/DAR: Notes includes Data (both subjective and objective, Action or nursing intervention, and the Response of the client. Notes are developed based on client concerns (a sign or symptom, a condition, a nursing diagnosis, a behavior, a significant event of a change in a client’s condition) not just according to the active problem list. Focus charting is easily understood and adaptable to most health care settings.

The Problem Oriented Medical Record: This method of charting utilizes an active patient problem list, a care plan for each of the problems, and progress notes. Problems are identified by #, and are charted on using a SOAP or SOAPIE Format—Subjective data, Objective data, Analysis, Plan, Intervention, Evaluation.

Source Records: Each discipline has a separate section of the chart in which to record data.

Others: Other methods for documenting patient care include the use of case management, critical paths, guidelines, protocols.

What to Document:

Always document care provided, including nursing interventions and teaching, and procedures, diagnostic tests, and treatments performed by other disciplines. Noting the equipment used may be helpful in the event the procedure is to be repeated in the future, or if a problem develops subsequently.

- **Document patient responses** to nursing care, procedures, diagnostic tests, treatments, and medications.
- **Document discharge planning**.
- **Document consent for, or refusal of care.** This may include the patient’s refusal of an invasive procedure requiring written consent, the refusal of nursing care, non-compliance with the treatment plan, or the inability of the patient to participate in the current plan of care.
- **Document medication administration**, particularly administration of PRN and unscheduled “one-time-only” medications, and the patient’s response. Documentation should include the time
preliminary observations, the effect of the medication, and any nursing measures taken for a negative response.

- **Document patient problems/complaints**, including abnormal assessment and laboratory findings, the location, severity, onset, duration, frequency, precipitating, aggravating, and relieving factors of specific patient problems/complaints. The practitioner’s actions and the patient’s responses need to be documented.

- **Document that clarification of an order was sought**, and from whom.

- **Document whenever a physician, supervisor, other nurses, or anyone associated with the patient must be contacted regarding the patient’s condition**, including the manner of communication, the names of those contacted, what was discussed, and what response resulted from the contact (e.g., new orders).

- **Document an unusual occurrence or event**. An “unusual occurrence report” or “incident report” is completed, but the incident is also documented, along with the practitioner’s responses, in the patient’s medical record.

- **Document whenever the patient leaves the nurse’s care**, e.g., for a diagnostic test. Documentation should reflect the time and the condition of the patient on leaving.

- **Document the transfer of a patient** including the date, time, patient’s condition, who accompanied the patient, who provided the transportation, what transportation method was employed (i.e., gurney, wheelchair, bed), where and to whom the patient was transferred.

- **Document the existence and disposition of personal belongings** (e.g., glasses, jewelry, dentures, medication). For example, “watch sent home with husband.” Be descriptive, but do not label items of jewelry as such a description may inaccurately describe their value. Thus, a ring should be described as “yellow metal band with four clear/colorless stones,” rather than as “a gold ring set with four diamonds,” and a watch would better be described as “digital watch with a black face and yellow metal band” than as a “gold Rolex wristwatch.”

**Legal Guidelines for Documentation**:

- Write legibly.
- Include the patient’s name on every page.
- Begin each entry with the date and time, and end with your signature and title.
- Chart only for yourself. Never chart for someone else unless the care provider has left for the day and calls with the information. Be sure to document that you are entering the information for someone else, based upon your conversation. That person should countersign the entry when they return.
- Do not leave blank spaces. Write “N/A” or draw a line so it is clear that the space was not overlooked, and so another person cannot add information in the space.
- Chart consecutively, line by line. If a space is left on the line at the end of an entry, draw a horizontal line through it and sign your name at the end.
- Do not erase, apply correction fluid, or scratch out errors made while charting because it may appear you were attempting to hide information or deface the record. Draw a single line through the error, write the word “error” above it, initial it, and then record the note correctly in the next available line.
- Provide current, factual, accurate, complete, organized/logical observations; do not speculate or guess.
- Document clinical signs and symptoms, and objective descriptions of client behavior and interpersonal interactions. Client comments should be in quotation marks.
- Abbreviate only if the abbreviation has been adopted/approved by the health care delivery system in which you are working.
- Record as soon after care is given as possible. Never chart in advance.
- When necessary to add information to an already existing entry, make an entry on the next available line or space in the record, label it “Late Entry” or “addition to nursing note of ____,” enter the date and time that the information is being added to the record, and then make the entry.
- Review the institution’s policies and procedures regularly and adhere to them when providing and/or documenting care.
- Any order, narcotic count, narrative entry, or other documentation should **not** be countersigned unless the person countersigning can attest to the accuracy of the information and he/she has personal
knowledge of it. If the individual cannot speak to both, he/she should qualify his/her countersignature in some way, e.g., “entry reviewed and signed” or “witness to signature only.”

- Do not write retaliatory or critical comments about the client or about care provided by other members of the health care team. These types of statements can be used as evidence of nonprofessional behavior or poor quality care.

**SOAP(IE)(R) Documentation:**

Remember to use SOAP(IE)(R) documentation to:

- Document what the patient tells you (S: **Subjective**)
- Document what you observe/assess (O: **Objective**)
- Document your assessment/conclusions (A: **Assessment/Analysis/Conclusion** based on Subjective and Objective data)
- Document the actions you plan to implement: (P: **Plan of care**)
- Document what you do (I: **Interventions**)
  - Administering analgesics
  - Providing non-pharmacological pain relief measures
  - Instituting safety precautions
  - Obtaining new orders
- Document what you teach (I: **Interventions**)
- Document the patient’s response (E: **Evaluation**—+ / - / = [better, worse, the same]
- Document any revisions to the plan (R: **Revision**
Verbal Communication Guidelines

Sources:
• Agency for Health Care Research and Quality. www.ahrq.gov
• Institute of Medicine To Err is Human: Building a Safer Healthcare System.(2000)

The Importance of Good Communication and Teamwork to Patient Safety

In 2000, the Institute of Medicine published its report, To Err is Human: Building a Safer Healthcare System. This report showed that as many as 98,000 people die each year from medical errors that occur in hospitals. Sentinel Event (SE) data compiled by the JCAHO between 1995 and 2005 echoed the IOM’s findings, identifying ineffective communication as the root cause for 66 percent of reported errors. The Veterans Administration (VA) National Center for Patient Safety database shows similar results, with communication failure cited as a primary contributing factor to adverse events and close calls.

As a result of their findings, The Institute of Medicine spearheaded an initiative to improve the quality of care in America by focusing on the facts and making wide-ranging recommendations. Among their recommendations for improving safety is a recommendation that specifically addresses standardizing processes and improving team training:

RECOMMENDATION 8.1
Health care organizations and the professionals affiliated with them should make continually improved patient safety a declared and serious aim by establishing patient safety programs with defined executive responsibility. Patient safety programs should
• provide strong, clear and visible attention to safety;
• implement non-punitive systems for reporting and analyzing errors within their organizations;
• incorporate well-understood safety principles, such as standardizing and simplifying equipment, supplies, and processes; and
• establish interdisciplinary team training programs for providers that incorporate proven methods of team training, such as simulation.

Among the National Patient Safety Goals (NPSGs) issued by JCAHO annually has been the need for improved communication and teamwork among caregivers. It has also emphasized the need to include an opportunity for every member of the team to ask questions, clarify, and confirm.

Nevertheless, in 2005, an article published in the Journal of the American Medical Association (JAMA) indicated that despite the calls for a 50% reduction in medical errors over 5 years, “As many as 98,000 Americans still die each year because of medical errors, despite an unprecedented focus on patient safety over the last five years[...] and the death rate has not changed much.” However, there were also some promising findings. According to the JAMA article, team training in Labor and Delivery has led to a 50% reduction in harmful outcomes in premature deliveries, such as brain damage; placing a pharmacist on the medical team has resulted in a 66–78% reduction of preventable adverse drug events; and implementing rapid response teams has led to a 15% decrease in cardiac arrests.

Communication and teamwork have been found to be one of the key requirements for patient safety. Patient safety experts agree that communication and other teamwork skills are essential for the provision of quality healthcare and for the prevention and mitigation of medical errors. The interrelationships found in teams are the foundation of a strong continuous improvement model. Team members:
• Communicate effectively
• Seek information from all available sources
• Verify and share information
• Practice communication tools and strategies daily (SBAR, call-out, check-back, handoff)
Team competencies required for a high performing team, can be grouped into the categories of Knowledge, Skills, and Attitudes (KSAs) which include:

- Understanding of the team membership and structure;
- Leadership skills to ensure team actions are understood, changes in information are shared, and that team members have required resources;
- The ability to engage in Situation Monitoring, actively scanning and assessing situational elements to gain information understanding, or maintain awareness to support functioning of the team;
- The ability to provide Mutual Support, anticipating and supporting other team members needs through accurate knowledge about their responsibilities and workload;
- The ability to Communicate effectively ensuring that information is clearly and accurately exchanged among team members.

Training health care providers in teams with the same KSAs results in a shared mental model, mutual trust, and a team orientation. Characteristics such as adaptability, accuracy, productivity, efficiency and safety are the outcome of a high-performing team. Possession of the Knowledge, Skills, and Attitudes of teamwork complement clinical excellence and improve patient outcomes by utilizing feedback cycles and clearly defined tools to communicate, plan and deliver better quality care.

**Standards of Effective Communication: Complete Clear, Brief, Timely**

Whether sharing information with the team, patients, or family, communication must meet four standards to be effective.

Effective communication is:

- **Complete**
  - Communicate all relevant information while avoiding unnecessary details that may lead to confusion
  - Leave enough time for patient questions, and answer questions completely

- **Clear**
  - Use information that is plainly understood (layman’s terminology with patients and their families)
  - Use common or standard terminology when communicating with members of the team

- **Brief**
  - Be concise

- **Timely**
  - Be dependable about offering and requesting information
  - Avoid delays in relaying information that could compromise a patient’s situation
  - Note times of observations and interventions in the patient’s record
  - Update patients and families frequently
  - Verifying requires checking that the information received was the intended message of the sender
  - Validate or acknowledge

**Barriers to Communication in Health Care Settings**

There are numerous barriers to complete, clear, brief, timely communication is health care settings including:

- Inconsistency in team membership
- Workload
- Lack of time
• Shift change  
• Lack of information  
• Hierarchy  
• Defensiveness  
• Conventional Thinking  
• Complacency  
• Varying communication styles  
• Language barriers  
• Conflict  
• Lack of information verification  
• Lack of coordination and follow-up with co-workers

In response, various tools and strategies have been developed to facilitate better communication and teamwork in healthcare settings. These include:

• Briefings  
• Huddles  
• Debriefings  
• Standardized hand-offs  
• Emphasis on advocacy and assertion  
• Two Challenge Rule  
• CUS  
• DESC Script  
• Collaboration  
• SBAR  
• Call Out  
• Check-Back  
• Use of cross monitoring  
• Providing feedback

As noted earlier, providing team training in KSAs, including the use of effective communication strategies, has been shown to produce positive outcomes such as:

• Shared mental model among team members  
• Increased adaptability  
• A Team orientation  
• A sense of mutual Trust  
• Improved team performance  
• Improved Patient Safety

Handoffs
The Joint Commission on Accreditation of Healthcare Organizations (JCAHO) has recommended that hospitals develop standardized methods of “hand-off communication” to use during shift changes or when transferring care of a patient from one practitioner, unit, or facility to another. In a crisis situation, when people can become stressed, impatient, and abrupt, the standardized use of a communication format can help everyone to stay calm and focused. It can also improve communication between nurses and physicians, who have historically communicated using different styles with nurses providing narrative reports, and physicians using and expecting outlines and bulleted points.

SBAR
SBAR is one model of a standardized method of hand-off communication. SBAR is acronym for Situation, Background, Assessment, and Recommendation. SBAR was adopted from military communication models to quickly and concisely relate critical patient information. In most cases SBAR is used in verbal communication, but in some situations it has been adopted in written form, including the
creation of cards and notepads with SBAR guidelines. In the Bay Area, both Kaiser and California Pacific Medical Center have adopted this model.

S: Situation
- Admitting and secondary diagnosis
- Current issues

B: Background
- Relevant medical history
- Physician and ancillary staff
- Consults
- Previous tests and treatments
- Psychological issues
- Allergies; current Code status

A: Assessment:
- Head to toe physical assessment
- Vital signs
- IVS, drips, line site assessment
- O2 and ventilator settings
- Pain status
- Drains, tubes, wound assessment
- ADLs, diet, activity
- Restrictions: Isolation, Fall
- Bleeding Precautions, Fluid, etc.
- Labs, diagnostics
- Response to treatments
- Care partner, family updates

R: Recommendations:
- Plan of care
- Needs to be addressed
- Orders pending completion
- Pending treatment and tests
- Discharge planning, issues, barriers


“I PASS the BATON”
“Pass the Baton” is another option for structured communication handoffs.

I: Introduction—Introduce yourself and your role/job (include patient)
P: Patient—Name, identifiers, age, sex, location
A: Assessment—Presenting chief complaint, vital signs, symptoms, and diagnosis
S: Situation—Current status/circumstances, including code status, level of uncertainty, recent changes, response to treatment
S: Safety Concerns—Critical lab values/reports, socio-economic factors, allergies, alerts (falls, isolation, etc.)
THE
B: Background—Co-morbidities, previous episodes, current medications, family history
A: Actions—What actions were taken or are required? Provide brief rationale
T: Timing—Level of urgency and explicit timing and prioritization of actions
O: Ownership—Who is responsible (nurse/doctor/team)? Include patient/family responsibilities
N: Next—What will happen next? Anticipated changes? What is the plan? Are there contingency plans?

Advocacy and Assertion
Patient advocacy is an essential responsibility of nurses. Advocacy must be invoked whenever team members’ viewpoints don’t coincide with that of the decision maker. When viewpoints are in conflict, assert a corrective action in a firm and respectful manner:
- Make an opening
- State the concern
- Offer a solution
- Obtain an agreement

Two-Challenge Rule
When an initial assertion is ignored:
- It is your responsibility to assertively voice concern at least two times to ensure it has been heard
- The team member being challenged must acknowledge the challenge
- If the outcome is still not acceptable:
  - Take a stronger course of action
  - Utilize supervisor or chain of command
Empowers all team members to “stop the line” if they sense or discover an essential safety breach

“CUS”
“CUS” is an acronym for 3 commonly recognized statements that can be used to assert and reiterate concerns about patient safety in the healthcare setting:

- I am Concerned!
- I am Uncomfortable!
- This is a Safety issue!

“DESC” Script
Using the “DESC” script is a constructive approach for managing and resolving conflict
- D – Describe the specific situation or behavior; provide concrete data
- E – Express how the situation makes you feel/what your concerns are
- S – Suggest other alternatives and seek agreement
- C – Consequences should be stated in terms of impact on established team goals; strive for consensus

“Call-Out”
“Call Out” is a strategy used to communicate important or critical information. It:
- Informs all team members simultaneously during emergent situations
- Helps team members anticipate next steps
- Important to direct responsibility to a specific individual responsible for carrying out the task

Below is an example of the use of Call Out during an incoming trauma:

Leader: “Airway status?”
Resident: “Airway clear”
Leader: “Breath sounds?”
Resident: “Breath sounds decreased on right”
Leader: “Blood pressure?”
Nurse: “BP is 96/62”

Check-Back
Check-back is the process of employing closed-loop communication to ensure that information conveyed by the sender is understood by the receiver as intended. “Read Back” which is required in hospitals when verbal or telephone orders are being given, is a form of check-back.

The steps include the following:
1. Sender initiates the message
2. Receiver accepts the message and provides feedback
3. Sender double-checks to ensure that the message was received

Below is an example of the use of Check-Back in a critical situation:
Doctor: “Give 25 mg Benadryl IV push”
Nurse: “25 mg Benadryl IV push”
Doctor: “That’s correct”
PATIENT ADMISSIONS

Preparation for a Patient Admission:

1. The nurse should be included in the assignment of patient rooms. Admitting personnel should confer with nursing staff to ensure that a patient’s room is assigned based on the patient’s condition and health care needs, as well as personal preferences where possible.
2. When the patient is admitted through another department, that department should notify the nursing division with a report of the client’s admission information including: Name, assigned room and bed; admitting physician; diagnosis; pertinent information related to the client’s condition (e.g., level of consciousness, IV fluids, need for O2, need for incontinent care, or special mattress). A full report ensures adequate preparation for the client’s arrival and prompt treatment.
3. Try to prepare the patient’s room before their arrival. Wash your hands, and arrange the furniture for easy access to the bed. Prepare the bed by adjusting it to the lowest height (unless the patient will be arriving via a gurney). Turn down the sheet and spread.
4. Ensure that the room has been cleaned and that used/dirty equipment (e.g., suction canisters, oxygen tubing, urine containers, etc.) has been cleaned, or removed and replaced. Ensure that equipment that is supposed to be in the room (e.g., the telephone, nurse call-light, TV, remote control, lamp, bedside table, over-bed table, oxygen gauge, suction gauge, IV pole, IV pump) is present, clean, and functioning correctly.
5. Gather supplies and equipment for the patient including: a gown, non-ski footwear, pillows, extra blankets (consider a blanket from the warmer) towels, washcloths, personal care items (e.g., cup, pitcher, bath basin, emesis basin, toothbrush, toothpaste, bedpan, urinal, Speci-pan, denture cup, etc.).
6. Anticipate additional equipment needs for the individual patient—e.g., special mattress, incontinence pads, footboard, IV pump, sequential compression devices, oxygen, suction.

Admitting a Patient:

1. Greet the patient and introduce yourself and other staff.
2. Assess the patient’s level of comfort. The nurse must always be conscious of the patient’s physiological and psychological stability, safety, and comfort/distress/fatigue. When a patient is experiencing physical and/or psychological symptoms, the nurse attempts to stabilize the patient and make him/her as comfortable as possible prior to proceeding with the complete nursing history. The nurse determines which portions of the admission process and nursing history must be completed immediately and which portions can be completed later.
3. Orient the patient and significant others to the unit, and to unit and hospital policies and procedures (e.g., visiting hours, meal times, lab draws, chaplain and social services, etc.).
4. Orient the patient to the room and bathroom, as well as to supplies and equipment. Demonstrate the use of the telephone, nurse call light, bed controls, television, etc.
5. Provide significant others with the room number and telephone number of the hospital, the nursing unit, and the patient’s room.
6. When patients are sharing a room, introduce the patients to their roommate(s).
7. Provide privacy for the patient, and assist the patient, as necessary, to undress and put on a gown.
8. Show the patient where he/she may put their personal belongings.
9. Inventory the patient’s personal property. Encourage patients to send home valuables, or have them locked up by the security department.
10. Perform a nursing admission history and physical assessment (see below).
11. Provide an identification band for the patient, and an allergy band as needed.
12. Inform the pharmacy of the patient’s height and weight and allergies, including the type of allergic reaction (e.g., rash, hives).
13. Utilize the nursing process to begin the development of an individualized nursing care plan.
14. Notify the physician of patient’s arrival on the unit, and obtain initial admitting orders or review physician orders that may already have been written.

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Obtaining a Nursing Admission History and Performing the Initial Physical Assessment:

A nursing admission history involves questioning to obtain the patient’s:

- *chief complaint* (the signs and symptoms that caused them to seek medical attention) and
- *history of their present illness and their past health problems*

The history focuses on the patient’s subjective complaints—observable signs and subjective symptoms—and on past health problems. Careful thoughtful questioning can elicit valuable information.

The **physical assessment** is the process of finding objective data—visible, palpable, audible, and occasionally olfactory signs—that support or augment the patient’s reports/descriptions. Physical assessment involves:

1. Obtaining information from the patient, including their *chief complaint*, the *history of their present illness*, and their *past medical history*;
2. Performing a physical assessment, using *inspection, palpation, percussion*, and *auscultation*.

Generally, the health history interview comes first. Talking with the patient first allows for the development of rapport, understanding, and trust. Very few people are willing to talk about private matters or to be touched before they know anything about the person who is touching them. It is always a good idea to start with non-intimate questions and then, over time, gently approach more personal, private issues. One standard way to begin the interview is to ask the patient, “What brings you to the doctor’s office, clinic, ER/hospital today?”

If a patient does not appear to be in any acute distress, the nurse can interview the patient first and then perform a physical assessment. However, the health care practitioner must remain flexible. Sometimes, as in an emergency situation or when the patient is physiologically unstable and uncomfortable, obtaining information and examining the patient are done simultaneously. Efforts must be made to stabilize the patient and make the patient comfortable before proceeding with an in-depth health history.

Prior to approaching the patient, it is helpful to review the patient’s admitting information or notes and reports from practitioners who had prior contact with the patient (e.g., the physician, office nurse, EMT, or paramedic, emergency room nurse or physician, OR nurse, PAR nurse, radiology tech, etc.) to obtain an idea of the problem, complaint, diagnosis, and or reason for the patient’s admission. If the physician has already interviewed and examined the patient prior to the nurse’s initial contact with the patient, the nurse can review the documentation of the physician’s history and physical exam in the chart. Similarly, if a patient is being transferred from another facility, or another unit in the same facility, a review of the documentation that has already been done will be helpful.

If the patient has had contact with this facility in the past, the nurse can also rely on information in the old chart. Information on previous health care problems, the course of a previous illness, tests, procedures, surgeries, responses to treatment, complications, medications, discharge condition, and aftercare, as well as the health history obtained by other physicians and nurses during previous encounters with the health care system, is available in the patient’s old chart. (The patient’s old chart can be obtained by requesting it from the medical records department.)

Though verification of information with the patient is wise, it is important to look for ways to avoid unnecessary repetition of questions. The nurse should also strive to become informed and knowledgeable about the patient prior to the initial contact. After providing information to many health care personnel, patients will appreciate it if you can approach them with some knowledge of their health history and why they have sought help. It indicates to them that they personally matter, that there is good communication among staff, and that you are prepared and knowledgeable.

Sources of patient information include:
• Admission face sheet
• Patient
• Family/friends/significant others/care givers
• Written and/or verbal reports from health care professionals who have had prior contact with the patient
• Documentation, such as the physician’s history and physical, progress notes, nursing notes, and the results of laboratory and diagnostic tests, in the current chart
• Documentation in the patient’s old chart

When performing the physical assessment, it is often useful to begin by checking the patient’s vital signs, and pulse oxymetry (oxygen saturation of hemoglobin). These assessments can give the nurse a brief picture of the patient’s overall cardiovascular and pulmonary status. The nurse can then proceed, in an organized fashion, with a “head to toe” assessment, focusing particularly on areas related to the patient’s chief complaint(s) or identified problems.
PATIENT DISCHARGES

**Discharge Planning:**

*Discharge planning begins on the day of admission and continues throughout the patient’s stay.*

Discharge planning is the process employed to assure that a patient’s health care needs continue to be met after discharge. As identified by the American Hospital Association (1985), the goals of discharge planning include:

1. Patient and family understand the diagnosis, anticipated level of functioning, discharge medication, anticipated medical follow-up, use of new equipment, diet and exercise regimens, and available support systems.
2. Specialized instruction or training is provided to the client and family to ensure proper care after discharge.
3. Community support systems are coordinated to enable the client to return home.
4. Relocation of the client and coordination of support systems or transfer to another health care facility are performed.

Discharge planning is a coordinated, multidisciplinary process in which all members of the healthcare team participate. Development of a plan with outcomes mutually accepted by the patient and caregivers and ongoing communication about its progress is essential. Responsibilities include assessing the patient’s health care needs at discharge, identifying available and needed resources, linking the patient and family to the proper resources, coordinating services, and following up on the patient’s progress following discharge.

Because specialized knowledge is required (particularly knowledge of insurance benefits and community agencies and services), as well as the complexity of issues, the number of people and agencies involved, and the amount of time required, discharge planning has evolved into a specialty. In most acute care facilities there is usually a discharge coordinator or case manager who is responsible for the coordination of discharge planning. Responsibilities of the discharge planner include arranging for in-home care, community services, or admission and transfer to an in-patient facility that can provide the appropriate level of care, ordering needed equipment and supplies, and arranging appropriate transportation. The responsibilities of other members of the health care team include communicating assessment findings, identifying client and family needs, and reporting client and family responses to interventions and teaching.

Nurses should be alert to the fact that the following factors have been identified as putting patients at increased risk for being unable to meet continuing health needs after discharge:

- Lack of knowledge of treatment plan
- Altered cognition
- Newly diagnosed chronic disease
- Major or radical surgery
- More than three active medical problems
- Social isolation
- Emotional or mental instability
- Visual and hearing deficits
- Takes more than 5 drugs
- Lack of financial resources
- Lack of available or nearby referral sources
- Terminal illness
- Lack of in-home care provider
- Planning:
  - Assess client and family’s need for health teaching
  - Assess client and family environmental factors within the home that might interfere with self-care (stairs, size of room, bathroom facilities

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• Collaborate with physician and staff in other staff in other disciplines in assessing need for referral for skilled home health care services or extended care facility.
• Assess client’s and family’s perceptions of continued health care needs outside the hospital. Include and assessment of family caregiver’s perceived ability to provide care to client
• Assess acceptance of health problems and related restrictions
• Consult health care team members about anticipated needs after discharge (dietician, social worker, clinical nurse specialist, home health care nurse.; make appropriate referrals.

The Joint Commission on Accreditation of Hospital Organizations (JCAHO, 2000) requires the following instruction before clients leave health care facilities:

1. Safe and effective use of medications and medical equipment.
2. Instruction on potential food-drug interactions and counseling on nutrition and modified diets.
3. Rehabilitation techniques to support adaptation to and/or functional independence in the environment.
4. Access to available community resources as needed.
5. When and how to obtain further treatment.
6. The client’s and family’s responsibilities in the client’s ongoing health care needs and the knowledge and skills needed to carry out those responsibilities.
7. Maintenance of good standards for personal hygiene and grooming.

This is an accreditation requirement and a standard of care. For both quality of care, accreditation, and legal purposes, adherence to these standards of care must be documented. Remember, if it isn’t documented, it isn’t done.

Some tips:

• Think about and anticipate patient’s needs.
• Make referrals as soon as possible. Realize that referrals must be made to agencies approved by the patient’s insurer. Determine what the referral agency recommends for the client’s care and incorporate these recommendations into the treatment plan as soon as possible.
• Provide as much information about the patient as possible to avoid exclusion of important information that may effect planning and care.
• Keep people informed to enhance coordination and avoid duplication of effort.
• Involve the patient and family/significant other in discharge planning.

Prior to Discharge

• Provide on-going teaching regarding medications, treatments, dressings, long-term IV devices, diet, activity, etc. and document this teaching. Consider home care variations and prepare the patient and his/her care provider(s) for these.
• Plan ahead. Consider whether the patient is going to require long-term IV therapy. If so, anticipate the need for placement of long-term IV access device and schedule an appointment for placement prior to the day of discharge.
• Discuss anticipated discharge medications with the physician. The need for preauthorization is a concern health care providers need to be aware of, especially if clients are going to be discharged on a weekend since many insurance companies may be closed. In addition, any new medications should have associated teaching begun as early as possible.
• Anticipate needed supplies and equipment and ensure that these have been ordered and will arrive when they are needed.
• Ensure that family members/significant others/care providers are aware when and to where (e.g. home or another facility) the patient is going to be discharged.
• Determine the patient’s transportation needs (e.g., an ambulance, a taxi voucher, etc.) Be aware that for staffing purposes, ambulance companies need to know if there are stairs and what the patient weighs.
If the patient drove himself/herself to the hospital, consider whether he/she is safe and able to drive him/herself home. (Realize that taking many medications, particularly narcotic analgesics, may affect the patient’s ability to drive.) If the patient is ambulatory, consider whether or not they are able to climb any stairs which may be present in their home.

Determine other needs, such as whether someone will be available to pick up the patient, if there will be someone available to assist the patient once he/she arrives home, if there is food in the house, and if the patient has his/her house keys and can get in the house.

Day of discharge:

- Confirm that the patient is stable for discharge. Nurses have a professional and ethical obligation to delay the discharge of patients who are not medically stable, able to care for themselves, and/or who do not have adequate follow-up services arranged.
- Check the physician’s discharge orders for prescriptions, changes in treatments, or new/additional needs for special medical equipment and supplies. If the patient is under the care of more than one physician, each physician may need to be consulted for discharge orders.
- Verify that all doses of medications and treatments have been completed before the patient leaves. Ensure that IVs are not discontinued before the patient’s last medication is administered, but also make sure that IV saline locks which are not going to be needed at home are removed prior to discharge.
- Complete and review the discharge instruction form with the patient and his/her family member/significant other/care giver. The discharge instruction form addresses nutrition and modified diets, activity, medications (including the name of each drug, the dosage, frequency, route, purpose, schedule, side-effects, and potential food/drug interactions. If the patient has received a dose of a medication in the hospital, make sure that he/she knows when to take next dose of medication), treatments, signs and symptoms to notify the physician for, and follow-up appointments (where possible, include the telephone numbers of physician’s, clinics, and service agencies for patients). After reviewing the discharge instruction form, have the patient or their primary care giver (often a family member) sign it, and provide them with a copy.
- Provide the patient with prescriptions. Since many hospitals no longer provide filled prescriptions at the time of discharge, the patient may request that you call in any prescriptions to their pharmacy so they that the pharmacist can begin filling them and the filled prescriptions can then be picked up on the patient’s way home from the hospital.
- Solicit questions from the patient and from family members/significant others/care givers. Review the name, contact person, and phone number of all homecare and community service agencies, and verify when services will begin.
- Confirm transportation. If the patient is being picked-up, determine when the person picking them up will arrive. (Discharges are often delayed until a family member can get off work to come and get them.)
- Offer the patient assistance as he/she dresses and packs his/her personal belongings. Patients begin transported via ambulance to another facility may go in their gown and a robe.
- Check the closet and drawers for belongings.
- Review a copy of the patient’s valuables list. Contact the security department to have the patient’s valuables returned.
- Depending upon hospital policy, contact the business office to determine arrangement of payment of ill
- Acquire a utility cart to transport the patient’s belongings
- Obtain a wheelchair for patients unable to ambulate, and assist them to transfer safely into the wheelchair.
- Accompany the patient to their transportation or delegate this activity to ancillary staff, depending on hospital policy.
- Return to the nursing unit and write a discharge note stating the date, time, mode of transportation, person accompanying the patient, and condition of the patient at discharge.
WEEK 4

WEEK 4: Assessing and Promoting Fluid Balance and Nutrition


   **Student Preparation**
   - Read Week 4 of the NE 101 Syllabus, section on Intake and Output
   - Read Perry, A.G. and Potter, P. A. *Clinical Nursing Skills & Techniques.*
     - Chapter 6: Health Assessment, Skill 6-7, Assessing I&O

   **Student Lab Practice**
   - Case studies on I&O
   - Skill Performance Check-List: Measuring, Documenting, and Analyzing Intake and Output*

2. **Assessing and Promoting Nutrition**: Discussion of methods for feeding patients, assessing and documenting nutritional intake, and special precautions

   **Student Preparation**
   - Read Week 4 of the NE 101 Syllabus, section on nutrition
   - Read Perry, A.G. and Potter, P. A. *Clinical Nursing Skills & Techniques.*
     - Chapter 30: Oral Nutrition

3. **Student Skill Check-off** (skills introduced and practiced during the previous weeks):
   - Skill Performance Check-List: Applying Sterile Gloves*
   - Skill Check-off: Vital Signs (Skill Performance Check-list: Temperature Pulse, Respirations, BP, and Pain*; Skill Performance Check-list: O2 Saturation*)


Intake and Output

I. Definitions:
Measuring intake and output (I&O) provides a means for assessing a client’s fluid volume status—whether they are dehydrated or are fluid overloaded. Intake and output is both a dependent and independent nursing function. I&O is measured throughout the day, and amounts are totaled at the end of every shift (i.e., at 6 AM/0600, 2 PM/1400, and 10 PM/2200). A 24-hour total is also calculated.

**Intake:** Intake consists of oral fluids, NG feedings and fluids, IV fluids and blood products, and intra-peritoneal fluids.

The “average” person takes approx. 2600 cc fluids each day: 1200cc from drinking, 1100cc from water content of food, 300 cc from changes in metabolism. Intake is dependent on ambient conditions and activity, as well as diet—e.g., hot weather, increased activity resulting in sweating, eating very salty foods will increase thirst, drinking caffeine or alcohol will cause diuresis and need for replacement.

**Output:** Output consists of urine (voided, Foley catheter, supra-pubic catheter, urostomy), stool/diarrhea, emesis/vomitus, insensible loss (perspiration, respiratory track, feces), drainage from tubes, and blood loss.

On a daily basis, most individuals lose approximately 2400 cc of fluid, 1500cc through urine output, 200cc through respiration, 600cc through perspiration, and 100cc through feces.

II. Equivalent Measurements:

1 cc = 1 ml

5 cc = 1 tsp

15 cc = 3 tsp = 1 tbsp

30 cc = 1 oz.

8 oz = 1 cup

1000 cc = 1 liter

III. Relationship of Fluid to Weight:

Fluid status can be assessed by measuring weight as well as recording and calculating I&O. Often we keep monitor I& O as well as daily weights.

In the metric system fluid volume can be translated to weight easily:

- 1000 cc/1000 ml = 1 liter = 1 kg = 2.2 lbs.
- 2.2 lbs = 1 kg = 1 liter = 1000 cc/1000 ml

To convert Kg → lbs: 

\[ \text{\[\text{kg} \times 2.2 = \text{\text{lbs.}}\]} \]

To convert Lbs. → Kg:

\[ \text{\[\frac{\text{lbs.}}{2.2} = \text{\text{Kg}}\]} \]
IV. Urinary System:

The urinary system consists of the kidneys, ureters, bladder, and urethra. The kidneys filter the blood and produce on average 1cc/kg/hour. Approximately 120 cc filtrate each minute is reduced to 1 cc of urine.

Micturition/voiding occurs as a result of changes that occur in the bladder. The bladder is a little like a balloon—it is collapsed when empty, and the walls are stretched when full. After about 300cc of urine collects, the bladder walls tighten and pressure increases. When 400-500 cc of urine is collected, the bladder walls contract and the internal sphincter relaxes causing a sense of urgency to void. When urine enters the urethra the external sphincter relaxes and voiding occurs.

1 cc urine/minute X 60 minutes/hr X 24 hours/day = 1440 cc/day.

The “ideal” urine output is therefore ~60cc/hour; **minimal adequate urine output is considered to be 30cc/hour.**

V. Average Fluid Intake and Output:

The average person’s intake is approximately 2000cc of fluid each day:

- 1200cc from drinking
- 1100cc for the water content of food
- 300cc from changes in metabolism.

Average fluid losses include:

- Skin (0-1000cc/day; 600cc/day evaporates in insensible losses; losses increase with fevers, burns);
- Lungs (300-400cc/day in vapor, increased with increased rate and depth of respiration)
- GI (100-200cc/day even though 8 liters of fluid circulate through the GI track every 24 hours).

On a daily basis, most individuals lose approx. 2400cc of fluid:

- 1500 through urine output
- 200 through respiration
- 600cc through perspiration
- 100cc through feces.
- Individuals who are ill may also lose fluids through emesis, diarrhea, bleeding, wound drainage, and/or suctioning.
- Some medications (e.g., diuretics) can increase urine output, while other medications (e.g., steroids) can decrease urine output because of effects on sodium and water retention.

VI. Assessing Fluid Status for Fluid Volume Excess or Deficit (fluid overload or dehydration):

**Assessment Criteria:**
- Hematocrit (Hct): The percentage of a volume of blood that is red blood cells. An elevated or increased hematocrit may mean hemo-concentration due to dehydration;

- Blood Urea Nitrogen (BUN) and Creatinine (Cr): measurements of kidney function.

- Skin turgor on sternum/under clavicle, on inner thigh, or forehead;

- Tongue and mucous membranes (1 long furrow vs. multiple furrows);

- Urine volume/color/concentration/pH. The body works to maintain homeostasis, so increases or decreases in fluid intake result in parallel increases or decreases in urine output.

- Mental function

- Cold extremities.

- Weight: Weigh clients at the same time each day, using the same scale, usually before breakfast but policy may also require daily weights in the evening, as is the practice in the CSU at MGH. When weighing a patient:
  - Weigh the patient at the same time each day, if possible.
  - Use the appropriate scale (standing, sitting, bed-scale).
  - Use the same scale each time.
  - Balance the scale each time.
  - Have the patient void/defecate before weighing.
  - Have the patient wear the same clothing (hospital gown) each time.
  - Record the weight in pounds or kilograms based on agency/office policy.
  - Compare weight with Ideal Body Weight (IBW) chart. For children, look on appropriate growth charts. (See the back of Wong textbook.)

VII. Measuring I & O

Assessment:

- Check order for I & O. If there is no order, assess whether I & O is indicated (e.g., N/V/diarrhea, IV fluids, NG feedings, dehydration, CHF, NPO status, etc.)

- Intake and output is a dependent and independent nursing function. It can be delegated.

- Assess all forms of intake—IV, NG, PO--and output—Foley, diarrhea, emesis, bleeding, wound drainage, pulmonary secretions.

Planning:

- Get a Speci-pan”hat” for the toilet or commode (two: one for urine, and one for stool, if patient is having diarrhea or if stool counts or studies are indicated).

- Get a graduated container to measure urine.

- Put up a sign to remind patient and co-workers.
• Find out where documentation needs to be entered.

• Discuss rationale for I&O with patient and family, and elicit their cooperation if possible: Ask patient/family member to write down what the patient drinks, and ask the patient to void into Speci-pan/hat, avoid mixing urine with stool if possible, and avoid putting toilet tissue into commode, bedpan, or Speci-pan/hat.

**Implementation:**

• Measure I&O every shift (qs), every four hours (q 4h), or hourly (q 1h), as indicated.

• Each time you go in the room, look at catheter or check bathroom.

• Patient’s who are in come from an intensive care unit may have a Foley with a urinometer as well as a regular Foley drainage bag in order to facilitate hourly, q 2hour, etc. output.

• Calculate and document I&O at the end of each shift, and calculate and document the 24 hour total.

**Evaluation:**

• I&O accurately monitored;

• I&O accurately and completely documented (see form in skills lab book).

• Signs of fluid imbalance identified and appropriate action taken.
Skill Performance Check-list:

Measuring, Documenting and Analyzing

Intake and Output

1. Patient A: 87 year-old with a history (hx) of emphysema, now admitted with a diagnosis (dx) of pneumonia. On oxygen (O2) with shortness of breath (SOB). Alert and oriented but very weak. Receiving IV fluids at 50cc/hour. Has poor oral (PO) intake due to SOB. Intake: 1/2 cup Ensure, 1/2 cup juice, 1 container of jello. It is the end of the shift. Calculate the patient’s I&O, document, and analyze.

2. Patient B: 58 year-old with a history of a Right cerebral vascular accident (CVA/stroke), with Left-sided weakness. The patient has a Foley catheter. The patient is alert and oriented, is able to take oral food and fluids, and has no IV. Intake 1 cup milk, 1/2 cup juice, 2 cups coffee (840cc). Empty and measure Foley catheter output and calculate total intake and output for this shift, document, and analyze.

3. Patient C: 45 year-old status-post (S/P) total hip replacement, now is 1 day post-op. The patient has active bowel sounds. The patient is currently receiving IV fluids at 100cc/hour and taking a Regular diet without problems. Intake: 1/2 cup coffee, 1 cup yogurt, 1/2 cup orange juice, 1/2 carton (1/2 cup) milk on cereal. Calculate the patient’s total Intake and Output at the change of shift, document, and analyze.

Directions:

Obtain the intake and output for the client in one of the above case studies that is assigned to you, following the procedure outlined below:

1. Gather supplies: a graduated cylinder (graduate), towel or paper towels, alcohol prep or betadine swab.

2. Explain the procedure to the patient.

3. Put on gloves, and put down protection on the floor.

5. Place the clamp on the drainage bag clamp over the graduate, release the clamp and empty the urine from the Foley catheter into the graduate. Wipe off drainage bag spout and re-clamp securely.

6. Measure the amount of urine. Then, measure amount again with buddy.

7. Bring to instructor to double-check.

8. Empty the graduate into the toilet (in class, give it to the instructor; we are saving it to reuse!) and rinse graduate.

9. Remove gloves, and wash hands.

11. Document the output on the graphic or flow sheet.

12. Using the case study, convert amount the “patient” has taken by mouth from ounces to cc’s.

13. Total the amount and document.

14. Review current and previous I&O recordings and analyze. E.g., is intake approximately equal to, greater than, or less than output? Consider cause and effect relationships. Consider other signs and
symptoms that would indicate that client is getting too much or too little fluid intake, or that client is unable to eliminate fluids at a rate that is in keeping with fluid intake.

15. Describe appropriate action.
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NOCS

Day

Evening
Skill Performance Check-list:

Measuring, Documenting and Analyzing

Intake and Output

Student Name: ________________________________________ Date: ________________________________

Intake:
  ____ 1. Wash hands.
  ____ 2. Assess the client’s ability to understand and cooperate with intake and output. Explain rules of monitoring intake and output to patient and family.
  ____ 3. *Measure all fluids in cc/ml.
  ____ 4. Record time and amount of all fluid intake in the designated spaces on appropriate form. (Record time, type, and amount of all IV fluids as they are infused, and what remains in bag.)
  ____ 5. *Compute 8 hour total fluid intake and record in appropriate space on appropriate agency form (graphic sheet or 24 hour I&O record) in client’s chart.
  ____ 6. *Accurately calculate 24-hour intake by adding together 8 hour totals for each shift, and document in appropriate space.
  ____ 7. Analyze trends and intervene appropriately.

Output
  ____ 1. *Wash hands and apply non-sterile gloves.
  ____ 2. Empty contents of urinal, bedpan, or Foley drainage bag into graduate container or commode “hat.”
  ____ 3. *Measure all liquid output in cc/ml.
  ____ 3. Remove gloves and wash hands.
  ____ 4. Record time and amount of output in designated space on appropriate form.
  ____ 5. *Compute 8-hour total output and record in appropriate space on appropriate agency form (graphic sheet or 24-hour I&O record) in the client’s chart.
  ____ 6. *Accurately calculate the 24 hour output by adding together the 8-hour totals for each shift and document in appropriate space.
  ____ 7. Analyze trends and intervene appropriately.

Score ___________  Instructor: ________________________________

Estimated time to complete the skill: 5-10 minutes
Assessing and Promoting Adequate Nutrition

• Assessing Clients at Nutritional Risk
• Assisting with Meals and Feeding Patients
  • Dysphagia
  • Management of Aspiration

I. Nutritional Assessment:

Nutritional Risk Factors:
- Disease: e.g., infection/sepsis; symptoms and diseases of the GI tract, e.g., nausea, vomiting, diarrhea, obstruction; psychological diseases, e.g., depression and mania, cognitive impairment, e.g., dementia; neurological and neuromuscular symptoms and diseases, e.g., dysphagia/absence of gag reflex, myasthenia gravis, Parkinson’s disease, AML.
- Trauma
- Treatment: Medications, Chemotherapy/Radiation Therapy, Surgery
- Poor Dentition: Ill-fitting dentures, decayed or loose teeth, malocclusion, chewing problems
- Oral or gastrointestinal pain: stomatitis, ulcer, pancreatitis, diverticulitis
- Economic Hardship: Inability to obtain food due to lack of finances, lack of transportation
- Self-care Deficit: Inability to prepare food, inability to feed self due to cognitive, psychological, or physical impairments
- Reduced Social Contact

Signs of Nutritional Risk:
- Involuntary weight loss or gain of >10% of usual body weight within 6 months or >5% of usual body weight within 1 month;
- >20% over or under ideal body weight
- Presence of chronic disease
- Increased metabolic requirements
- Altered diets or diet schedules:
  - Receiving parenteral or enteral nutrition
  - Recent illness surgery, or trauma
  - Inadequate nutrition intake including not receiving food/nutrition for >7 days.

Biochemical Tests Used to Assess Nutritional Status:
- Serum albumin: normal 3.5-5.0 mg/dl. Reflects liver’s ability to synthesis plasma proteins; changes slowly.
- Prealbumin: normal 25-50 mg/dl. Sensitive to protein changes; useful in measuring short-term changes.
- 24 hour urinary nitrogen: normal positive balance when compared with nitrogen intake. \((\text{Nitrogen balance} = (\text{Protein intake}/6.25) - 4)\). A positive balance indicates nitrogen can be stored instead of broken down for energy.
- Total lymphocyte count: normal >1500 cells/mm³. May indicate poor dietary intake, possible immunocompromised status; is used more for nutritional screening with other biochemical parameters.
- Hemoglobin: normal 12-15 mg/dl. Decreased value indicates anemia; further testing is needed to determine if anemia is nutritional related.

**Types of Diets Ordered for Hospitalized Clients:**
- Clear Liquid
- Full Liquid
- Pureed
- Mechanical Soft
- Soft
- Regular
- Sodium Restricted, e.g., No Added Salt/2 Gram Sodium
- ADA (American Diabetes Association)
- AHA (Diet conforming to the American Heart Association recommendations of restricted dietary fat [30% of daily energy intake; 10-15% fat is from unsaturated fatty acids], sodium [not more than 2400 mg per day], and cholesterol [300mg or less/day])
- Renal Diet (Prescribed restrictions of protein, potassium, phosphate, sodium and fluid in chronic renal disease).

**II. Prevention of Aspiration/Aspiration Precautions:**

Aspiration in the adult client has many causes, including dislodged or poorly fitting dental work and dentures, impaired cognitive function, disease, and the effects of medications. A common cause of aspiration is difficulty swallowing—dysphagia.

Dysphagia can result from neurological or neuromuscular disease, including stroke, senile dementia, fluid and electrolyte disturbances, cardiopulmonary disturbances. Symptoms of dysphagia include: coughing and gagging while eating; multiple swallow attempts; choking; drooling; pockets of food in the mouth; a gargly sounding voice. Clients with these symptoms should have a swallowing evaluation done by a speech therapist and radiological studies to diagnose dysphagia with aspiration.

If a swallowing problem exists, treatment can include exercises and techniques to improve swallowing and reduce risk of aspiration, and a change in the consistency/texture of foods. If dysphagia is severe an enteral feeding tube may be necessary.

**Criteria for Dysphagia Referral:**
- Open mouth (weak lip closure)
- Drooling
- Poor oral hygiene thrush
- Weak tongue movements
- Slurred, indistinct speech
- Weak voice
- Weak involuntary cough
- Delayed cough (up to two minutes after swallow
- General frailty
- Confusion/dementia
- No spontaneous swallowing movements.

**Note:** *Referral for a Dysphagia Evaluation is not appropriate if:*

- the patient is unconscious or drowsy
- the patient is unable to sit in an upright position for a reasonable length of time.

**Aspiration Precautions:**

- Ask client about difficulties with swallowing or chewing various textures of food.
- Inspect mouth for pockets of food.
- Elevate HOB for meal so that hips are flexed at a 90-degree angle and head is flexed slightly forward, or have patient sit in a chair to eat
- Offer thicker foods and assess client for signs or symptoms of difficulty swallowing.
- If client manages thicker foods without difficult, proceed gradually with foods of thinner consistency.
- Remain with client’s who have difficult swallowing or at risk for aspiration during meals.
- Have suction available.
- Have client remain sitting upright for at least 30 minutes after the meal.

**Management of aspiration:**

- If client is able to breathe or speak without difficult and to cough forcefully, no immediate intervention is necessary. Remain with the client until resolved.
- If client is unable to breathe or speak, perform the *Heimlich Maneuver*. If client collapses and loses consciousness institute BLS and call a Code.
- Signs and symptoms of foreign body airway obstruction requiring immediate intervention include:
  - Cardiac: irregular pulse, rapid, or slow pulse, cyanosis.
  - Respiratory: irregular breathing pattern; choking; gagging; rapid or slow shallow breathing; apneic breathing periods; high pitched inspiratory noises (crowing type stridor; wheezing, inability to forcefully, effectively cough; inability to cough at all; inability to speak; use of accessory breathing muscles; cyanosis;
  - Oral: blood or vomitus in mouth or on face; partially chewed food in mouth; freely floating dentures or non permanent dental work in mouth; tongue in posterior oropharynx.
INTAKE GUIDELINE

BREAKFAST

- Cereal 25%
- Juice/or Fruit 15%
- Milk 20%
- Coffee 0%
- Main Plate/Entree 40%
- Eggs alone 30%
- Breakfast Meat and Hashbrowns 20%
- Toast 10%
- French Toast or Pancakes 40%
- Breakfast Meat 10%

LUNCH/DINNER

- Soup/Salad or Juice 10%
- Milk 20%
- Bread & Butter 10%
- Main Plate = 50%
- Vegetable Starch 10% 15%
- Meat
- Protein Contributor 25%
- Casserole = Meat/Starch = 40%
- Sandwich (meat and bread) = 50%

Fluids:
- Milk - 8oz - 240cc
  - 4oz - 120cc
- Juice - 4oz - 120cc
- Soup - 5oz - 150cc
- 8oz - 240cc
- 6oz - 180cc

Water Pitcher _______cc
- Pitcher cup _______cc
- Jello - 120cc
- Ice Cream - 90cc
- 1oz - 30cc
- 1Tbsp - 15cc
- 1Tsp - 5cc
**RESIDENT CONSUMPTION CHART**

Directions: Record amount of the total meal consumed using the following guidelines.

<table>
<thead>
<tr>
<th>Percentage</th>
<th>Description</th>
<th>Diagram</th>
</tr>
</thead>
<tbody>
<tr>
<td>0%</td>
<td>REFUSED</td>
<td>Refused meal completely, or consumed only one or two bites.</td>
</tr>
<tr>
<td>25%</td>
<td>POOR</td>
<td>Very little, approximately 25%, of meal is consumed.</td>
</tr>
<tr>
<td>50%</td>
<td>FAIR</td>
<td>Approximately half of food is consumed.</td>
</tr>
<tr>
<td>75%</td>
<td>GOOD</td>
<td>Majority, approximately 75%, of the meal is consumed.</td>
</tr>
<tr>
<td>100%</td>
<td>ALL</td>
<td>Entire meal is consumed except for a few bites of food.</td>
</tr>
</tbody>
</table>

Consumption of regular meals is best, but the addition of supplements or high calorie foods may be necessary to reach adequate nutrition levels in some residents. If additional supplementation is needed, Novartis Nutrition offers a wide variety of nutritional products.
The Stroke Resident

<table>
<thead>
<tr>
<th>LEFT SIDE PARALYSIS</th>
<th>RIGHT SIDE PARALYSIS</th>
</tr>
</thead>
<tbody>
<tr>
<td>2. Place one dish at a time within visual field.</td>
<td>2. Place whole tray within visual field.</td>
</tr>
<tr>
<td>3. Recognizes utensils.</td>
<td>3. May not recognize utensils (use only 1 at beginning if indicated).</td>
</tr>
<tr>
<td>4. Staff placement to not interfere with concentration.</td>
<td>4. Staff placement in front of resident.</td>
</tr>
<tr>
<td>5. Eats best while learning in small group or quiet area.</td>
<td>5. May benefit from watching others eat.</td>
</tr>
<tr>
<td>7. Provide verbal feedback.</td>
<td>7. Provide feedback with gestures and facial expressions.</td>
</tr>
<tr>
<td>8. Refocus resident's attention on eating activity.</td>
<td>8. Provide short rest periods during eating process.</td>
</tr>
<tr>
<td>9. May pocket food on left side.</td>
<td>9. May pocket food on right side.</td>
</tr>
</tbody>
</table>
SWALLOWING PRECAUTIONS

1. You must sit in a chair or completely upright in bed for all eating and drinking (at 90 degrees).

2. Clear your throat of any mucous before the meal, if possible.

3. Eat and drink slowly. No talking.

4. Take a sip and swallow twice.

5. Check your voice often to be sure your throat is clear of food and liquid. Clear your throat if needed.

6. If you cough, stop eating or drinking until your throat feels clear and you can breathe easily.

7. Stay sitting up for 20 minutes after eating or drinking.
WEEK 5

WEEK 5: Moving, Positioning, Transferring, and Ambulating Patients Safely.

1. Positioning, Transferring, and Ambulating Patients Safely: Review of principles of body mechanics. Discussion of assessments to be done prior to moving patients. Demonstration and practice of techniques for safely moving patients in bed, transferring patients in and out of bed, ambulating patients.

   Student Preparation
   - Read Week 4 of the NE 101 Syllabus, section on Positioning, Transferring, and Ambulating Patients Safely.
     - Mobility and Safety
     - Safety: Fall Prevention
     - Fall Risk Tool and Risk for Falls Assessment Tool
     - Assessments to Make Prior to Transferring and Positioning Patients
     - Progressive Mobilization Care path: Kaiser Permanente, San Rafael
     - NurseWeek.com article: “Size Matters”
   - Read Perry, A.G. and Potter, P. A. Clinical Nursing Skills & Techniques.
     - Chapter 9: Safe Patient Handling, Transfer, and Positioning
     - Chapter 10: Exercise and Ambulation

   Student Lab Practice
   - Practice Exercise on
   - Skill Performance Check-List: Moving a Partially Mobile Client Up in Bed
   - Skill Performance Check-List: Moving a Partially Mobile or Immobile Client Up in Bed Using a Pull Sheet or Draw Sheet
   - Skill Performance Check-List: Transferring a Client from Bed to Wheelchair, Commode, or Chair*
   - Practice: Using Arjo “Maxi Move” Patient Lift

2. Student Skill Check-offs (skills introduced and practiced during the previous weeks):
   - Skill Performance Check-list: Vital Signs (Skill Performance Check-list: Temperature Pulse, Respirations, BP, and Pain*; Skill Performance Check-list: O2 Saturation*)
   - Skill Performance Check-list: Measuring, Documenting, and Analyzing Intake and Output*
Mobility and Safety

Whenever a client’s mobility is limited, whether by condition (e.g., a neurological or musculoskeletal condition), symptoms (e.g., pain, shortness of breath), or by treatment (e.g., a sedating medication, a surgical procedure in which the client is immobilized for a long period, the presence of a cast, brace, dressing, tube) the patient is at risk for the problems of immobility. One of the major focuses of the nurse in on promoting maximum mobility while maintaining safety.

The maintenance of safety and prevention of problems associated with immobility is a major focus for nurses in surgical settings. Pre-operative teaching about the importance of post-operative exercises, including coughing, deep breathing, use of an Incentive Spirometer, turning, and leg exercises, and the importance early ambulation are important to prevent circulatory and respiratory post-op complications.

Safety: Fall Prevention

Health promotion and illness prevention involve maintaining the client’s safety in the home, the community, and the health care environment. Promoting safety reduces length and cost of treatment, the frequency of treatment-related accidents, the potential for lawsuits, and the number of work-related injuries to personnel.

The death rate from falls increases noticeably at about the age of 70 and continues to increase with age. Falls are the leading cause of injury in hospitalized older adults. Injuries to older adults from falls can be related to:

- Cognitive, e.g. confusion, impaired memory or judgment, inability to understand or follow directions
- Physiological changes occurring because of the aging process, e.g., motor, sensory, or cognitive changes, e.g., visual acuity, unsteady gait,
- Pathological conditions, e.g., CVA, arthritis, Parkinson’s Disease
- Medication
- Environmental hazards.

Ideally, nurses should design fall prevention programs and a restraint free environment. However, sometimes clients at risk for injury from falling or other injuries may need to be temporarily restrained, and the nurse must follow agency specific policies. However, it is important to realize that restraints do not necessarily reduce falls. In fact studies have show that clients may suffer fewer injuries if left unrestrained.

A safe environment is one in which client’s basic needs are met, physical hazards are reduced or eliminated, transmission of microorganisms is reduced and sanitary measures are carried out. A fall prevention program includes: assessment, teaching, supervision and monitoring, and management or removal of environmental hazards.
**Fall Risk Tool**

**Directions:** Place a check in front of any element that applies to your client. A client who has a check mark in front of any of the first four elements would be identified as at risk for falls. In addition, when a high-risk client has a check mark in front of the element, “Use of a wheelchair,” the client is considered to be at greater risk for falls.

- Unsteady gait/dizziness/imbalance
- Impaired memory or judgment
- Weakness
- History of falls
- Use of a wheelchair

**Teaching**

- Explain and demonstrate call–light/intercom system at bedside and in bathroom (near toilet and shower.) Consistently secure call-light to an accessible location and show patient where it is.
- Post reminder signs for personnel and for clients, e.g., “Ambulate with assistance only” and “Call, Don’t Fall.”
- Provide clear instructions to clients and families about mobility restrictions, ambulation and transfer techniques. Evaluate need for assistive devices such as walker, cane, bedside commode.
- Explain safety measure to prevent falls—well fitting, flat footwear.
- Explain the two major purposes of side-rails to the client and family: to prevent falls and to aid turning self in bed.
- Provide all clients with non-skid footwear.
- Ask clients to identify safety risks.

**Supervision and Monitoring**

- Make every effort to meet client’s needs quickly.
- Place at risk clients who are unable to cooperate with instructions or appropriately request help in a room that is easily accessible to and allows frequent observation by caregivers.
- Provide scheduled toileting.
- Use electronic devices, e.g., bed alarms and electronic wandering devices to alert personnel to patients who are getting out of bed or wandering.
- Encourage family members to stay with confused clients who are at risk for falls, or obtain an order for a sitter.

**Room Environment**

- In general, keep the two top side-rails up and the bed in the low position with bed wheels locked when client care is not being administered and especially when client is an older adult, weak, confused, sedated or sleeping. (Providing beds low to floor can reduce risk of falls.)
- Check agency policies regarding side rails use. (Side rails may be considered a restraint device when used to prevent client from getting out of bed.)
- Provide adequate lighting. Use night-lights or leave a bathroom light on.
- Ensure pathway to bathroom is clear: avoid having electrical cords blocking pathway, remove unnecessary objects and equipment, pick up litter and clean up spills immediately (liquid and powder spills).
- Position intravenous catheters and other tubes on side of bathroom or commode.
- Arrange objects in a logical way placing them consistently in easy to reach locations.
Risk for Falls Assessment Tool
(Adapted from Potter and Perry, Clinical Nursing Skills & Techniques, 6th edition.)

Tool 1: Risk Assessment Tool for Falls

Directions: Place a check mark in front of elements that apply to your client. The decision of whether a client is at risk for falls is based on your nursing judgment. Guidelines: A client who has a check mark in front of an element with an asterisk (*) or four or more of the other elements would be identified as at risk for falls.

General Data
_____ Age over 60
_____ History of falls before admission*
_____ Postoperative/admitted for surgery
_____ Smoker

Physical Condition
_____ Dizziness
_____ Unsteady gait
_____ Disease/problems affecting weight-bearing joints
_____ Weakness
_____ Paresis
_____ Seizure disorder
_____ Impairment of vision
_____ Impairment of hearing
_____ Diarrhea
_____ Urinary frequency/incontinence

Mental Status
_____ Confusion/disorientation*
_____ Impaired memory or judgment
_____ Inability to understand or follow directions

Medications
_____ Diuretics or diuretic effects
_____ Hypotensive or central nervous system suppressants (e.g., narcotics, sedatives, psychotropics, hypnotics, tranquilizers, antihypertensives, antidepressants)
_____ Medications that increase gastrointestinal motility (e.g., laxatives)

Ambulatory Devices Used
_____ Cane
_____ Crutches
_____ Walker
_____ Wheelchair
_____ Geriatric chair
_____ Braces
Assessments to Make Prior to Transferring and Positioning Clients

Prior to transferring or moving a patient, assess:

a. Physiological capacity:
   - Muscle strength
   - Joint mobility
   - Paralysis or paresis
   - Bone continuity (fractures, amputation)
   - Dizziness and postural hypotension
   - Endurance and fatigue

b. Cognitive capacity:
   - Ability to follow instructions
   - Short-term memory
   - Appropriateness of response

c. Sensory status:
   - Vision: central and peripheral
   - Hearing
   - Sensation

d. Level of comfort
   - Pain
   - Shortness of breath
   - Dizziness/vertigo
   - Weakness/fatigue
   - Nausea/vomiting/diarrhea
   - Fever/chills

e. Psychological status
   - Motivation

f. Previous mode of transfer

g. Assistive devices and equipment needed
Practice Exercises on Safety, Fall Precautions, and Transferring and Positioning Clients

1. Your patient has just suffered a fall. Lists the steps you would you take.

2. The instructor will provide you with a case study. Use the information provided to complete a Risk for Falls Assessment.

3. The instructor will provide a set-up in the lab. You are to find and list all of the safety problems.

4. Practice transferring and positioning clients in the following situations using proper body mechanics.
   a. Your patient needs to go to radiology for a chest x-ray. The patient has an IV, an NG tube, O2 via nasal prongs, and a Foley catheter. Demonstrate transferring a patient from the bed to a gurney who is unable to move him/herself.
   b. Your patient, who has suffered a Right CVA and has left-sided weakness, wants to get up to the commode. Demonstrate how you would transfer the patient to the commode.
   c. Your one-day post-op appendectomy patient needs to be ambulated. The patient has an IV and a Foley catheter. Demonstrate how you would get the client out of bed.
   d. You are bathing a patient who has had a Right total hip replacement and is wearing TED stockings. Demonstrate how you would bath the patient and reposition the patient in bed.
   e. You have a patient who has slid out of the wheelchair onto the floor. Demonstrate how you would get the patient back in bed. Demonstrate how you would get the client back into the wheelchair and prevent him/her from sliding out again.
   f. On initial rounds, you find your elderly patient with pneumonia lying scrunched up near the foot of the bed. Demonstrate how you would reposition the patient for best aeration and comfort.
   g. Demonstrate how you would best position your patient who has had a left above the knee amputation.
   h. Your patient has pneumonia and shortness of breath, and a history of a CVA with right hemiplegia. Demonstrate positioning and transferring techniques for this patient.
   i. Your patient has skin breakdown/decubitus ulcer on the sacral area, and redness on both ankles and heels. Position the patient to decrease pressure on these areas.
   j. After having a lumbar puncture, your patient is to be kept lying flat for 6 hours to prevent a spinal headache. Demonstrate proper positioning.
   k. Prior to a colonoscopy, your patient needs to be prepped with a tap water enema. Demonstrate the proper positioning for administering an enema.
Skill Performance Check-list:
Moving a Partially Mobile Client up in Bed

Student Name:___________________________________ Date:__________________________

_____1. *Wash your hands.

_____2. Provide privacy for the patient.

_____3. Tell the patient what you are going to do, and assess the patient’s ability to assist with and understand the transfer.

_____4. *Lock the brakes of the bed, raise the bed to a comfortable working height, and lower the side rail on the side of the bed on which you are working.

_____5. *Assess for contraindications, and ask patient about his/her ability to tolerate lying flat, prior to lowering the head of the bed so that the bed is flat.

_____6. *Remove the pillow from under the patient’s head and shoulders and place the pillow at the head of the bed.

_____7. *Ask the patient to fold his/her arms across his/her chest.

_____8. Ask the patient to flex his/her knees with feet flat on the bed.

_____9. Face the head of the bed with your feet apart. The foot nearest to the side of the bed is behind the foot that is farthest from the bed, and it is the foot you will rock back onto as you shift your weight during the move.

_____10. Standing close to the bed with the knees and hips flexed, place one arm under the patient’s head and shoulders and one arm under thighs.

_____11. Instruct the patient how to assist you with moving up in bed by his/her flexing neck, tilting the chin toward chest to lift if off the bed, and by bending knees and pushing down with feet on bed surface to lift body and propel it up in bed.

_____12. Instruct patient that move will occur on the count of 3.

_____13. *Give the count “1-2-3,” and on “3,” rock and shift your weight from the foot that is nearest to the foot of the bed to your foot that is nearest the head of the bed at the same time as the patient pushes with heels and elevates trunk and you assist with your arms under the patient’s head and shoulders and under the patient’s thighs.

_____14. Adjust pillow under patient’s head and shoulders, and place the patient in correct body alignment.

_____15. Adjust the bed and use additional pillows to support the patient in the proper position.

_____16. *Cover the patient, put the side rails up, return the bed to the low position, and place the nurse call-light within easy reach of the patient.

_____17. Wash your hands.

Score_________________ Instructor: ____________________________

Estimated time to complete the skill: 5 minutes
Skill Performance Check-list:
Moving a Partially Mobile or an Immobile Client up in Bed
Using a Draw-sheet or Pull-sheet

Student Name: ____________________________ Date: ________________________________

   1. *Wash your hands.
   2. Provide privacy for the patient.
   3. Tell the patient what you are going to do, and assess the patient’s ability to assist with and understand the move.
   4. Position one nurse on each side of the patient.
   5. *Lock the brakes of the bed, raise the bed to a comfortable working height, and lower the side rails.
   6. *Assess for contraindications, and ask patient about his/her ability to tolerate lying flat, prior to lowering the head of the bed.
   7. *Remove the pillow from under the patient’s head and shoulders and place the pillow at the head of the bed.
   8. *Place a draw-sheet or pull-sheet under the patient by rolling the patient from side to side. The draw-sheet should be placed so that it extends from the patient’s shoulders to thighs. (If the client is extremely tall and/or heavy, consider decreasing the workload by reducing friction through the placement of a plastic bag between the pull-sheet/draw-sheet and the top sheet.)
   9. *Grasp the draw-sheet or pull-sheet firmly, holding the sheet close to the client for better leverage.
   10. Each nurse should stand with feet apart, in forward-backward stance, facing the head of the bed, with knees and hips flexed.
   11. Show the patient how to assist you with moving up in bed during the move by: crossing his/her arms over chest, tilting the chin toward his/her chest, lifting the head off the bed, and bending knees and pushing down with feet on bed surface to lift body and propel it up in bed.
   13. Inform the patient that move will occur on the count of “3.”
   14. *After ensuring that the patient’s arms are crossed over his/her chest, and that the client is ready to assist, as possible, with moving in bed, give the count “1-2-3.” On “3,” rock and shift your weight from front to back leg as you lift the client with the draw-sheet or pull-sheet to the desired position in bed.
   15. Adjust the pillow under patient’s head and shoulders, and place the patient in correct body alignment.
   16. Adjust the bed and use additional pillows to support the patient in the proper position.
   17. *Cover the patient, put the side rails up, return the bed to the low position, and place the nurse call-light within easy reach of the patient.
18. Wash your hands.

Score __________  Instructor: ____________________________

Estimated time to complete the skill: 5 minutes
Skill Performance Check-list:

Transferring a Client from Bed to Wheelchair, Commode, or Chair*

Student Name: ___________________________________ Date: ___________________________________

_____ 1. Inform client about desired purpose and destination.
_____ 2. Assess client for ability to assist with and understand the transfer.
_____ 3. *Lock the bed in position.
_____ 4. Raise the bed to a comfortable working height.
_____ 5. Apply any necessary splints, braces or other devices on the client.
_____ 6. *Place shoes or non-skid slippers on the client’s feet.
_____ 7. Slowly raise the head of the bed (if this is not contraindicated).
_____ 8. Place an arm under the client’s legs and behind the client’s back. Pivot the client so he is sitting on the edge of the bed.
_____ 9. Lower the height of the bed to lowest position appropriate to client.
_____ 10. *Allow the client to dangle for 2-5 minutes.
_____ 11. *Place the chair or wheelchair at a 45 degree angle close to the bed.
_____ 12. *Lock wheelchair brakes and elevate the foot pedals.
_____ 13. *Place gait belt/transfer belt around the client’s waist (if needed).
_____ 14. Assist client to side of bed until feet are firmly on the floor and slightly apart.
_____ 15. Grasp the sides of the gait belt or place your hands just below the client’s axilla. Bend your knees and assist the client to a standing position.
_____ 16. *Standing close to the client, pivot until the client’s back is toward the chair.
_____ 17. Have client place hands on the arm supports.
_____ 18. *Bend at the knees, easing the client into a sitting position.
_____ 19. Assist the client to maintain proper posture.
_____ 20. *Secure the safety belt, place client’s feet on foot pedals, and release brakes to move client. If the client is sitting in a chair, offer a footstool, place over-bed table with client essentials (e.g., telephone water, Kleenex, etc.) within reach and provide call bell.
_____ 21. Wash hands.

Score __________ Instructor: ____________________________

Estimated time to complete the skill: 20 minutes
# PROGRESSIVE MOBILIZATION CAREPATH

**Kaiser Permanente, San Rafael**

All patients will be placed on this path unless MD writes order otherwise. Activity progression is based on patient acuity, functional ability, or diagnosis.

- When there is an increase in patient acuity/change in status, stop progressive mobilization and obtain patient activity orders from MD.
- When patient is unable to progress per carepath and/or toward pre-hospital level of mobility, a PT consult is obtained.
- Documentation: Caregiver must chart patient activity, tolerance, time and distance ambulated in the 24-hour flowsheet.
- Ambulation assessment includes: mobility status, level of assistance, LOC, VS, muscle tone & strength, sensory deficits, pain management, and need for assistive device.

**DATE OF ADMISSION:**

**PRE-HOSPITAL LEVEL OF MOBILITY:**

**Goals:**
1. Maintain or improve patient's baseline functional status
2. Ambulate patient safely and effectively
3. Improve overall functional ability
4. Prevent or reduce complications from immobility
5. Reduce Length of Stay
6. Maintain skin integrity

## DATE

<table>
<thead>
<tr>
<th>Pre-Hospital Level (circle one)</th>
<th>Admit/Day 1</th>
<th>Day 2</th>
<th>Day 3</th>
<th>Day 4</th>
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**BRP/Bedside commode with assistance**

- BRP as tolerated
- Up in chair for meals as tolerated
- Ambulate in hall QID

- BRP
- Up in chair for meals
- Up Ad Lib (min. 20 yds)

**Documentation Code:** ✓ = Achieved  - = Variance  0 = Not Applicable

Progressive Mobilization Carepath

3/9/00
Size Matters
To help nurses prevent injury and safely care for obese patients, more facilities are heeding the call for specialized bariatric equipment and lift teams

By John Leighty
October 2, 2003

Jill Arzouman, MSN, RN, has helped develop hospital protocols for handling severely obese patients, but no longer assists in moving people who weigh more than 300 pounds.

"I have a bad back, not from moving any one patient, but from doing it over a number of years," said Arzouman, an advanced practice clinical nurse specialist at the University Medical Center in Tucson, Ariz., just can't lift heavy patients."

Arzouman is not alone. When it comes to risk for back injuries, nurses aids and assistants rank the highest above construction workers-and RNs, LPNs and VFNs, health aides and physical therapists are high on the list. According to the Bureau of Labor Statistics.

The problem is that the nation's population is getting heavier, and the number of people considered morbidly obese-100 pounds or more overweight-is soaring. The added weight puts a strain on hospital systems that install special beds, lifts, scales, wheelchairs and other equipment to accommodate the needs of the obese.

Some diagnostic facilities are not able to serve the morbidly obese, which results in a lack of preventive imaging services available to a portion of the bariatric population-patients with a body mass index of 35 or greater.

A growing need

When more overweight patients began to show up at University Medical Center and strain staff resources, a multidisciplinary team was formed to come up with solutions. Co-chaired by Arzouman and Jane Lacovara, MSN, RN, who also share clinical duties, the panel developed a set of protocols for handling a range of issues that involve obese patients.

"Overweight patients can put employees at risk of being hurt," Lacovara said, "so it's very important when a bariatric patient is admitted that the hospital gets the proper equipment for handling them. We want to prevent employees from back injuries and strains."

Lacovara said staff at the 355-bed hospital could quickly customize a "bariatric room," where everything is larger than normal. The room would have an oversized bed, chair, toilet and access to an overhead mechanical lift if extra equipment is needed, the hospital contracts with an outside vendor to supply it on short notice.

The protocol includes a set of preprinted orders that can be easily followed by the hospital's 713 nurses. For example, if a patient's abdominal girth is a certain size, or if a patient has pulmonary problems, then specific...
equipment must be obtained. "Everything is laid out for them so they don't have to memorize the proced,
Lacovara said.

In most cases, a clinical nurse specialist coordinates the patient's needs through consultations with a nutri
pharmacist and social services. Case management for the patient's discharge needs is set up at the time of
admittance.

Heavy duty

At Kaiser Permanente, special two-person "lift teams" have been trained to handle the increase of heavy
patients at the managed care organization's hospitals throughout California.

Dale Thompson, a workplace safety expert with Kaiser Permanente's Southern California region, said the
are on duty from 5 a.m. until about 8 p.m. in order to help with weigh-ins in the morning and to make sur
patients are secure for the night. The teams often handle between 30 and 35 lifts a day, using special equi

"If the use of lift teams can prevent two or three staff injuries, this can save a significant amount of mone
Thompson said. "The equipment is expensive, but it lasts for years."

Thompson said one study of San Diego area emergency departments showed an average of one 350-pound
patient visit per week. The study prompted Kaiser's San Diego facility to install a gurney in its ER that can
handle a 500-pound patient and a mechanized bed for someone weighing up to 1,000 pounds.

The lift team concept and procedures for handling morbidly obese patients was developed in a labor-
management partnership, and the results have been outstanding, Thompson said.

"We've seen a 46 percent reduction in nursing staff injuries in the second quarter of this year, so the lift tu
have had a tremendous effect, and I think we can do much better."

SizeWise Rentals, a Kansas City, Mo., company that provides bariatric rehabilitation equipment rentals
nationwide, is expanding to meet the demand for beds, lifts and wheelchairs that can handle weight capac
of up to 1,000 pounds.

Susan Gallagher, MSN, CNS, RN, a clinical nurse specialist who does educational outreach for SizeWise
she encourages hospitals to develop protocols and competencies for handling obese patients. At the foref
should be preplanning for a bariatric patient's arrival, based on the patient's weight, degree of immobility
pain, the need for special IV procedures and other factors.

"The equipment is great because it helps prevent clinical complications and reduces injuries to nurses and
caregivers doing patient transfers," Gallagher said. "But this is just the beginning of what is needed for ef
bariatric care."

Skilled nursing homes that provide long-term care can find themselves stretched thin by having a bariatri
patient, said Cindy Forbis, MHA, RN, administrator of The Bluffs in Columbia, Mo.

An example is a 68-year-old woman who weighed 275 pounds when admitted to the 120-bed facility three
years ago and now tips the scales at 385 pounds. She requires a private room, a full-size bed instead of th
typical twin and an extra-large shower chair. An electronic lift is also needed for transfer purposes.

"We've had employees injured working with obese residents. If someone 375 pounds starts to fall, there's

http://www.nurseweek.com/news/features/03-10obesity_print.html

10/8/03
way you're going to stop them. If you try, you're going to get injured, and we've had that happen." Nurse health aides' injuries have included back strain, shoulder strain and a foot injury when a lift tipped over.

Because most nursing home patients are Medicare recipients, reimbursement rates don't adequately cover cost of care for most residents, let alone those who are morbidly obese, usually elderly and often immobile, Forbis said.

As a result, the admissions criteria for the facility are being revised to exclude patients who weigh more than 350 pounds, Forbis said. "This is unfortunate, but we can't pull from the resources of all the other residents there were better reimbursement, we could justify having bariatric patients."

Group Effort

At Providence Hospital in Southfield, Mich., emphasis is placed on treating medical conditions related to obesity-breathing problems, apnea, lung disease-and in assessing the risk of patients becoming immobile.

Nurses also are trained annually in the mechanics of moving heavy patients, said Diane Webby, MSN, RN, director of critical care and respiratory therapy at the 459-bed hospital. Although the facility has no formal teams, coordination and teamwork are key in handling a patient weighing more than 250 pounds.

"There's a lot of peer pressure within the nursing group to be sure there's adequate help before moving someone," Webby said. "One thing that's a quick career stopper is a back injury."

Before her role at Providence, Webby had worked in weight management and helped develop a bariatric surgery program at Sinai-Grace Hospital in Detroit. She emphasizes the need to help overweight people maintain their dignity and to have them move about as much as possible to prevent pneumonia, blood clots and infection from being immobile.

"We need to get patients up and moving, and we need to do that safely," Webby said. She said the hospital mechanized beds for those 350 pounds or heavier that will allow patients to stand up and walk directly off beds so they don't lose their balance.

Webby said there's a social stigma to being morbidly obese that prevents many people from seeking treatment including bariatric surgery. She would like to see this change now that being overweight is becoming a nation health crisis.

"Americans are getting bigger and bigger, and obesity will kill you or lead to premature death," Webby says. "The tendency to get obese is one of our most important health issues."

Kay McVay, RN, president of the California Nurses Association, said the union's bargaining committees are asking for the establishment of lift teams similar to Kaiser's in every new hospital contract negotiation.

"I don't think I know of a nurse who has worked more than five years who hasn't had a shoulder, neck or injury of some kind-it comes with the territory," McVay said. "I've worked in nursing 47 years and have them all."

She said the CNA also is drawing attention to the need for special pressurized beds that rotate so the patient doesn't have to be physically turned and that redistribute weight to prevent skin breakdown. Mechanized beds also can move heavy patients from a prone to an upright position so they can stand up more easily.


10/8/03
Although some changes to accommodate obese patients are expensive in the short term, they pay off over the long term, McVay said.

"It takes between $40,000 and $60,000 to bring in a new nurse and get them up to par, so you don't want nurses to hurt," McVay said. "The better a hospital takes care of its RNs, the more profitable that facility will be.

Contact John Leighty at johnsan@aol.com
WEEK 6

WEEK 6: Preparation for Medication Administration and Introduction to Medication Administration Skills and Techniques

1. Preparation for Medication Administration: Discussion of medication orders, legal prescribers, types of medication orders, components of medication orders, commonly used and “do not use” abbreviations, 24 hour clock, MARs, scheduling administration times, documentation of administration and of holding medications.
   
   **Student Preparation**
   - Read Week 6 of the NE 101 Syllabus, section on Preparation for Medication Administration
   - Read Perry, A.G. and Potter, P. A. Clinical Nursing Skills & Techniques.
     - Chapter 20: Safe Medication Administration
   
   **Student Lab Practice**
   - Practice exercise reading, interpreting, transcribing a medication order onto an MAR, and scheduling the medication administration times

2. Medication Administration Skills and Techniques: Introduction to methods and equipment used for medication administration by various routes, including:
   - Med carts and Pyxis machines
   - soufflé and med cups
   - pill cutters and crushers;
   - needles (various gauges and lengths); filter needles
   - syringes: luer-lock syringes and Toomey/Irrigation syringes; TB syringes; insulin syringes;
   - Carpuject/Tubex holders and pre-filled syringes.
   
   **Student Preparation:**
   - Read Week 6 of the NE 101 Syllabus

   
   **Student Preparation:**
   - Review Skill Check-off for Administration of PO Medications*
   
   **Student Practice:**
   - With a buddy, practice administering an oral medication and charting it using the Skill Check-off for Administration of PO Medications. Use the

4. Student Skill Check-offs (skills introduced and practiced during the previous weeks):
   - Skill Performance Check-list: Vital Signs (Skill Performance Check-list: Temperature Pulse, Respirations, BP, and Pain*; Skill Performance Check-list: O2 Saturation*)
   - Skill Performance Check-list: Measuring, Documenting, and Analyzing Intake and Output*

5. HOMEWORK (for Week 7): Complete Homework Assignment: Practice Researching Medications
   - Identifying Relevant Drug Information
   - Steps in Looking Up Your Patient's Medications
   - Legal Responsibilities of the Nurse Administering Medications
   - When Your Patient Refuses to Take Medications
   - Drug Errors and Injuries: Legal Implications
   - Medication Administration Guidelines and Safety Tips
   - Controlled Substances
   - Systems of Drug Measurement
   - Calculating Drug Dosages for Children
Homework Assignment: Practice Researching Medications
In Class Assignment: Practice Interpreting, Transcribing, and Scheduling Ordered Medications
Skill Performance Checklist: Administration of Oral Medications*
Assessing and Promoting Optimal Management of Diabetic Patients
Skill Performance Checklist: Measuring Capillary Blood Glucose Levels Using a Glucometer
Skill Performance Checklist: Administration of Subcutaneous Insulin*
Skill Performance Checklist: Mixing NPH and Regular Insulin and Administering SQ
Skill Performance Checklist: Reconstitution of Medication From Powder to Liquid*
Skill Performance Checklist: Administering SQ Injections (Heparin or enoxaparin/ Lovenox)
Site Selection for IM Injections
Administering Medication via Z-track Intramuscular Injection
Skill Performance Checklist: Administering IM Injections

Course Objectives:

At the end of this portion of the course the students will be able to:

1. Prepare and administer drugs safely to all age groups in all of the following routes: oral, buccal, sublingual, intramuscular, subcutaneous, intradermal, vaginal, rectal, and topical.
2. When preparing and administering drugs:
   a. Demonstrate knowledge of aseptic technique.
   b. Follow the Six Rights of medication administration.
   c. Report and record information accurately.
3. Utilize categories of drug information (name, classification, action, indication, route, dosage, contraindications, side-effects, toxic effects, antidotes, and nursing implications), to safely prepare and administer any drug.
4. Apply knowledge of drug interactions to clinical situations.
5. Assess for adverse, idiosyncratic, allergic, toxic, and delayed drug reactions in clients.
6. Teach the individual information related to his/her drug therapy.

Clinical/Lab Objectives:

1. Demonstrate knowledge of any drug you are assigned to administer to a patient by correctly identifying information on a drug card.
2. a. Calculate accurately fractional dosages using metric, household and apothecary systems.
   b. Calculate pediatric doses of medications based on mg/Kg or BSA formulas.
3. Convert dosage from one measurement system to another utilizing both mathematical calculation and a standardized conversion table.
4. Determine compatibility of parenteral drugs prior to preparation.
5. Demonstrate knowledge of Universal precautions and aseptic technique in the preparation and administration of medications.
6. Demonstrate knowledge of the Five Rights in preparing and administering medication.
7. Select a safe site for administration of a parenteral medication to an assigned pediatric, adult, or elderly patient or classmate in the college laboratory by utilizing anatomical landmarks.
8. Demonstrate skill in preparing parenteral medications by correctly drawing a medicine from a vial or an ampoule, and by preparing a Tubex syringe.
9. Demonstrate correct technique in administering drugs by the following routes: oral, buccal, sublingual, intramuscular, subcutaneous, intradermal, vaginal, rectal, topical (skin, eye, or ear) for patients of all age groups.

10. Consider the physical and emotional development of children that influence their feelings about taking medications when (a) preparing a child for an I.M. or oral medication, and (b) administering the medication.

11. Carry out necessary nursing implications specific to certain drugs prior to their safe administration.

12. Accurately record, according to hospital policy, any medications administered, or withheld.

13. Report and record observed or patient stated response to administered drugs.

14. Assess the need for withholding a drug for a specific patient with the assistance of instructor or team leader.

15. Record and administer controlled substances according to hospital policy.

16. Utilize appropriate patient safety measures following the administration of narcotics and hypnotics.

17. Assess reasons for a given patient's refusal to take medications by using therapeutic communication techniques; report and record the situation appropriately.

18. Demonstrate correct technique in preparation and administration of two drugs in a syringe, e.g.: preoperative medications, pain medications, and insulin.

**Passing Medications in Clinical**

During the NE 135L clinical rotation, students may begin administering oral, topical, and SQ medications with the instructor’s or an RN’s supervision if the student has met the following criteria:

1. Passed (score of 90% or higher) the NE 138 Medication Dosage Calculation Exam, and
2. Been checked off on the appropriate medication administration competency in the NE 101 Skills Lab. (Students will not be administering IV push or IVPB medications during this rotation), and
3. Developed a patient care plan that includes a summary of the pathophysiology and treatment of the patient’s major medical diagnoses and the appropriate research on the patient’s medications.

Because medication administration is time consuming and requires careful direct supervision, not every student who has met the criteria will be able to pass medications during each clinical day. However, the NE 135L clinical instructors will endeavor to provide at least one opportunity for all students who have met the criteria to pass medications sometime during the NE 135L clinical rotation. (Whether or not the student has met the criteria and will be passing medications to their patients, each student in NE 135L will be expected to research all of the prescribed Routine and PRN medications that their assigned patient is receiving and be able to discuss them with the instructor.)
Preparation for Medication Administration:
Identifying Relevant Drug Information

Students often have difficulty sorting out essential nursing information from the vast amount of technical data presented in books, drug inserts, and the Physician’s Desk Reference (PDR). The following is a guide or template for the information that you need to know prior to administering medications. You must have drug information for all medications you administer to your patient.

NAME OF DRUG:

Generic Name: Aspirin
Trade Name: Bayer, Bufferin, Anacin

CLASSIFICATION OF DRUG:

Classified by effect on CNS and peripheral nervous system. Antipyretic, non-narcotic analgesic, anti-inflammatory, large doses (>5g/day) increase uric acid secretion, low doses (< 2g/day) decrease secretion of uric acid.

SPECIFIC ACTION/HOW IT WORKS:

Inhibits plasma prothrombin; effects urinary secretion of uric acid; hypothalamus: sensitizes thermostat to temp.; thalamus: blocks peripheral pain impulses from reaching cortex; antagonizes serotonin and histamine at tissue site.

INDICATIONS/WHAT IT IS USED FOR:

Reduces fever; decreases pain from sources in head, teeth, joints, muscles, skin. Anticoagulant effect in treating thrombophlebitis; analgesic effect in managing the pain in headache, dysmenorrhea, neuralgia, arthritis, acute rheumatic fever, gout. Anti-inflammatory in arthritis.

ROUTE:

PO, PR (veg. oil suppository), chewable; liquid; tablets.

DOSAGE RANGE:

Pediatric: with caution <1 year; under 5 yrs: 1 gr/yr.
Adult: 650 mg (gr x) is a rec. dose. (Some drugs have a safe range of dosages and some only one safe dose.)

(NOTE: Aspirin is one of the few drugs where 1 gr = 65mg instead of 1 gr = 60mg. gr V = 325mg; gr X = 650mg.)

CONTRAINDICATIONS:

Hemophilia, hypersensitivity to salicylates; use with caution with patients will peptic ulcers, with pts. on anticoagulant therapy. Do not use with influenza, varicella, or acute fever in children and adolescents (possible association with Reye’s syndrome

SIDE EFFECTS:

GI: irritates stomach lining -- pain -- bleeding, nausea, vomiting.
GU: orange urine
Neuro:
CV:
Resp:
Integumentary: rash, urticaria (if allergic)
Hormonal:

Often the side-effects listed for a particular drug in a drug reference book numbers twenty or more. Students become alarmed by the amount of information that is cited, i.e., “How can I memorize all of them?” Begin by noting which of the side effects are major and the most common. The most common side-effects are usually listed in italics or bold script. Approach learning the side-effects by categorizing them by body systems – e.g., neurological, cardiovascular, pulmonary, gastrointestinal, genitourinary, musculoskeletal, hormonal, integumentary, etc., rather than trying to remember each symptom.

If you have any questions after consulting the available references, ask your instructor for further clarification.

**TOXIC EFFECTS (Overdose):**

Salicylism: tinnitus, diplopia, NV, GI bleed, dizziness, drowsiness
Salicylic overdose.: CNS changes -- agitation, confusion, lethargy, hyperventilation, petechiae, acidosis, alkalosis, hemorrhage leads to respiratory arrest, convulsion

Toxic effects are an exaggeration of unwanted side effects or obvious life threatening situations such as anaphylactic shock or respiratory failure.

**ANTIDOTES:**

- Vitamin K
- Fluids
- Ipecac
- Milk.

**NURSING IMPLICATIONS IN ADMINISTRATION:**

- List significant interactions with other medications your patient is taking.
- List Precautions and Warning, e.g.:
  - Caution with pregnancy passes placental barrier.
  - Give p meals or with food
- Think about the desired action of the drug and the important side effects to observe for that would lead you to take special actions during the preparation or administration of the drug and/or after giving the drug. Examples of such actions:
  - Check laboratory report for K+ value of patient receiving digitalis, especially simultaneously with a diuretic.
  - Put patient on I and O and daily weights if receiving diuretic therapy.
  - Assess BP, pain level, respiratory rate, and sedation level, before administering narcotic, such as morphine; withhold drug and report to R.N. if patient is lethargic or respiratory rate is below 12/minute.
  - Count apical pulse for the administration of Digitalis; if <60 beats per minute (adult) or <70 beats per minute (child), hold drug and notify team leader/M.D.
Preparation for Medication Administration:
Steps in Looking Up Your Patient's Medications

Pre-Clinical Preparation:

1. Review the nursing history and physician’s history and physical (H&P) for the patient’s drug and allergy history.

2. Review both the Routine (regularly scheduled) and PRN (as needed) medication administration sheets (in the medication book or on the medication Kardex) for your patient(s):

   - Record the medications that have been ordered for the patient. Check:
     - Patient Identification: Name, Age, Medical Record Number, Room Number
     - Medication name (generic or trade name), spelling, and dosage
     - Medication route
     - Administration frequency
     - Administration times (schedule)
     - Date drug was ordered and expires (check for a “Stop Date,” or whether a specific number of doses are to be given)
     - Medication allergies

   If something is illegible, ask the patient’s nurse or the unit clerk to help you, if they do not look TOO busy. As a last resort, ask your instructor in Pre-Clinical Conference to help you. (The faculty feel it is important that you seek interpretations from us.)

   Note any discrepancies between the patient’s drug and allergic history and currently ordered medications.

3. After collecting the data you need to have to prepare to give care to your patient, go home to complete your research. In your medical-surgical textbook, read about your patient’s medical diagnoses and try to see the relationships between your patient’s diagnosis(es) and the medications that have been ordered. Also consider the nursing care problems that your patient has, and look for the relationship between these problems and the medications that have been ordered for the patient.

4. Look up each medication that you will be administering on your shift, as well as the drugs given on other shifts (keep this information separate). Analyze each drug, noting the following essential information on each drug:

   - What is the primary reason this drug is prescribed?
   - Why is my patient getting this drug?
   - Is the dosage ordered within the normal range for this drug?
   - Is the administration route ordered appropriate for this drug, and appropriate for this patient?
   - Are there any drug or food interactions to be aware of?
   - What are the most important side effects and adverse reactions to be aware of?
   - Are there any special considerations (e.g., labs to be monitored, medication to be taken before meals, etc.) to be aware of?

   Cross-reference this information with your pharmacology text.

At Pre-Clinical Conference:

1. Provide your instructor with a list of the medications you will be administering and the times these medications are scheduled to be given. Include any PRN medications that you anticipate
will be given (e.g., patients you note have been requiring frequent pain medication or anti-emetics).

2. Discuss any medication concerns.

**During Clinical on the Nursing Unit:**

1. When you arrive on the unit, re-check the MAR (medication administration record); orders may have changed since you last reviewed it. Check for any new MD orders that may not yet be transcribed onto the medication sheet by looking for the order sheet in the nurse’s box, or checking the chart for recent MD orders. (It is also wise to take the time to review the latest physician Progress Notes. These can help you to learn about recent changes in the patient’s condition and/or physical exam, the result of pertinent diagnostic or laboratory tests, and revisions or anticipated revisions in the plan of care.)

2. Check that all the medications that you will be giving on your shift are present in the medication drawer or cabinet. Take each one out and read the label. If a medication is missing, try to locate it on the nursing unit (at the patient’s bedside, in the refrigerator, in the medication room, in the pharmacy delivery area, or as stock in the Pyxis). If you are still unable to locate the medication, consult with the staff. If necessary, re-order the medication from the pharmacy using the agency’s process.

3. Get change of shift report on your patient as customary on the nursing unit. Introduce yourself to your charge nurse and other team members. Clarify the duties that you will be performing (e.g., that you will be giving ____ medications). Give patient care as usual.

4. Approximately one hour prior to the time that a medication is due, check for NEW MD orders—again! Physicians usually make rounds on their patients once or twice a day (morning and afternoon/evening) and often change orders at that time.

5. Give your medications with your instructor using the “5 Rights.”

6. Document medication administration on the MAR according to hospital policy, as well as the patient’s response.

7. In addition to the required documentation of medication administration in the MAR, consider the advisability of providing further information and clarification about medication administration, particularly changes from routine, through documentation in the nursing notes (check-list and/or narrative notes).

Note: Instructors will ask you for pertinent drug information **each and every time** you are preparing to administer medications to your patient(s). You will not be allowed to administer medications to your patient(s) until you have passed the NE 138 Medication Calculation Test with a score of 90% or higher, have been checked-off in the NE 101 Pharm Lab on PO medication administration, have completed the necessary research for the medications you are administering, and can demonstrate that you are knowledgeable and safe.
Legal Responsibilities of the Nurse Administering Medications

1. Only a registered pharmacist can dispense (furnish drugs on a prescription or supply by any means -- sale or otherwise). Title 22 Health Code Dept. of Health.

   Exception: M.D. or podiatrist, dentist, veterinarian, can furnish drugs to his/her own patients. He cannot sell them, as in a store. He/she must keep records of this. The nurse must not furnish these drugs to patients.

2. Supermarkets can sell non-prescription drugs if they have a brand name. (Pure Food and Drug Law).

3. The R.N. can administer drugs ordered by the M.D. The R.N. cannot label, dispense, package, or repackage drugs, (e.g., pouring from one bottle to another).

   A. Per Section 2725.1, A registered nurse may dispense drug...upon an order by a licensed physician and surgeon when the nurse is functioning within a licensed clinic (as the clinic is defined in the Nursing Practice Act).

   B. Per section 2836.1, A nurse practitioner may furnish drugs (the act of making a pharmaceutical agent or agents available to the patient in strict accordance with a standardized procedure) upon successful completion of BRN requirements and issuance of a number by the board when all of the following apply:

      a. Drugs are incidental to provision of family planning or are furnished incidental to the provision of routine health care rendered to essentially healthy people within the clinics as specified by the board.

      b. The practitioner is following a standardized procedure.

      c. The standardized procedure must spell out which practitioner may furnish drugs, which drugs, under what circumstances, what the physician involvement is, and include a method of evaluation.

      d. The furnishing of drugs occurs under physician supervision.

      e. Does not include controlled substances and the board has certified that the nurse practitioner has completed requirements BRN identified, i.e. 6 month's physician-supervised experience in furnishing drugs and a course in pharmacology covering the drugs to be furnished. Appendix III (continued)

4. All "dangerous" drugs require prescriptions. (Dangerous = unsafe for self-medication). These drugs are identified in state pharmacy acts.* 1965 restricted dangerous drugs: LSD (lysergic acid), DMT (dimethyltryptamine), amphetamines. It is a criminal offense to have these drugs without a prescription.

5. Prescription: Oral or written order for a dangerous drug. Can be written by MD, podiatrist, dentist, veterinarian. On the chart, the M.D.’s order for medication is a prescription. It must be signed by M.D. If telephone order, M.D. must sign within 24 hours. By law all orders must have date, time, route of administration, dose. Nurse practitioners may write prescriptions under the direction of an M.D. (e.g. protocol). They cannot prescribe narcotics.
Note: College of Marin student nurses are not permitted to take telephone or verbal orders for medications. Only an R.N., L.V.N., or licensed pharmacist may accept verbal or telephone orders.

6. **1969 California**: M.D. may authorize an employee to call the pharmacy to prescribe drug. M.D. must give written notice of this person to the pharmacy. Pharmacy must take the name of person calling.

7. Exception to #6: Only the M.D. may telephone narcotics prescriptions.

8. Some states require that the doctor examine the patient before prescribing medications.

9. If there is no pharmacy in the hospital, a pharmacy elsewhere can dispense drugs if doctor or nurse is in the hospital.

10. Nursing Homes are not allowed to keep dangerous drugs in stock. They must get drugs from elsewhere. Or the doctor can put his supply in a controlled (locked) container in his office.

11. What happens if the pharmacist is not in the hospital? There is a drug cabinet not in the pharmacy where drugs are orderly arranged in labeled containers. A certain number are kept in this locked cabinet. A record must be kept of drugs removed.

   An authorized R.N. (supervisor, head nurse) or M.D. may enter the pharmacy if there is no stock. They must state the time, date, and sign for any entrance and state what was taken.

12. By law the R.N. must chart route of administration, date, time, and site.
When Your Patient Refuses to Take Medications

All behavior has meaning. This is a good axiom to remember when your patient refuses his/her medication. It is the nurse’s responsibility to determine the patient’s reason(s) for refusing medications by using therapeutic communication techniques. (If necessary, refer back to your course on therapeutic communication.) The following is a list of common statements offered as reasons for refusal patients. While reading then over imagine what your response would be if your patient said......

“It tastes horrible.”
“There are too many pills here at once.’
“I can't take such a huge pill. I'll choke on it.”
“The medicine makes me sick to my stomach.”
“I'm not taking any more pills until I talk to the doctor.”
“I can’t think straight when I take that pill.”
“I feel too groggy in the morning from these pills.”
“I take my pills in the evening not the morning.”
“I feel sicker on that medicine than I did before.”
“Nothing will make me better, so why bother with those pills of yours.”
“I'm just tired of taking all those pills (or shot). I want a day off.”
“This pain medicine doesn't stop the pain. Get me more or another kind.”
“'I'm afraid if I take any more of that dope I'll get addicted.”
“I don't like putting chemicals into my body.”
“This pill could affect my natural balance.”
“Skip it. I hate shots.”
“These aren’t the pills I usually take. My pills are blue one not pink.”
“Oooh—I’ve taken enough now. I can’t take the rest of those pills.”
“The other nurse just gave me my medicine.”

Some individuals are knowledgeable about their medications and rely on a specific routine; they are distressed when changes are made without explanation. Others become fatigued or sick to their stomach when asked to swallow large numbers of oral medications. Still others have strong beliefs about the dangers of taking medications, may be aware of a particular medicine's unpleasant side effects and feel it's not worth taking the medicine, do not want to get well, or feel all is hopeless. The nurse may have to spend considerable time actively listening to a patient about their concerns and reasons, and providing information and explanations, and/or other interventions to make taking the medication(s) acceptable to the patient.

Patients are often aware the medical professionals have difficulty understanding and accepting someone who elects to remain ill or die. Thus, the person will probably try to 'cover up' this basic reason by a variety of disguised reasons. Clues to look for include apathy or depression accompanied by a reason of refusal that either does not make much sense to the listener or the unexplained.

Steps to take after someone has refused a medication:
1. Reflect back the patient's statement of refusal
2. Begin to gather data
3. Sit down and listen to any feelings the person has about the drug and get details through direct questioning, e.g.:

   “Tell me more.....”
   “How long have you felt nauseated? What relieves it? Do you feel it's associated with food or pills?”
   “What do you think might make taking these medications easier for you?”
   “Can you describe your routine to me?”

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Sometimes the nurse can solve the problem, i.e., by explaining the drug’s action and what the doctor hopes to accomplish, by determining the least objectionable method of taking the medication (e.g., using a liquid or a caplet form of the medication for a pill; administering a pill surrounded by a tablespoon of pudding, ice cream, or jam; “numbing” the taste buds with ice chips and then administering a liquid medication undiluted followed by sips of a good tasting beverage, etc.), or by changing the administration time of the medication. However, if the patient is experiencing a toxic reaction, or the patient continues to refuse the medication the matter should be referred to the team leader and/or doctor for final resolution. Your job is to do the best you can to get the reason and details surrounding the person’s refusal.
Drug Errors and Injuries: Legal Implications

The following are common drug errors that ended with the conviction of the nurse.

- Failing to read the label, therefore gave wrong medication (20% of errors)
- Failing to obtain the route desired by the M.D.
- Giving drug even though there are contraindications for the individual patient. (The nurse must know all side effects - is held responsible for ultimate effects - may refuse to give a med if med would damage the patient.)
- Pouring the wrong drug (give out reducing pills, instead of birth control pills)
- Needle injury.
- Infections from dirty needles
- Giving decomposed drugs (5%)

Other drug errors include:

- Failure to properly identify the patient (19%), including failure to read ID band (15%) and administering the wrong med glass or tray to the patient (4%)
- Missed order (8%) or the patient fails to receive an ordered drug.
- Error in transcription (9%)
- Failed to D/C order (5%)
- Computation/calculation (5%)

Medication errors fall into these major categories:

- omission
- unordered drug
- wrong time
- extra dose
- wrong patient
- wrong dosage information
- wrong dose
- wrong route
- wrong dosage information

Food for Thought

The nurse may be held for criminal negligence if not following the 5 rights. Criminal negligence is failure to act in a manner which would be in the best interest of the patient. It involves being able to distinguish between right from wrong while committing a crime.
Medication Administration
Guidelines and Safety Tips

1. When there is any doubt about the meaning of a medication order written by a physician, contact the physician for clarification.
2. When there is any doubt about a medication order that has been transcribed onto the MAR, go back to the medical record and check the original order. If still in doubt, contact the physician for clarification.
3. Ensure that the patient’s name, room number, current diagnosis, relevant history, and allergies are entered on the MAR.
4. Try to be consistent in transcribing medication orders: the drug name, the drug dosage, the drug administration route, and the frequency.
5. Ensure clear communication. If a drug is not supposed to be started until a specific time or date, indicate this on the MAR (e.g., by drawing a line through the area for documenting times until the correct time to start and/or writing, “first dose due at 1700.”) If there are a specific number of doses of medication to be given, label the MAR in such a way that this is clear (e.g., #2 of 3, #3 of 3). Similarly, if a drug is supposed to be stopped at a specific time or date, indicate this on the MAR (e.g., “stop after 0900 dose on 10/09/07.”) If a drug level is needed prior to or after a drug dose, indicate this on the MAR (e.g., write “draw trough before 0900 dose”).
6. Use only facility approved abbreviations.
7. Remember that physicians order the frequency of medications, but RNs schedule the medication administration times (i.e., enter times for administration based on the prescribed frequency). Many nurses organize their medication administration by looking at the time schedule column on the MAR to determine what medications they are going to be giving to the patient. Therefore, if the administration times are not entered, or are not entered correctly on the MAR (e.g., a medication ordered to be given qid only has three times scheduled), medications are often missed.
8. When scheduling medications, consider the class of medication, the formulation (long acting, sustained release vs. immediate acting) and the importance of maintaining blood levels. Remember that BID is not the same as q 12 hours; TID is not the same as q8 hours, QID is not the same as q 6 hours.
9. MARs are usually filed in a binder by room number. Ensure that the right patient’s MAR is filed under the right room number.
10. Be sure to note the number of pages of the MAR, and keep them in the correct order, and if possible number the pages (e.g., page 3 of 6), so medications are not missed.
11. When a new MAR is started, compare the previous MARs with the current MAR for accuracy of transcription. (Some hospitals use a MAR for only one 24 hour period while others use a single MAR for multiple days.)
12. When a medication has been discontinued, write “D/C,” draw a line through any additional spaces that remain for documenting medication administration, and use a highlighter to indicate drugs that have been discontinued.
13. If a drug dosage and/or frequency is changed, the old order for the medication must be D/C’d on the MAR and the new order must be transcribed, and the schedule entered by the RN.
14. Ensure that the person who has double-checked the transcription of an order for accuracy has entered his/her initials on the MAR in the space provided. Do not administer medications from MARs that have not been initialed until you verify their accuracy yourself.
15. Prepare drugs in a quiet environment without distractions.
16. Double-check dosage calculations with another RN.
17. Check the label to properly identify the drug; do not rely on its color or shape or it’s location.
18. Check the label against the MAR three times when preparing the drug for administration.
19. Check the spelling of the drug carefully, including any initials after the name which indicate it is an immediate release (IR), long acting (LA or DUR), continuous (Contin) or slow release (SR). In spite of the fact that the dosage may be the same, these formulations are not interchangeable.
20. Check the expiration date on all meds. Return expired drugs to the pharmacy.
22. Do not administer any drug without a doctor's order.
23. Do not administer any drug without knowing why you are administering *this drug to this patient*.
24. Do not crush long-acting drugs to facilitate patient swallowing or to administer via a tube. If patients are having trouble swallowing or you need to administer a drug via a tube, check with a drug reference book or the pharmacist to see if another formulation is available (e.g., a short-acting drug that can be crushed, or a liquid), and then contact the physician to obtain a new order.
25. Remember that a drug given by one route may require a different dosage when administered by a different route.
26. Medications are prescribed according to weight and body surface area. Be aware that significant patient weight loss or gain may require dosage adjustment.
27. When administering combination products, double-check to ensure that you are administering the product with the correct formulation. For example: One (1) tablet of Tylenol #3 contains 30mg codeine with 300 mg Tylenol/acetaminophen whereas one (1) tablet of Tylenol #4 contains 60mg codeine with 300 mg Tylenol/acetaminophen. Advair Discus 100/50 contains 100mcg fluticasone propionate with 50 mcg salmeterol, whereas Advair Discus 250/50 contains 250mcg fluticasone propionate with 50 mcg salmeterol. A 250mg tablet of Augmentin contains 250 mg amoxicillin trihydrate and 125 mg clavulanic acid, but a 500 mg tablet of Augmentin contains 500mg amoxicillin trihydrate and 125mg clavulanic acid. Therefore, two 125mg tablets of Augmentin should not be substituted for one 500 mg tablet of Augmentin since giving two 125mg tablets of Augmentin provides the desired 500 mg of Augmentin but an undesired **500 mg** (instead of 125mg) of clavulanic acid.
28. If you are asked by a patient who is not your assigned patient for a PRN medication, tell the patient you will check the MAR and with the patient’s nurse first and do so.
29. *Do not* give drugs prepared by another person.
30. Always check the time interval when giving PRN doses. This may involve checking at the medication administration record from the previous shift or day.
31. Strive to administer drugs “on time.” Administration 30 minutes before or after the scheduled time is considered “on time.” However, do not become overly concerned or pressured about giving your medications “on time” or task oriented about getting medications administered and signed off on the MAR. Remember that the over-riding concerns during medication administration are to maintain safety and ensure the desired patient outcomes.

Various factors may preclude or obviate the administration of drugs and/or the administration of drugs “on time.” Administrative problems resulting in delay in medication administration include orders that need to be clarified, medications missing from the Pyxis or the patient’s cassette (an order missed, a medication inadvertently not sent from the pharmacy or the correct number of doses not sent, a dose “borrowed” by another staff member), an expired dose, or the wrong medication/dose/ formulation sent. Patient related delays include patients requiring careful assessment prior to and after administration, patients needing teaching or having questions about their medications, patients are confused or uncooperative, patients who are unable to take the form of the medication provided, patients who are off the floor for a test or procedure, or are NPO and do not have an appropriate route ordered.

Other problems include nurse staffing and the huge numbers of medications now used routinely in health care. When the administration of multiple drugs to multiple clients often prevents the administration of drugs “on-time” it is important for the RN to prioritize, considering which drugs are most important to administer on time (e.g., to maintain a blood level, to prevent drug-drug or drug-food interactions, to provide the appropriate benefit (e.g., insulin before meals) to which patients. Similarly, when administering multiple drugs to one patient it is also important to prioritize, considering which drugs are most important for the patient to receive, and which might cause side effects that preclude the patient taking the rest of the medications. So for example, consider administering the most important medications first before the patient gets tired or refuses additional medication, and giving drugs that have a terrible taste last and those that might result in stomach upset, nausea, and/or vomiting last to prevent loss of the other medications.

32. Do not take medications for more than one patient into a patient room at the same time.
33. Use two (2) identifiers (the ID band and asking the patient’s name) to confirm that you have the right patient each and every time you administer a medication.
34. Ask about allergies each and every time you administer a medication.
35. Open the medication packages as you administer the medications at the bedside (not at the medication cart) so you know which medications are being given/held and can answer any questions the patient may have. Exception: when only a portion of a tablet is to be given (e.g., 1/2 tablet), cut/break the tablet at the medication cart and discard the portion that is not going to be used. Try to keep the medication you will administer in or with the wrapper when you take it to the bedside. If you must take medication to the bedside unopened, make a note on the package alerting you as you open the package to the proper dosage (e.g., write “give 1/2 tablet”).
36. Writing any assessments (e.g., write “check BP”) and parameters (e.g., write “hold for AP<60”) that you need to observe on the medication wrapper can cue you as you start to open the medication wrapper.
37. Always double check the accuracy of a medication order when a patient questions a medication that he/she is receiving.
38. Temporarily keeping the empty medication wrappers and comparing them to the MAR can be a useful way to double-check which medications you have administered.
39. Document when medications are not given (chart the time you attempted to give the medication and then circle that time), and enter the reason using the codes provided. Notify the MD as necessary.
40. For parenteral medications (ID, SQ, IM), document the site of administration, using the codes provided.
41. Document assessments done prior to administration of a medication (e.g., BP, FSBS/CBS, pain assessment) on the MAR.
42. Document the patient’s responses to medications on appropriate forms (e.g., responses to analgesics on the pain graph) and/or in the nursing notes (e.g., a one time only medication administered to bring down a patient’s elevated BP).
43. Do not leave medications at the bedside without a MD’s order.
44. Do not give medications brought in from home by the patient to the patient without a MD’s order. Send any client medications that have been brought in from home and are to be administered while the patient is in your care to the pharmacy for proper identification prior to administration.
Controlled Substances

- Controlled substances are kept in a double-locked cabinet with a limited number of keys to open it (the “narcotic keys” or “the keys”) or in an automated computerized medication dispensing machine (e.g., a Pyxis machine). Agencies have policies about who may have access narcotics, and access may be limited to specific licensed personnel who are permitted to carry the narcotic keys or who have access codes to the narcotics in the Pyxis.

- The inventory of controlled substances must always be accounted for. On nursing units without automated computerized medication dispensing machines (e.g., a Pyxis), controlled substances are signed out on an official controlled substances’ record in numbered sequence. These records are dated and numbered sequentially, and distributed by the hospital pharmacy to all nursing units where controlled substances are dispensed. The pharmacy monitors them, verifying that entries are complete and that inventory has been accounted for. The administration and documentation of narcotic usage is also monitored by government agencies.

- Whenever stock/inventory is added to the nursing unit’s inventory, the new inventory must be recorded and added to the previous stock on the controlled substance records and signed by two people (the licensed pharmacy staff member adding the inventory and the licensed nursing staff member receiving/verifying the addition of the inventory). Thus, the current controlled substance record must be taken by the nurse to the pharmacy when the nurse is returning or picking up additional stock. Similarly, whenever stock/inventory is removed from the nursing unit’s inventory, it must be subtracted from the previous stock and the remaining amount documented and signed by the person removing the inventory and the staff nurse verifying the removal.

- Whenever a controlled substance is removed from the inventory to be administered to a patient, the time, name of the patient, room number of the patient, drug and dosage to remove from stock, dosage wasted, and signature of the person administering the drug are all entered on the controlled substance administration record following the policy of the institution. The administration of the medication is also documented on the patient’s MAR in the usual fashion.

- To prevent the inappropriate “diversion of drugs,” two licensed nurses must witness when a controlled substance is discarded or wasted and document this on the official controlled substances record, or through a procedure in the Pyxis, along with their written or computer signatures.

- The amount of each controlled substance in the stock/inventory is counted at the change of shift by one licensed nurse from the current/off-going shift and one licensed nurse from the on-coming shift to be sure that the recorded count is correct and that all drugs administered during the shift are accounted for. All efforts must be made to find and correct discrepancies, and staff are not usually permitted to go off shift/leave the nursing unit until the recorded narcotic count and the inventory are reconciled. Policies and procedures in each facility describe the procedure to follow in the event of narcotic inventory discrepancies.

- Controlled substance records are sent to/picked up by the pharmacy when they are filled up; they are replaced by new dated, numbered sheets.

- It is the responsibility of the nurse to report unprofessional use of controlled substances by hospital personnel.

- Nurse should make sure they hand over the narcotic keys to licensed oncoming staff prior to leaving the unit. When keys are inadvertently taken home it is an inconvenience to the nurse who must immediately return them, to the nursing staff who do not have convenient access to their narcotic supply, and to the patients who may not get needed analgesics in a timely manner. It is also costly to the hospital because the keys and locks must be changed.
Systems of Drug Measurement

The two systems of weights and measures used in pharmacology are the apothecaries' system and the metric system. Although both are presently used, the metric has largely replaced the apothecaries'.

The gram is the unit of weight; the liter the unit of volume; and the meter the unit of linear measurement in the metric system. In the apothecaries' system the grain is the unit of weight, and the minim the unit of volume.

Equivalents in the Household, Apothecaries’, and Metric Systems

<table>
<thead>
<tr>
<th>HOUSEHOLD</th>
<th>APOTHECARIAN</th>
<th>METRIC</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 teaspoonful</td>
<td>60 minims or 1 dram</td>
<td>4 or 5 ml</td>
</tr>
<tr>
<td>1 tablespoon</td>
<td>4 drams</td>
<td>15 or 16 ml</td>
</tr>
<tr>
<td>2 tablespoonfuls</td>
<td>1 ounce</td>
<td>0 ml</td>
</tr>
</tbody>
</table>

Approximate Equivalents between the Metric and Apothecaries’ Systems

<table>
<thead>
<tr>
<th>METRIC</th>
<th>APOTHECARIAN</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Volume</strong></td>
<td></td>
</tr>
<tr>
<td>1 milliliter (ml)</td>
<td>=</td>
</tr>
<tr>
<td>cubic centimeter (cc)</td>
<td>=</td>
</tr>
<tr>
<td>4 to 5 ml</td>
<td>=</td>
</tr>
<tr>
<td>30 ml or cc</td>
<td>=</td>
</tr>
<tr>
<td>500 ml or cc</td>
<td>=</td>
</tr>
<tr>
<td>1000 ml (1 liter)</td>
<td>=</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Weight</strong></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1 milligram (mg)</td>
<td>=</td>
</tr>
<tr>
<td>(1000 micrograms (µg) (mcg)</td>
<td>=</td>
</tr>
<tr>
<td>60 mg (occasionally seen as 65 mg)</td>
<td>=</td>
</tr>
<tr>
<td>1 gram (g) (1000 mg)</td>
<td>=</td>
</tr>
<tr>
<td>1 kilogram (kg)</td>
<td>=</td>
</tr>
</tbody>
</table>

**NOTE:** In the old system, 1 gr = 65 mg, 0.5 gr = 32.4 mg; therefore, you will still find medications labeled from this system. Example: Aspirin 5 gr = 325 mg and gr x = 650 mg
Calculating Drug Dosages for Children

There is no standard dose in pediatrics. Therefore, one must calculate for each individual child the individual dose.

**Body Surface Area:**

1. Dose according to Body Surface Area: BSA: This formula can be used for any age child and is the most accurate method of calculating a child's dose. Body surface area can be calculated from a complicated formula based on height and weight of the subject or found in a table called nomogram, which has already done the calculations. To use the nomogram all that is required is drawing a straight line connecting the height and weight of the subject. The body surface area is read at the point where this line intersects the BSA column. Since drug dosage are more nearly proportional to body surface area than to wt. itself, this is a useful calculation.

Formula:

\[
\text{Body Surface Area of child (measured in square meters)} \times \text{Adult Dose} \times (\text{Adult's BSA})^{1.7} = \text{safe dose for child}
\]

The body surface area concept takes into account size and shape as well as weight and volume. Small objects have greater surface area in relation to volume than do large objects. As the volume of the human being increases, so does the surface area but at a much less rapid rate. Thus small bodies (infants) have a relatively large surface area and large bodies (adults) have a relatively small surface area. The ratio of surface area to weight varies inversely to length. The infant's surface area is greater than would be expected from weight alone. He is shorter and weighs less than the adult but he has relatively more surface area. Using other formulas, the child's dose is a fraction of the adult dose, but using the BSA formula, the child's dose can be expressed without relationship to the adult. (Surface area of child X dose per M2 = child's dose).

Body surface area is also used to calculate chemotherapy doses for adults.

2. Dose according to recommended Pediatric Dose per kilogram of body wt. The PDR often will state the recommended dose of a medication as amount drug/kilogram for specific age groups. The calculation requires (1) converting pounds to kilograms, (2) finding the amount safe to give based on the number of kilograms the child weighs.

Example: PDR states drug dose is 5mg/kg.

Child weighs 5 lbs

Therefore: 1) convert 5 lb. to # of kg,

\[5 \text{ lb.} \times 0.45 \text{ kg/lb.} = 2.25 \text{ kg.}\]

2) multiply 5mg X # of kg.

\[5 \text{ mg/kg} \times 2.25 \text{ kg} = 11.25 \text{ mg.}\]

Formula:

Recommended dose (number of milligrams/kilogram) X kilograms of child's body weight = safe dose for 24 hr.
NE 138/NE 101 Assignment
Preparation for Medication Administration

Researching, Transcribing, Scheduling
and Administering Medications
(with forms to complete*)

Homework Assignment:

1. Read the Case Study below, then use your drug guide(s) and textbook to research the medications listed below. Forms outlining required information follow in the syllabus. (*You may use these forms or you may make a template and complete the assignment on your computer.)

2. Make 2 (two) copies of the completed assignment:
   a. Turn in 1 (one) copy to the NE 138 instructor for credit
   b. Keep 1 (one) copy to use in the NE 101 Skills Lab to refer to for information about the drugs you will be administering during the medication administration check-offs.

In Class Assignment (Week 7):

1. In the skills lab: Transcribe the medication orders that will be provided in class onto the medication administration record (MAR) that has been provided in your NE 101 Syllabus. Save your MAR for use during the NE 101 medication administration check-offs.

2. In skills lab: Schedule medications using the common time schedules discussed in class and/or provided in the syllabus.

3. In skills lab: With a buddy, using the Administration of PO Medications skills check-list, practice safely and accurately pouring, administering (including appropriate monitoring and teaching), and documenting administration of assigned medications. (Remember, doing something correctly at least 6 times helps to make it a habit.)

Case Study:

You are caring for a 38 year old man with a history of Type I diabetes, hypertension, and coronary artery disease with angina, who is admitted with recent onset of atrial fibrillation. An area of his left lower leg is erythematous, tender, and edematous which is diagnosed as a cellulitis caused staphylococcus aureus. He is on multiple oral and subcutaneous medications which you will be administering so you will need to look them up.

### Medications

<table>
<thead>
<tr>
<th>Lotensin</th>
<th>Prilosec</th>
</tr>
</thead>
<tbody>
<tr>
<td>Digoxin</td>
<td>Doxycycline</td>
</tr>
<tr>
<td>Hydrochlorothiazide</td>
<td>Empirin with Codeine</td>
</tr>
<tr>
<td>Procanamide</td>
<td>Coumadan</td>
</tr>
<tr>
<td>Cardizem</td>
<td>Insulin – Lispro/Aspart</td>
</tr>
<tr>
<td>Lipitor</td>
<td>Insulin – Glargine</td>
</tr>
</tbody>
</table>

In addition, you will need to look up these additional medications:

<table>
<thead>
<tr>
<th>Insulin - Regular</th>
<th>Insulin - NPH</th>
</tr>
</thead>
<tbody>
<tr>
<td>Heparin</td>
<td>Lovenox</td>
</tr>
</tbody>
</table>
LOTENSIN
Generic name: ____________________________ Trade Names: ____________________________
Classification(s): ____________________________________________________________________
Indication(s): ________________________________________________________________________

Purpose for which your patient is receiving this medication: _________________________________
Usual dosage range/frequency: __________________________________________________________
Available Routes: ______________________________________________________________________
Most common adverse reactions: __________________________________________________________
Life-threatening adverse reactions: _______________________________________________________
Interactions with food and other medications your patient is on: _____________________________
Contraindications: _____________________________________________________________________
Nursing considerations and important patient teaching: _________________________________

DIGOXIN
Generic name: ____________________________ Trade Names: ____________________________
Classification(s): ____________________________________________________________________
Indication(s): ________________________________________________________________________

Purpose for which your patient is receiving this medication: _________________________________
Usual dosage range/frequency: __________________________________________________________
Available Routes: ______________________________________________________________________
Most common adverse reactions: __________________________________________________________
Life-threatening adverse reactions: _______________________________________________________
Interactions with food and other medications your patient is on: _____________________________
Contraindications: _____________________________________________________________________
Nursing considerations and important patient teaching: _________________________________
HYDROCHLOROTHIAZIDE
Generic name: ___________________________ Trade Names: ___________________________
Classification(s): _________________________________________________________________
Indication(s): ___________________________________________________________________
________________________________________________________________________________
Purpose for which your patient is receiving this medication: _____________________________
Usual dosage range/frequency: ______________________________________________________
Available Routes: _________________________________________________________________
Most common adverse reactions: _____________________________________________________
Life-threatening adverse reactions: ___________________________________________________
Interactions with food and other medications your patient is on: __________________________
Contraindications: __________________________________________________________________
Nursing considerations and important patient teaching: _________________________________

PROCAINAMIDE
Generic name: ___________________________ Trade Names: ___________________________
Classification(s): _________________________________________________________________
Indication(s): ___________________________________________________________________
________________________________________________________________________________
Purpose for which your patient is receiving this medication: _____________________________
Usual dosage range/frequency: ______________________________________________________
Available Routes: _________________________________________________________________
Most common adverse reactions: _____________________________________________________
Life-threatening adverse reactions: ___________________________________________________
Interactions with food and other medications your patient is on: __________________________
Contraindications: __________________________________________________________________
Nursing considerations and important patient teaching: _________________________________

_________________________________________________________________________________
**CARDIZEM**

Generic name: __________________________ Trade Names: __________________________

Classification(s):________________________________________________________________________

Indication(s):___________________________________________________________________________

_____________________________________________________________________________________

Purpose for which your patient is receiving this medication:____________________________________

Usual dosage range/frequency:______________________________________________________________

Available Routes:________________________________________________________________________

Most common adverse reactions:_____________________________________________________________

Life-threatening adverse reactions:__________________________________________________________

Interactions with food and other medications your patient is on:_______________________________

Contraindications:________________________________________________________________________

Nursing considerations and important patient teaching:__________________________________________

**LIPITOR**

Generic name: __________________________ Trade Names: __________________________

Classification(s):________________________________________________________________________

Indication(s):___________________________________________________________________________

_____________________________________________________________________________________

Purpose for which your patient is receiving this medication:____________________________________

Usual dosage range/frequency:______________________________________________________________

Available Routes:________________________________________________________________________

Most common adverse reactions:_____________________________________________________________

Life-threatening adverse reactions:__________________________________________________________

Interactions with food and other medications your patient is on:_______________________________

Contraindications:________________________________________________________________________

Nursing considerations and important patient teaching:__________________________________________
**PRILOSEC**
Generic name: ___________________________ Trade Names: ___________________________

Classification(s): __________________________________________________________________________

Indication(s): ________________________________________________________________________________

Purpose for which your patient is receiving this medication: ____________________________________________

Usual dosage range/frequency: __________________________________________________________________

Available Routes: ______________________________________________________________________________

Most common adverse reactions: __________________________________________________________________

Life-threatening adverse reactions: __________________________________________________________________

Interactions with food and other medications your patient is on: _________________________________

Contraindications: ____________________________________________________________________________

Nursing considerations and important patient teaching: ____________________________________________

**DOXYCYCLINE**
Generic name: ___________________________ Trade Names: ___________________________

Classification(s): _____________________________________________________________________________

Indication(s): ________________________________________________________________________________

Purpose for which your patient is receiving this medication: ____________________________________________

Usual dosage range/frequency: __________________________________________________________________

Available Routes: ______________________________________________________________________________

Most common adverse reactions: __________________________________________________________________

Life-threatening adverse reactions: __________________________________________________________________

Interactions with food and other medications your patient is on: _________________________________

Contraindications: ____________________________________________________________________________

Nursing considerations and important patient teaching: ____________________________________________
**EMPIRIN WITH CODEINE**

Generic name: __________________________ Trade Names: __________________________

Classification(s):________________________________________________________________________

Indication(s):___________________________________________________________________________

Onset and Duration:________________________________________________________________________

Purpose for which your patient is receiving this medication:____________________________________

Usual dosage range/frequency:________________________________________________________________

Available Routes:___________________________________________________________________________

Most common adverse reactions:________________________________________________________________

Life-threatening adverse reactions:________________________________________________________________

Interactions with food and other medications your patient is on:______________________________

Contraindications:________________________________________________________________________

Nursing considerations and important patient teaching:__________________________________________

**COUMADIN**

Generic name: __________________________ Trade Names: __________________________

Classification(s):________________________________________________________________________

Indication(s):___________________________________________________________________________

Onset and Duration:________________________________________________________________________

Purpose for which your patient is receiving this medication:____________________________________

Usual dosage range/frequency:______________________________________________________________

Available Routes:___________________________________________________________________________

Most common adverse reactions:______________________________________________________________

Life-threatening adverse reactions:____________________________________________________________

Interactions with food and other medications your patient is on:________________________________

Contraindications:________________________________________________________________________

Nursing considerations and important patient teaching:__________________________________________

_________________________________________________________
**INSULIN – LISPRO/ASPART**

Generic name: ____________________________ Trade Names: ____________________________

Classification(s): _____________________________________________________________________

Indication(s): _________________________________________________________________________

Onset and Duration: _____________________________________________________________________

Purpose for which your patient is receiving this medication: _________________________________

Usual dosage range/frequency: __________________________________________________________

Available Routes: _____________________________________________________________________

Most common adverse reactions: __________________________________________________________

Life-threatening adverse reactions: _______________________________________________________

Interactions with food and other medications your patient is on: ____________________________

Contraindications: _____________________________________________________________________

Nursing considerations and important patient teaching: _______________________________________

**INSULIN - GLARGINE**

Generic name: ____________________________ Trade Names: ____________________________

Classification(s): _____________________________________________________________________

Indication(s): _________________________________________________________________________

Onset and Duration: _____________________________________________________________________

Purpose for which your patient is receiving this medication: _________________________________

Usual dosage range/frequency: __________________________________________________________

Available Routes: _____________________________________________________________________

Most common adverse reactions: __________________________________________________________

Life-threatening adverse reactions: _______________________________________________________

Interactions with food and other medications your patient is on: ____________________________

Contraindications: _____________________________________________________________________

Nursing considerations and important patient teaching: _______________________________________
Student Name______________________________

**INSULIN – REGULAR**

| Generic name: ____________________________ | Trade Names: ____________________________ |
| Classification(s): ____________________________ | |
| Indication(s): ____________________________ | |
| Onset and Duration: ____________________________ | |
| Purpose for which your patient is receiving this medication: ____________________________ | |
| Usual dosage range/frequency: ____________________________ | |
| Available Routes: ____________________________ | |
| Most common adverse reactions: ____________________________ | |
| Life-threatening adverse reactions: ____________________________ | |
| Interactions with food and other medications your patient is on: ____________________________ | |
| Contraindications: ____________________________ | |
| Nursing considerations and important patient teaching: ____________________________ | |

**INSULIN - NPH**

| Generic name: ____________________________ | Trade Names: ____________________________ |
| Classification(s): ____________________________ | |
| Indication(s): ____________________________ | |
| Onset and Duration: ____________________________ | |
| Purpose for which your patient is receiving this medication: ____________________________ | |
| Usual dosage range/frequency: ____________________________ | |
| Available Routes: ____________________________ | |
| Most common adverse reactions: ____________________________ | |
| Life-threatening adverse reactions: ____________________________ | |
| Interactions with food and other medications your patient is on: ____________________________ | |
| Contraindications: ____________________________ | |
| Nursing considerations and important patient teaching: ____________________________ | |
**HEPARIN**

Generic name: __________________________________ Trade Names: ________________________________

Classification(s):__________________________________________________________

Indication(s):________________________________________________________________________

Onset and Duration:____________________________________________________________

Purpose for which your patient is receiving this medication:___________________________

Usual dosage range/frequency:____________________________________________________

Available Routes:___________________________________________________________

Most common adverse reactions:__________________________________________________

Life-threatening adverse reactions:______________________________________________

Interactions with food and other medications your patient is on:________________________

Contraindications:________________________________________________________________

Nursing considerations and important patient teaching:______________________________

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**ENOXAPARIN**

Generic name: __________________________ Trade Names: ________________________________

Classification(s):__________________________________________________________

Indication(s):________________________________________________________________________

Onset and Duration:_____________________________________________________________________

Purpose for which your patient is receiving this medication:___________________________

Usual dosage range/frequency:____________________________________________________

Available Routes:___________________________________________________________

Most common adverse reactions:__________________________________________________

Life-threatening adverse reactions:______________________________________________

Interactions with food and other medications your patient is on:________________________

Contraindications:________________________________________________________________

Nursing considerations and important patient teaching:______________________________

____________________________________________________________________________________
WEEK 7

WEEK 7: Researching Medications, Transcribing Medication Orders onto MARs, and Safe Oral/PO Medication Administration

1. **Researching Medications:**
   **Student Preparation:**
   - Complete the medication research portion of the *NE 138/NE 101 Assignment on Preparation for Medication Administration: Researching, Transcribing and Scheduling, Administering Medications*
   **Student Lab Practice:**
   - Discuss results of medication research from homework assignment.

2. **Transcribing Medication Orders onto the MAR and Scheduling Administration Times**
   **Student Preparation:**
   - Read Week 7 of the NE 101 Skills Lab Syllabus
   **Student Lab Practice:**
   - Complete the *In Class Assignment: Preparation for Medication Administration: Practice Interpreting, Transcribing, and Scheduling Ordered Medications Practice*, an exercise on reading, interpreting, and transcribing a medication order onto an MAR, and scheduling the medication administration times

3. **Safe Oral/PO Medication Administration:**
   **Student Preparation:**
   - Review *Skill Check-off for Administration of PO Medications*
   **Student Lab Practice:**
   - With a buddy, practice administering an oral medication and charting it using the *Summary Guidelines for Administration of PO Medications*.

4. **Student Skill Check-offs** (skills introduced and practiced during the previous weeks):
   - Skill Performance Check-list: *Vital Signs*
   - Skill Performance Check-list: *Measuring, Documenting, and Analyzing Intake and Output*
   - Skill Performance Check-off: *Administration of Oral Medications*
In Class Assignment:
Ppereparation for Medication Administration:
Practice Interpreting, Transcribing, and Scheduling Ordered Medications

1. **Copy** the medication orders given in the Case Study below onto the Physician Order Sheet provided in the syllabus. Then exchange your Physician Order sheet with a classmate so that you each have to practice reading different handwriting.

2. **Transcribe** the medications from your classmate’s physician’s order sheet onto the medication administration record (MAR) that is provided in your syllabus (or onto an MAR provided by your instructor from the health care facility where you have NE 135L clinical). **Save the MAR for use during the PO medication administration check-off.**

3. Write in the ordered date and the start and stop dates.

4. Write in the dates of the week this MAR will be used, starting with today’s date

5. **Schedule** the medications according to the routine medication administration times provided in the syllabus and the rules discussed in class. Use the 24 hour clock.

6. In class and as homework, look up the medications in your drug book! (see #1 above).

7. In class and outside of class (e.g., in the Open Skills Lab), practice safely and accurately pouring, administering (including appropriate monitoring and teaching) and documenting administration of assigned medications, using the *Administration of PO Medications Skills Check-list* at least 6 times. (Doing something correctly at least 6 times not only helps you to remember it, do it well, and feel confident, but it helps to make it a habit. RNs need to develop safe, good habits especially so that in times of stress when people often tend to do things by habit, they will revert to safe, good habits.)

Case Study

**Background:**
You are caring for a 38 year old man with a history of Type I diabetes, hypertension, and coronary artery disease with angina and elevated triglycerides who is admitted with recent onset of atrial fibrillation. An area of his left lower leg is erythematous, tender, and edematous which is diagnosed as a cellulitis caused staphylococcus aureus. He is on multiple oral and subcutaneous medications which you will be administering.

**Patient Orders:**
- Patient: John Smith, MR #1234, DOB: 5/5/71, Room 201-A
- Orders written 10/23/09 at 0730 and signed by Dr. J. Kildare for:
  - Diet: 2000 calorie ADA, low fat, low sodium
  - Coumadin 7.5 mg PO daily
  - Digoxin 0.25 mg PO Q AM after loading dose
  - Prilosec 20 mg PO daily
  - Lotensin 10 mg PO BID
  - Procainamide HCl 500mg PO Q 6 hours
  - Empirin with Codeine 30 mg i tab PO Q 4 hours PRN pain
  - Digoxin 0.5mg PO x 1 now
  - Hydrochlorothiazide 50 mg PO daily
  - Cardizem LA 180mg PO daily
  - Lipitor 20mg PO daily
  - Doxycycline 100mg PO BID for 7 days
  - Check capillary blood sugar before meals and at bedtime
  - Basal insulin: Insulin Glargine 10 units SQ qhs
• Meal insulin: Insulin Aspart 5 units SQ before breakfast, lunch, and dinner
• Correctional Insulin: Use Moderate Dose Algorithm as follows:

**Moderate Dose Algorithm** (for average size adult) [BG – 100/40]

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<th>Additional Aspart Insulin</th>
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<td>161-200</td>
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<td>201-240</td>
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### SCHEDULED

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80-0134-0 (1/08)
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80-6134-0 (11/94)

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**Code Descriptions**

- **NO DOSES DUE** = no doses to be administered this day
- **NOT STARTED** = order has a future start date - DO NOT administer
- **DC** = order has been discontinued as of this date
- **DC OR RENEW** = order has a ASO, to be discontinued or renewed by physician
- **ON HOLD** = order on hold, to be discontinued or resumed by physician

**INJECTION SITE LEGEND**

- A = LUOQ
- B = RUOQ
- C = L VENTROGLUTEAL
- D = R VENTROGLUTEAL
- E = L THIGH
- F = R THIGH
- G = L DELTOID
- H = R DELTOID
- I = ABDOMEN
- NN = OTHER - SEE NURSES' NOTES
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Skill Performance Checklist:  
Administration of Oral Medications*

Student Name:_________________________________ Date:_______________________________

Guidelines for performing this skill correctly in the lab and in the clinical setting are as follows:

• **Read aloud the complete order on MAR including time due** (so the instructor or your classmate in lab can hear you).
• **Read aloud the complete medication label and dosage on package that you have in hand including expiration date.**
  • You will be checking all medications 3 times: 1) as you take it from the out of the drawer, 2) as you compare it to the MAR and put it into the medication cup, 3) as you compare it to the MAR at the bedside and then give it to the client.  As you do the second check at the med cart you may want to place a dot next to the med you have checked, or enter the time on the MAR next to the med you have just checked.
• **Sign the back of the MAR**
• **Check any labs that need to be noted prior to drug administration** (e.g., BUN/Creat, K+, PT/PTT, Digoxin or other drug levels)
• **Take MAR and meds to the patient.**
• **Knock on the door, introduce yourself, explain what you are going to be doing, identify the patient using 2 identifiers, and ask about the patient’s allergies.**
• **Position the client and perform any needed pre-administration assessments, eg. BP, apical pulse.  Document these the MAR next to the administration time (e.g., for Digoxin document the apical pulse as “AP=72”)**
• **Ask the patient if they know the medications they will be receiving.  Provide patient teaching as needed, giving the name of each medication and explaining its purpose.**
• **Ask the patient if they would like to take their medications separately or together.**
• **Perform the third check of the med and administer it to the patient.**
• **Enter your initials on the MAR indicating you have given the med.**
• **When you are finished, double check that you have entered the time, route of administration of med, site used, and sign initials, and that you have entered your signature on MAR**

*Assessment and Planning: Review the Client’s Chart and Consult References*

- Know your client’s history.
- Check the accuracy and completeness of the MAR
- Look up your client’s medications in an appropriate reference.
- Gather and review appropriate assessment data.
- Prior to the scheduled administration time, ensure that each ordered medication is on the nursing unit.
- Prior to preparing scheduled medications for administration, ensure that your client is available for medication administration and determine how the client prefers or is able to take his medications (e.g., with juice, crushed in applesauce or pudding, etc.).

*Implementation: At the Medication Cart*

_____1. Wash your hands.
_____2. On the MAR for your client, check the name and room number on each page, noting the number of pages of medication orders in your client’s MAR.
_____3. Review the client’s allergies.
_____4. Determine which medications are due at this time.
_____5. Systematically prepare the medications using “THE 5 RIGHTS” AND “3 CHECKS.” (First Check: Select the correct drug from medication drawer and compare it to the MAR.  Second Check: Repeat and place the medication in its wrapper into the med cup (keeping it in the wrapper permits easy identification—client may ask you the name of each medication—maintains cleanliness of medication, allows for return of unused medications, allows you to note something on the wrapper, such as the room
number, in case the medications spill out of the med cup, or a reminder of an assessment to check prior to administration, e.g. “check pulse.”) Perform any required drug dosage calculations; double check your calculations with another RN.

(The Third Check is at the bedside, after client assessment. Take the MAR (if permitted by agency) into client’s room to perform the third check just prior to administration.

_____6. Close the patient’s medication drawer and lock the medication cart. Never leave poured medications or any unlocked medication cart unattended. If you must step away from the medication cart to do something, take any poured medications with you, or return them to the client’s medication drawer, and lock the cart.

_____7. Take the medications with you to the client’s room along with food, beverage, straw, etc. for administration. straw, water and/or the client’s preferred beverage.

Assessment/Implementation: At the Bedside

_____1. Introduce yourself and explain to the patient that the client’s physician has ordered several medications that should be taken at this time and that you will explain the purpose of each medication to the client prior to administration.

_____2. Provide privacy.

_____3. Verify the client’s identity and inquire about allergies.

_____4. Assist the client to an appropriate position.

_____5. Perform any pre-administration assessments and check medication administration parameters with assessment results. Record results.

_____6. Determine the client’s current knowledge and provide appropriate education.

_____7. Perform the Third Check

_____8. Administer the medication

_____9. Stay with the client until all medications have been taken.

_____10. Assist the client to return to a comfortable position. It is recommended for clients with risk of aspiration and/or reflux that they remain sitting upright 30-60 minutes after eating or drinking.

_____11. Document as per agency policy.

Evaluation: Returning to the Bedside

_____1. Return to assess the client’s response to medications after ~30 minutes.

_____2. Document the client’s response on the MAR and/or nurses’ notes or flow sheet. Note any adverse effects. Notify the physician as appropriate.

Grade: Pass/Not Pass

Instructor’s Signature __________________________________________________________________________ Date __________________________
Summary Guidelines for Practicing the Administration of PO Meds Skill

With a partner, practice the Administration of PO meds taking turns being the RN and the patient. The skill should be practice at least 6 times prior to testing.

1. Arbitrarily decide what time of day it is and find the medications on the MAR that are due.

2. Read OUT LOUD the complete medication order: name of drug, dosage of drug, route of drug, frequency of administration and time due

3. Find the medication in the medication cassette.

4. Read OUT LOUD the complete medication label and dosage on the package that you have in your hand, including the expiration date and put it on the med cart. This is check #1.

5. Check the medication again as you put it into the medication cup, again reading OUT LOUD the complete medication order and the complete medication label. This is check #2.

6. Check any labs that need to be checked prior to administering the medication and note results on MAR.

7. Take the MAR and meds into the patient.

8. Identify yourself and explain that you are there to give the patient his meds.

9. Identify the patient by asking his/her name and checking the patient’s wristband; compare 2 identifiers on the wristband with the MAR.

10. Ask the patient about any allergies.

11. Ask the patient if they are familiar with their medications. Explain the patient’s medications to him/her as needed.

12. Position the patient appropriately.

13. Perform any assessments, eg. BP, apical pulse, and note them on the MAR. Compare the results to the medication administration parameters and decide whether the medications can be given.

14. Perform the third check of each medication as you open it.

15. Administer the medication with the beverage of choice. Ask the patient if they want to take their medications all at once or one by one.

16. Chart the time, route of administration of med, site used, and sign your initials. Enter your signature in the appropriate place on the MAR.

17. Ask the patient to remain sitting up for 30 minutes after taking PO medications.

18. Explain to the patient that you will check back on them in about 30 minutes. Encourage the patient to call you if they experience any problems in the meantime.
Clinical Example:

A Medical-Surgical Patient with Multiple Nursing Care Needs and Numerous Medication Orders

In the skills lab, medication administration seems fairly straightforward and even easy. The medications to be administered are not too numerous, the unit doses and administration equipment are readily available, and best of all the “client” is usually healthy and cooperative. The clinical example below is provided to help you understand why planning, time management, and becoming proficient in your medication dosage calculation and medication administration skills through practice in the skills lab are so important for you to be successful in the clinical setting.

The patient is an elderly woman with a diagnosis of hypoxemia, diastolic heart failure, pneumonia, and a UTI. She has a Stage II pressure ulcer on her coccyx. Her history is significant for a CVA with right facial droop and right sided weakness, hypertension, congestive heart failure, COPD, dementia, Parkinson’s disease, Left eye blindness, pulmonary edema, dysphagia.

The patient has a PEG tube with a continuous feeding at 45 mls/hour. The patient has a #22 gauge saline lock IV in her forearm. The patient has an IV pole with an IV pump, a flush bag of NS with primary tubing, and an empty IVPB bag with secondary tubing.

The patient has orders for the following 12 medications to be given at 0900. Read the orders, and estimate the amount of time it will take you to obtain the 12 medications from the Pyxis, the patient’s cassette, and the refrigerator, prepare them, and administer them to this patient. In making your estimate, also consider any additional equipment you will need for preparation and administration, the patient’s ability to cooperate, the need for repositioning and turning, the required pre and post- medication administration assessments, safety checks, manipulation of equipment, and documentation.*

1. Protonix 40 mg IV daily; medication comes from the Pyxis in the form of a vial containing powder that is to be diluted with 10 mls NS and given over 2 minutes via a dedicated line.
2. Chewable aspirin 81 mg PO daily via PEG tube (medication must be crushed then dissolved in hot water and put into the tube)
3. Sinemet 25-250 1 tablet daily via PEG tube (medication must be crushed then dissolved in hot water and put into the tube)
4. Erythromycin 250 mg TID via PEG tube (medication comes in a liquid preparation in a concentration of 200mg/5mls)
5. Lovenox/Enoxaparin 40mg (0.4mls) SC q 12 hours
6. Solumedrol 20mg IV daily (medication comes in powder form in vial with its own diluent; concentration is 40mg/1ml)
7. Potassium Phosphate 1 tab via PEG tube tid (medication must be crushed then dissolved in hot water and put into the tube)
8. Fenofibrate 201 mg via PEG tube daily (comes in 67mg tablets, 3 capsules=201 mg; capsules must be opened, contents poured into hot water to dissolve then put in tube)
9. Lasix 20mg IV daily. Lasix comes in a vial in a concentration of 10mg/ml. Must check K+, BP, and monitor I&O
10. Colace 100mg via PEG tube BID. Medication comes in liquid form in a concentration of 10mg/1ml. Must check bowel status before administering, hold for loose stools, diarrhea.

11. Balsam Trypsin 1 gram topically BID to decubitus ulcer.

12. Unasyn 1.5 grams in 100 mls NS IVPB q 8 hours over 30 minutes. Must check IV site for patency, and IV tubing for expiration. Set primary flush bag rate at 100mls/hour, VTBI 10 mls; set secondary rate at 200mls/hour, VTBI 100 mls. Monitor WBC and Temp.

(*Time the RN student who was assigned to this patient needed to administer the medications: 1.5 hours)
WEEK 8

WEEK 8: Reconstituting Dry Powder Medication and Administration of Subcutaneous Medication (exoxaparin/Lovenox and heparin.

1. Reconstituting medications
   **Student Preparation**
   • Read Week 8 of NE 101 Syllabus on Reconstituting Dry Powder to and administration of SQ injections
   **Student Lab Practice**
   • Using ampoules and filter needles
   • Reconstituting powder medication to liquid, calculation of volume of diluents with consideration to drug dosage and resulting concentration, and volume
   • Labeling vial of reconstituted medication
   • Drawing up drug dosage

2. Administration of SQ Medications
   **Student Preparation**
   • Review Skill Check-off for Administration of SQ Medications*
   **Student Lab Practice**
   • With a buddy, practice drawing up and administering a SQ medication. Site selection, administration technique for subcutaneous Heparin/Enoxaparin and charting

3. **Student Skill Check-offs** (skills introduced and practiced during the previous weeks):
   • **Skill Performance Check-list: Administration of Oral Medications***
   • **Skills Performance Check-list: Reconstitution of Medication from Powder to Liquid**
   • **Skills Check-List: Administration of Subcutaneous Medications**
Skills Performance Check-List:
Reconstitution of Medication From Powder to Liquid*

Student Name:______________________________ Date:_________________________

Definition: To provide guidelines for the accurate reconstitution of medications.

Assessment:
- Check the MAR with the physician’s written order for accuracy.
- Review purpose(s) of medication, normal dosage range, administration routes, side-effects, contraindications, and nursing considerations.
- Are there any special considerations (e.g., labs to be monitored, medication to be taken before meals, etc.) to be aware of?
- Assess the client’s medical record for age, allergies, and lab results (consider especially kidney and liver function, therapeutic drug levels, electrolytes, and coagulation studies).

Planning:
- Check scheduling of medications for problems/conflicts.
- Check that medication is available. If not, order from pharmacy.
- Determine the concentration to which dry/powdered medication should be diluted and calculate correct dosage (volume of medication at specific concentration).

Implementation: Preparation and Administration of Meds

Preparation:
- Wash hands.
- Gather equipment: syringe, needle, alcohol prep pad, medication and diluent.
- Check medication according to 5 Rights. Perform 3 checks: before drawing up medication, after drawing up medication, just prior to administration of medication to patient.
- Read medication vial label to determine appropriate diluent, volume of diluent, and resulting concentration.
- Cleanse tops of diluent and medication vials with alcohol sponge.
- Using sterile technique, uncap the needle and set needle cap down on clean surface.
- Placing the needle in the center of the diluent vial, slowly inject an amount of air equal to the amount of diluent desired into the vial.
- Invert the vial and slowly, using gentle negative pressure, withdraw the correct amount of the diluent into the syringe. Keep the needle tip in the diluent.
- Slowly inject diluent into powdered medication.
- Allow medication to dissolve completely. Mix by rotating vial.
- Withdraw correct dose into syringe.
- Add “air lock”—0.1-0.2cc of air to the dose in the syringe; the air will push the medication out of the needle when the last of the medication has been injected.
- Re-cap needle using scoop method.
- Label the syringe with drug, dose, date, and time.
- If the medication is a multi-dose vial, label it with the current date and time, the concentration, and your initials.

Grade: Pass/No Pass

Instructor’s Signature________________________________________________________
**Skill Performance Check-List:**

**Administration of Subcutaneous Medication (enoxaparin/Lovenox and heparin)**

Student Name:___________________________________ Date:_________________________________

**Definition:** To deposit the prescribed amount of heparin into the subcutaneous tissues with the least amount of tissue damage.

**Assessment:**
- Check the MAR with the physician’s written order for accuracy.
- Review the purpose(s) of each medication, the normal dosage range, approved administration routes, side-effects, contraindications, and nursing considerations.
- Assess for contraindications to the administration of SQ medications and in particular, subcutaneous heparin (e.g., elevated/non-therapeutic PTT, petechiae, ecchymoses, or bleeding, or pre-operative status).
- Assess the client’s medical record for age, allergies, and lab results (consider especially coagulation studies).

**Planning:**
- Medications are to be administered to client on time: 30 minutes before or 30 minutes after designated time.
- Check scheduling of medications for problems/conflicts.
- Check that meds are available. If not, order from pharmacy.
- Assess suitability of the form of the medication for the client.
- Calculate the drug dosage you will be administering. Double-check your calculations with another nurse.

**Implementation:**
- Prepare the medications for one client at a time using the Five Rights/3 Checks
  - Wash your hands.
  - Review the MAR for the patient’s name, birthdate, MR number, room number, and allergies.
  - Perform the First Check: Locate the medication (vial, Tubex/Carpujet, or, as in the case with Enoxaparin, a pre-filled syringe with SQ needle). As you remove the medication from the medication drawer, read the name on the package/vial, the dosage, and the expiration date. Compare this to the MAR, again reading the patient’s name, room number, the drug name, dosage, route, frequency/schedule, and time due.
  - Obtain equipment: a TB syringe with 25-27 gauge 3/8-5/8 inch needle or a Tubex/Carpujet holder, and an alcohol prep pad
    - If using a vial of heparin:
      - Cleanse top of vial with alcohol swab.
      - Pull back barrel of syringe to an amount of air equal to the amount of med dosage to be used.
      - Remove needle cap.
      - Insert needle into vial and inject air.
      - Invert vial and withdraw desired volume of med.
      - Cover needle with cap using scoop method.
  - Perform the Second Check: When drawing up the medication into the syringe, placing the pre-filled syringe into the Tubex/Carpujet holder, or measuring the dose in the pre-filled syringe with SQ needle, read the name of the medication on the package, the dosage, and the expiration date and compare this to the MAR, again reading aloud the patient’s name, room number, drug name, dosage, route, frequency/schedule, and time due. Label the syringe with the client’s name, room number, drug, dosage, the date, time and your initials.
____Check the dosage vial, your dose calculation, and the dosage you have drawn up in the syringe with another RN prior to administering the drug to the patient.

**Administration:**
____At the bedside, identify the patient. Ask him/her to state his name and inquire if the patient is allergic to anything. Check the client’s ID bracelet and allergy bracelet and compare the name on the ID bracelet with the name on the MAR.
____Explain to the client what medication you are going to be administering. Assess the client’s knowledge about his/her medications and do patient teaching as appropriate; explaining the purpose of each drug and answering any questions.
____Provide privacy.
____Wash hands and put on clean gloves.
____Assist the client to a comfortable position, sitting or supine, and swab the administration site with alcohol: abdomen (2 inches from umbilicus) or arm. Allow alcohol to dry.
____Perform the Third Check: Once again, read the name of the medication on the syringe, the dosage, and the expiration date and compare this to the MAR, again reading aloud the patient’s name, room number, drug name, dosage, route, frequency/schedule, and time due.
____Gently accumulate a well-defined roll of skin without pinching—use bunch technique.
____Remove needle cap.
____Using dart motion, inject at a 45 or 90 degree angle depending on amount of subcutaneous tissue.
____Do not aspirate. Inject slowly with even pressure.
____Withdraw the needle gently and release the skin.
____Do not rub area; apply gentle pressure.
____Assist patient to return to a comfortable position.
____Do not recap needle. Dispose of syringe and needle in Sharps container and wash hands.

**Documentation:**
____Record the time, route and site/location on the MAR according to hospital policy. Sign and initial.
____If a drug was withheld, enter and circle the time it was scheduled to be given on the MAR and record the code indicating the reason it was withheld. Also note the reason the medication was withheld in the nurse’s notes.

**Evaluation:**
____Return within 30 minutes to evaluate the patient’s response to the medication.
____Report any untoward effect, according to hospital policy, and document.

**Grade:** Pass/No Pass

Instructor’s Signature ________________________________
WEEK 9

WEEK 9: Assessing and Promoting Optimal Management of Diabetic Patients

6. Review of Prevalence and Pathophysiology of Diabetes
   Student Preparation
   • Read Week 8 of NE 101 Syllabus: Overview of Diabetes; Diabetes: Evidence Supports Tight Glycemic Control During Hospitalization.
   • Read Perry and Potter

   Discussion
   • Review of diabetes and insulin

   Student Lab Practice
   • Practice determining insulin requirements based on blood glucose results

7. Measuring Blood Glucose
   Student Preparation:
   • Review Skill Performance Check-List for Measuring Capillary Blood Glucose Levels Using Glucometer*

   Student Lab Practice:
   • With a buddy, practice using glucometer to test blood sugar/CBS using a glucometer and documenting on the diabetic flow sheet

8. Drawing up Insulin
   Student Preparation:
   • Review Skill Performance Check-list for Administration of SQ Medications*

   Student Lab Practice:
   • With a buddy, practice drawing up and administering SQ insulin, including CBS, drawing up correct insulin dosage, double checking dosage, site selection and prep, administration, and charting

9. Mixing Regular and NPH Insulin
   Student Preparation:
   • Review Skill Performance Check-list for Mixing Regular and NPH Insulin*

   Student Lab Practice:
   • With a buddy, practice drawing up Regular and NPH insulin in a syringe, including drawing up correct insulin dosage, double checking dosage, site selection and prep, administration, and charting

10. Student Skill Check-offs (skills introduced and practiced during the previous weeks):
    • Skill Performance Check-list: Administration of Oral Medications*
    • Skills Performance Check-list: Reconstitution of Medication from Powder to Liquid
    • Skills Check-List: Administration of Subcutaneous Medications
Overview of Diabetes

Online Resources: http://dtc.ucsf.edu/learning-library/handouts.html

Definition:

Diabetes is a group of disorders characterized by elevated levels of glucose in the blood—hyperglycemia.

Scope of Problem:

Diabetes is a chronic disease that is a major cause of death and disability in the US and it is reaching epidemic proportions. The number of deaths with diabetes as an underlying cause increased 46% between 1980 and 1996.

Diagnosis: of Diabetes

Normal glucose levels are 70-110 mg/dl. The World Health Organization diagnostic criteria for diabetes mellitus in non-pregnant adults is (1985):

On at least two occasions:

1. Random plasma glucose > 200 mg/dl
2. Fasting plasma glucose > 140 mg/dl
3. 2 hour sample during oral glucose tolerance test >200 mg/dl.
American Diabetes Association Target Plasma Glucose Recommendations:

<table>
<thead>
<tr>
<th>Before Meals</th>
<th>After Meals (Peak)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diabetic Range</td>
<td>Less than 180 mg/dl</td>
</tr>
<tr>
<td>Normal or Non-Diabetic Range</td>
<td>Normal or Non-Diabetic Range</td>
</tr>
</tbody>
</table>

Physiology/Pathophysiology:

Diabetes is a disease in which the body can’t use food as it should. In a healthy person, a hormone called insulin, which is produced in the beta cells of the pancreas, helps to convert food into energy. People with diabetes 1) lack insulin, 2) don’t make enough insulin, or 3) no longer respond to insulin.

The body needs energy. It gets that energy from food. When food is consumed, the body changes some of the food into sugar. Sugar gets into the bloodstream and goes to all the cells in the body. When the body doesn’t make enough insulin or can’t use insulin in the right way, sugar can’t get from the bloodstream into the cells. Then sugar builds up in the blood. High blood sugar can cause a variety of symptoms and make a person feel sick, though some people have high blood sugar and still feel well. Long-term hyperglycemia contributes to macrovascular (myocardial infarction, strokes, and peripheral vascular disease), microvascular (kidney and eye disease) and neuropathic complications (diseases of the nerves).

Types of Diabetes:

There are several different types of diabetes mellitus.

- Type I: Insulin dependent diabetes mellitus
- Type II Non-insulin dependent diabetes mellitus
- Diabetes mellitus associated with other conditions or syndrome
- Gestational diabetes mellitus.

Management:

Management of diabetes includes:

- Eating a well-balanced diet
- Remaining physically active and getting exercise
- Administration of pills and/or insulin, if needed, to replace insulin, stimulate production of insulin, improve/facilitate insulin’s action on peripheral receptor sites, decrease gluconeogenesis, increase sensitivity/receptors to insulin. The goal is to try to achieve normal glucose levels. When giving insulin administration is required to achieve normal glucose levels, the timing, type, and dosage of insulin administered attempts to mimic the body’s natural insulin secretion.
Monitoring blood sugar levels, both pre-prandial and post-prandial, and treating them when too high or too low. (Post-prandial glucose level is a strong marker for cardiovascular risk according to the Diabetes Intervention Study. And post-prandial glucose levels have been found to be a better predictor for risk of death than fasting levels.)

Controlling A1C levels. Control of A1C significantly decreases the rate of complications and diseases (e.g., retinopathy, nephropathy, neuropathy) associated with diabetes. In one study, for every 1% reduction in A1C, there was a corresponding reduction in microvascular complications of up to 35%.

The American College of Endocrinology (ACE) Diabetes Guidelines:

The American College of Endocrinology has recommended diabetes guidelines:

- Recommended A1C level: <6.5%
- Fasting and pre-prandial blood glucose targets <110 mg/dl
- Post-prandial blood glucose target: <140 mg/dl
- Frequent blood glucose testing. Blood glucose testing is alternately referred to as self-monitoring blood glucose (SMBG), finger stick blood glucose (FSB), capillary blood glucose (CBG) (as opposed to serum glucose that is done when the lab draws blood). Frequent blood glucose testing leads to better glycemic control which empowers patients to make changes in diet and exercise which leads to reduction in A1C.
  - Type 1 patients: at least 3 times per day
  - Type 2 patients at least 3 times per day
- Check Hemoglobin A1C levels (reflects glucose levels over a period of 2-3 months):
  - 2 times a year for those at goal
  - at least 4 times per year for those above goal or changing therapy

Signs and Symptoms of High Blood Sugar (Hyperglycemia):

- Headache
- Blurred vision
- Thirst
- Drinking a lot
- Urinating a lot
- Dry, itchy skin

**Treatment: What to do when blood sugar is high:**

- Test blood sugar
- Test for ketones in the urine
- Administer insulin as ordered
- Notify MD if blood sugar exceeds parameters

**Signs and Symptoms of Low Blood Sugar (Hypoglycemia):**

- Shakiness
- Nervous
- Light-headed
- Sweaty
- Tired
- Angry
- Hungry
- Confused
- Sleepy

**Causes of Low Blood Sugar:**

- Skipping a meal or snack
- Not eating all of a meal or snack
- Not eating at the right time
- Exercising harder than usual
- Drinking alcohol
- Taking too much insulin

**Treatment: What to do when blood sugar is low:**

- Test blood sugar. If unable to test, treat as if you have low blood sugar.
- Treat by eating or drinking something with sugar. The following foods have about 15 grams of sugar: 4 oz/1/2 cup fruit juice; 4 oz. Regular soft drink; 4 tsp granulated sugar; 2 tablespoons raisins; 1 Tbsp honey or syrup; 2-3 glucose tablets or ½ tube glucose gel; 3 pieces of hard candy; 8 oz milk
- Have glucagon kit for emergencies
- Don’t go to sleep until testing blood sugar
Diabetes: Evidence Supports Tight Glycemic Control During Hospitalization

Source: Medscape CME “Inpatient Insulin Therapy: Benefits and Strategies for Glycemic Control.”
Faculty: Bruce Bode, MD, FAAC, Atlanta Diabetes Associates; Anthony P. Furnary, MD; Susan S. Braithwaite, MD. View article at:  http://cme.medscape.com/viewarticle/544930_2

Learning Outcome: The student will be able to demonstrate the use of clinical guidelines to achieve glycemic control during patient hospitalizations

Learning Objectives:
1. List the benefits of tight glycemic control
2. Identify the purpose of insulin clinical guidelines
3. Review how hyperglycemic patients may be identified and defined in clinical various settings
4. Describe the use of various guidelines including:
   a. When to start IV insulin therapy versus subcutaneous insulin therapy
   b. When to transition from IV insulin to subcutaneous insulin
   c. How to use the Peri-operative or Labor & Delivery guidelines
5. Review the documentation that may be required within the student’s clinical setting

I. Prevalence, Economic, and Physiological Burden of Diabetes
• Diabetes is very prevalent.
  ○ It affects 4.6 million patients
  ○ From 1991 to 2001 there has been a 48% increase in the diagnosis of diabetes listed on hospital discharge. Some experts believe almost 30% to 50% of that diagnosis are currently being missed.
  ○ It complicates numerous illnesses (it is present in at least 29% of all cardiac surgery patients)
  ○ It is the fourth most common co-morbid condition affecting hospital discharges.
• Diabetes is very expensive
  ○ Diabetes in the hospital accounts for over 44% of total costs; this is over $40 billion.
  ○ It is associated with:
    ▪ over 17 million hospital days
    ▪ $40 billion in cost
    ▪ a length of stay that is at least 1 to 3 days longer
• Diabetes contributes to mortality
  ○ Diabetes doubles your mortality risk in the hospital from 1.7% to 3%.
  ○ In new onset hyperglycemia, the mortality is 16%.
  ○ Therefore, whether a patient has diabetes or not, their blood glucose level in the hospital is very important.

II. Hyperglycemia in Hospitalized Patients
• Hyperglycemia occurs in 3 different situations in hospitalized patients:
  ○ In patients who are known diabetics
  ○ In patients who have diabetes but you don't know it
  ○ In patients who acquire hospital-associated, stress-induced, or iatrogenic diabetes
• A study by Norhammar and colleagues found that 66% of all people who are hospitalized for a cardiac problem say they don’t have diabetes but in fact do have it. The researchers looked at people with an acute myocardial infarction (MI) and asked these people, “Do you have diabetes?” If they said they had diabetes, they were excluded from the study. In the study, 181 consecutive cardiac patients said they did not have diabetes. The researchers measured these people initially, then 3 months later; they found that one third had known diabetes, and another third had undiagnosed diabetes.

III. Benefits of Tight Glycemic Control:
• When glucose is normalized outcomes improve
cardiac surgery outcomes improve
ICU outcomes improve
post-MI outcomes improve
hospital infection outcomes improve
CVA outcomes improve

Research shows that the use of intensive insulin therapy to achieve tight glycemic control improves patient outcomes

A landmark prospective, randomized study of 1548 surgical ICU patients done by Van den Berghe in 2001 showed huge reductions in mortality, sepsis, incidence of dialysis, use of blood transfusions and occurrence of polyneuropathy when an intensive insulin treatment was used. In the intensive insulin treatment, insulin was given when BS > 110, and blood glucose levels were maintained between 80 and 110. (In conventional insulin treatment, insulin was given when blood glucose was > 215 and blood glucose levels were maintained between 180 and 200.)

The Portland Diabetic Project carried out various studies and introduced 3BG as a prime measurement and carried out various studies which proved that tight control of diabetes using intensive insulin therapy reduces morbidity, mortality, and length of stay

- 3BG is determined by taking glucose measurements from the day of surgery, the first postoperative day, second, third, fourth, fifth, and so on, and averaging the glucose levels. Thus, the 3-BG is an average 3-day perioperative blood glucose measurement made up of no fewer than 24 measurements of blood glucose over that 3-day period and as many as 72 measurements. The 3-BG is a very highly accurate statement of the glycemic state of the patient.

- 3-BG data tell us that the duration of insulin therapy is just as important as achieving target glucose levels in achieving positive outcomes for mortality, infection, and length of stay

The studies done by the Portland Diabetic Project found that:

- Continuous Insulin Infusion independently reduced mortality of CABG patients by 65% as compared with Subcutaneous Insulin controls
- Diabetes Mellitus is not the true risk factor for death following CABG patients; it is myocardial glycometabolic states that influence mortality
- Similarly, hyperglycemia in diabetics, not the diagnosis of Diabetes Mellitus itself, is the causal factor for infection
- Continuous Insulin Infusion given for 3 post-op days independently reduced the incidence of deep sternal wound infections by 63%
- The incidence of Deep Sternal Wound Infection in diabetic patients can be normalized to the incidence in non-diabetic patients through the use of a Continuous Insulin Infusion protocol that safely reduces hyperglycemia.

Conclusions:

- Diabetes is not a risk factor for increased mortality, infection, length of stay, or postoperative complications in cardiac surgery patients.
- 3-BG is the true risk factor for morbidity and mortality in diabetic cardiac surgery patients, medical and surgical ICU patients, and possibly MI patients.
- Continuous Insulin Infusions that completely control for all the components of 3-BG normalize the risk of diabetic patients to that of the nondiabetic patient population.

IV. Identification of Diabetes and Hyperglycemia:

- In order for the nurse to effectively manage hospitalized patients, it is important not only to know which patients are diabetics but to recognize patients with hyperglycemia.

- The World Health Organization has criteria for making a diagnosis of diabetes mellitus in non-pregnant adults (1985):
  - Diabetes can be diagnosed if, on at least two occasions:
1. Random plasma glucose > 200 mg/dl
2. Fasting plasma glucose > 140 mg/dl
3. 2 hour sample during oral glucose tolerance test >200 mg/dl.

• To recognize patients with hyperglycemia, the nurse must know now hyperglycemia is being defined in the particular health care institution. Both the American Diabetes Association (ADA) and the American College of Endocrinologists have published guidelines regarding the definition of diabetes and normal glucose levels.
  
  o Normal Glucose Levels:
    • Fasting glucose:
      • Glucose less than 110 mg/dL (ACE); patients with a glucose > 110mg/dl are consider hyperglycemic
      • Glucose 90 mg/dL to 130 mg/dL (ADA); patients with a glucose > 130mg/dl are considered hyperglycemic
    
    o Peak post-prandial (right after eating):
      • Glucose less than 180 mg/dL (ACE and ADA); patients with a glucose > 180mg/dl are considered hyperglycemic

V. Purpose of Insulin Clinical Guidelines/Algorithms:
The over-all goal is for all patients to have a normal glucose. The most powerful agent available to achieve normal glucose levels is insulin therapy. To achieve the goal of having all patients have normal glucose levels, clinical insulin guidelines or algorithms for hospitalized patients have been adopted to guide providers. Ideally, insulin guidelines should be:

• Easily ordered and include frequency of blood sugar monitoring and insulin orders based on blood sugar and insulin sensitivity
• Effective—gets to goal is to get glucose levels as close to normal as possible as quickly as possible
• Safe (minimal risk hypoglycemia)
• Easily implemented
• Able to be used hospital-wide

VI. Methods of Administering Insulin Therapy
• There are three major ways of administering insulin therapy:
  o SQ basal + bolus
  o IV push
  o Continuous, variable rate IV drip

• The goal of insulin administration is to mimic normal insulin secretion patterns. Guidelines being implemented today are using algorithms to help the provider determine the type of insulin to administer, the amount of insulin to administer, and the route of administration. These algorithms consider a number of factors including the patient’s condition, the patient’s blood glucose, whether or not the patient is eating, and the patient’s insulin sensitivity.

VII. Recommendations for Selecting Basal + Bolus Insulin Therapy vs. Continuous, Variable Rate IV Therapy:

For patients who are **stable and able to eat**:
• Use Basal + Bolus Therapy
• If ineffective in controlling glucose, go to Continuous, Variable Rate IV therapy

For patients who are **unstable and in the ICU**:
• Use Continuous, Variable Rate IV Insulin therapy, especially if patient:
  o is NPO (nothing by mouth)
  o is unstable,
  o is in septic shock
  o is post-op major surgery
• has suffered an MI,
• has gastroparesis,
• is in diabetic ketoacidosis (DKA),
• has hyperglycemia that isn’t being controlled,
• is receiving steroids

For post-partum patients:
• Use Continuous, Variable Rate IV Insulin drips.

VIII. Major components of an adult, (non-pregnant) SQ Basal/Bolus Insulin Guideline:
Standardized guidelines for glycemic control of hospitalized patient that are developed or adopted should include the following:

1. Diet Order
2. Schedule of CBS/FSBS (Capillary Blood Sugar/FingerStick Blood Sugar) testing
3. Target Blood Glucose
4. Insulin Dose Definitions: Basal, Mealtime, and Correctional Insulin Doses
5. Insulin Correction Factor or Sensitivity and Dosing Algorithm based on the patient’s insulin sensitivity
6. Administration Guidelines
7. Documentation Guidelines
8. Reasons to Notify MD
9. Actions to Take in case of Hypoglycemia

1. **Diet order:** Consistent Carbohydrates (average number of grams should be established by each facility) until a Nutrition consult
2. **Fingerstick Blood Glucose Schedule:**
   • Before Meal (ac) and at bedtime (hs) (before breakfast, lunch, and supper and at bedtime) *or*
   • Before Meal (ac) and at bedtime (hs) and 0300 hours (before breakfast, lunch, and supper and at bedtime and middle of sleep period) *or*
   • Every 4 hours (recommended for patients NPO, on tube feedings, or on TPN) *or*
   • Every ____ hours
3. **Target Blood Glucose (Example):**
   • 100 mg/dl if not prone to hypoglycemia
   • 120 mg/dl if prone to hypoglycemia
4. **Insulin Definitions:**
   • **Basal Insulin:** attempts to mimic normal insulin secretion
     1. Long acting analog (Glargine): onset 1.5 hours, sustained release over 24 hours
     2. NPH: onset 1.5 hours, peak 4-8 hours, duration 10-14 hours
   • **Prandial/Mealtime Insulin:** attempts to provide adequate insulin for the number of carbohydrates that will be consumed at a meal
     1. Regular
     2. Rapid Acting Analog (Lispro, Aspart): onset 10-14 minutes, peak 1-3 hours; duration 4-5 hours
   • **Correction Dose Insulin:** used to lower blood glucose greater than 140 mg/dl at mealtime, bedtime and 0300 hours in addition to scheduled mealtime and basal doses
     1. Rapid Acting Analog
     2. Regular Insulin
5. **Insulin Correction Factor or Sensitivity and Dosing Algorithm According to Sensitivity**
   • **Correction Factor** for the patient
     - The *correction factor or insulin sensitivity factor* gives you a guesstimate of how much a specific patient’s glucose will be lowered by 1 unit of rapid-acting or regular insulin. The correction factor is calculated by taking the total daily dose and divide it 1500 or 1700.
• Example: If the patient requires 50 units of insulin a day, 1 unit of insulin will lower the patient’s glucose approximately 30 or 35 points:

\[
\begin{align*}
1500 & \div 50 = 30 \\
1700 & \div 50 = 35
\end{align*}
\]

- The dosage algorithm specifies dosages for blood sugar ranges and differentiates those dosages for patients of various weights and with pathophysiological conditions because these are factors which determine sensitivity to insulin sensitivity:
  1. Low Dose: thin, elderly or renal patients
  2. Moderate Dose: average size adult
  3. Moderate High Dose Algorithm: for patients who are obese, infected, or on steroids
  4. High Dose Algorithm: for extremely insulin resistant patients, those who are septic

6. Administration Guidelines
   - All insulin is given subcutaneously unless ordered otherwise
   - A pharmacist or a diabetes educator should be consulted for assistance with insulin dosing
   - MEALTIME insulin doses are HELD when patient is NPO.

7. Documentation Guidelines:
   - Blood glucose result, time, date, initials
   - Insulin Basal doses, Prandial/mealtime doses, and Correction doses administered, with date, time, injection site, initials

8. Reasons to Notify MD (examples):
   - If patient NPO for procedure/surgery
   - If bedside blood sugar is greater than 200 for 2 consecutive BG measurements
   - If continuous enteral feeding or TPN is stopped or interrupted
   - If K+ level drops to greater than 4
   - If BG is less than 60mg/dl two times in a row

9. Actions to take in case of hypoglycemia
   - Every hospital has a protocol. For example:
     - For sugar level less than 60 mg/dL in a patient with IV access:
       - Give D50 IV in an amount determined by 
         \[\text{Blood sugar} - 100 \times 0.4 = \text{mls of D50.}\]
       - Recheck blood sugar in 15 minutes and retreat as necessary.
     - For a blood sugar level less than 60mg/dL in a patient who is eating:
       - Give 15 g of glucose, typically 4 oz of juice.
     - Note: Do not withhold basal or prandial insulin when the glucose is normal.

IX. Recommendations for Initiating SQ Insulin
   - Initial SQ insulin dosing can be determined for both Type I and Type II patient based on weight:
     \[
     \text{0.5 x patient’s weight in kilograms} = \text{average total daily insulin dose}
     \]
   - The basal long-acting Glargine insulin dose is 50% of the total daily insulin dose
   - The bolus rapid acting Lantus/Aspart insulin dose is the remaining dose divided by 3 equal meals given in proportion to the food eaten.
   - The correction rapid acting Lantus/Aspart insulin dose calculated by taking the current blood sugar, subtracting 100, and dividing by the correction patient’s factor.

X. Recommendations for Use of a Continuous, Variable Rate Insulin Drip:
• For surgical patients in the perioperative period, some authorities recommend using an insulin drip if the patient is above 110 mg/dL, but suggest that those facilities where the use of IV insulin is being newly adopted use 140 mg/dL as the threshold.
• For nonsurgical illness, some authorities recommend a threshold of 140mg/dL to 180 mg/dL.
• In pregnancy, data supports the use of IV insulin for glucose greater than 100 mg/dL.

XI. Major components of an adult, (non-pregnant) Continuous, Variable Rate Insulin Guideline:
I. Diet order (usually NPO but may be on TPN or enteral feedings)
II. Target Blood Glucose
III. FSBS Schedule
IV. Type/concentration of insulin drip
V. How to determine the insulin rate
VI. IV fluids and potassium
VII. Documentation Guidelines
VIII. Reasons to Notify MD
IX. Actions to Take in case of Hypoglycemia
X. Transition to SQ Insulin

XI. Example of determining the rate for continuous, variable rate IV insulin using an algorithm (Paul Davidson):
• Starting insulin units per hour = Blood Sugar – (60 x 0.02)
• Measure the blood glucose every hour and adjust the rate

XII. Transition from IV to SQ Insulin
• Orders must always be on the chart to transition patients from the IV to SQ insulin protocol. (Exception: Patients with a) no history of diabetes and b) who have a normal hemoglobin A1C may not need to be converted from IV to SQ insulin.)
  o Criteria: Conversion from IV to SQ insulin may be done if the patient requires >0.5 units of insulin/hour and has a normal blood glucose.
  o Timing: The SQ insulin should be started at least 2 hours before stopping the continuous, variable rate IV insulin drip.

• The Required SQ Insulin Dose:
  o Whatever the dose of insulin that is needed via the IV route is needed via the Subcutaneous; it is about a 1:1 ratio
  o To get the needed SQ transition dose, look at the required IV insulin for the last 4 hours that got the patient to their target blood sugar. Extrapolate that dose over a 24-hour period to calculate the total daily dose. This will give the total required insulin dose for 24 hours.

• Steps in the Administration of the Required SQ Insulin Dose
  1. Determine the patient’s current blood glucose
  2. Determine the Correction Factor for the patient
     o The correction factor or insulin sensitivity factor gives you a guesstimate of how much a specific patient’s glucose will be lowered by 1 unit of rapid-acting or regular insulin. The correction factor is calculated by taking the total daily dose and divide it 1500 or 1700.
     o Example: If the patient requires 50 units of insulin a day, 1 unit of insulin will lower the patient’s glucose approximately 30 or 35 points:

\[
\frac{1500}{50} = 30
\]
Note that if you do not know the patient’s current required total daily dose, the correction factor/insulin sensitivity factor can be calculated by dividing 3000 by the patient’s weight in kilograms. **Example:** If the patient weighs 100 kg, 1 unit lowers them 30 points; if the patient weighs 30 kg, 1 unit lowers the blood glucose 100 points:

\[
\frac{3000}{100} = 30 \\
\frac{3000}{30} = 100
\]

3. Determine the Basal Insulin, Prandial Insulin, and Correction/Bolus Insulin required

**Basal Insulin:**
- The night before stopping the IV insulin drip, give 50% of the extrapolated 24 hour required IV insulin as basal insulin (glargine) (continue to monitor blood sugars)
- Note that long-acting insulin is often scheduled at bedtime but can be scheduled any time
- There has been much less hypoglycemia associated with the long acting-insulin than with NPH and a more predictable fasting blood glucose.

**Prandial Insulin**
- In the morning, if the patient is eating, give the remaining 50% of the required 24 hours dose as 3 equally divided prandial (before meal) doses of rapid acting analog insulin (Lispro, Aspart).
- Rapid-acting analog insulin is preferred because Regular insulin takes 45 minutes to work; it peaks in 2 to 4 hours and lasts up to 8 hours.
- The insulin is given when the patient eats, so it is often administered at the end of a meal based upon the carbohydrate ratio eaten, but it can be done on the basis of the portion of food eaten: if the patient eats the whole tray, they get the full dose; if the patient eats half the tray, they get half the dose.

**Correction or Bolus Insulin:**
- This used to be called Sliding Scale insulin, but sliding scale often meant that you only gave only the sliding scale insulin based on the patient’s current blood sugar but no pre-meal insulin and no basal insulin.
- **Correction** insulin is given in addition to both Basal and Prandial/meal-related insulin.
- The **Correction or Bolus** dose of insulin to be administered is calculated using a simple formula:
Current blood glucose - Ideal blood glucose
Correction Factor

- Example: Current blood sugar is 250 mg/d; ideal is 100 mg/dL; correction factor is 30. You would give 5 units of rapid acting insulin. This is in addition to the meal dose.
\[
\frac{250 - 100}{30} = 50
\]

- Determining the Correction Factor or Insulin Sensitivity Factor

**Example of transitioning a patient from IV to SQ Insulin:**
- The patient requires a total of 50 units of insulin/day (determined by calculating the amount of insulin required for the last 4 hours while patient is at target and extrapolating to 24 hours)
  - At night, 2 hours prior to stopping the insulin drip, give 50% of the total insulin requirement, or 25 units, as basal long-acting Glargine insulin
  - In the morning, if the patient is eating:
    - Obtain the blood sugar. In this example the blood sugar patient’s blood sugar is 250mg/dl
    - Give the remaining 25 units of total insulin requirement in 3 equally divided prandial doses of rapid-acting Lispro/Aspart with each meal, i.e. 25 units/3 meals = 8 units with each meal
    - Give the correction dose of rapid-acting Lispro/Aspart insulin. If current blood sugar is at 250 mg/dl (target blood glucose is 130-140 mg/dl) and the person is going to eat or has eaten, give 5 units of rapid-acting Lispro/Aspart correctional insulin in addition to the 8 units prandial insulin (for a total of 13 units of rapid-acting Lispro or Aspart insulin)
  - In the morning, if the patient is not eating, or is NPO for a procedure or test:
    - Obtain the blood sugar
    - Give only the correction dose of insulin (the amount of insulin required to get their current blood glucose to target of 130mg/dl to 140mg/dl)/Hold the prandial/meal bolus because it is used to cover carbohydrates in a meal and the patient is not eating.
This Sample Clinical Guideline is a compilation of recommended best practices created by a multidisciplinary medical team whose goal is to improve the care of individuals with diabetes. This Guideline is designed to assist hospitals and providers in educating themselves and their patients on medical care to individuals with diabetes and is not intended to be a standard of practice. The legal standard of care applicable to each hospital and patient will vary depending on the circumstances. It is important to note that Federal requirements prohibit the use of standing orders except where specifically allowed and that individual plans of care must be used for each patient.

**ADULT SUBCUTANEOUS INSULIN SAMPLE CLINICAL GUIDELINE**

**(NON-PREGNANT)**

**TARGET BLOOD GLUCOSE 90-140**

1. **DIET:** _______________ Consistent Carbohydrates* until Nutrition consult *Average number of grams should be established by each facility
   - Consult Nutritionist

2. **FINGERSTICK BLOOD GLUCOSE SCHEDULE:**
   - Before Meal (ac) and at bedtime (hs) (before breakfast, lunch, and supper and at bedtime)
   - Before Meal (ac) and at bedtime (hs) and 0300 hours (before breakfast, lunch, and supper and at bedtime and middle of sleep period)
   - Every 4 hours (recommended for patients NPO, on tube feedings, or on TPN)
   - Every ____ hours

3. **INSULIN DOSING:**
   1. All insulin to be given subcutaneously unless ordered otherwise
   2. Consult Pharmacy or Diabetes Educators for assistance with insulin dosing
   3. **Hold** scheduled MEALTIME insulin doses when patient is NPO. **Do not hold basal insulin or correction dose insulin when patient is NPO.**

<table>
<thead>
<tr>
<th>Scheduled Insulin</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Breakfast</strong></td>
</tr>
<tr>
<td><strong>Mealtime insulin order</strong></td>
</tr>
<tr>
<td>Rapid Acting Analog</td>
</tr>
<tr>
<td>Regular insulin</td>
</tr>
</tbody>
</table>

**Basal *insulin order**

<table>
<thead>
<tr>
<th>*<em>Basal <em>insulin order</em></em></th>
<th>Give ____ units of:</th>
<th>Give ____ units of:</th>
</tr>
</thead>
<tbody>
<tr>
<td>□ Long acting analog</td>
<td>□</td>
<td>□</td>
</tr>
<tr>
<td>NPH</td>
<td>□ Long acting analog</td>
<td>□</td>
</tr>
<tr>
<td>□ Other: ____________</td>
<td>NPH</td>
<td>□ Other: ____________</td>
</tr>
</tbody>
</table>

**Rapid Acting Analogs:** onset is 10-15 minutes; peak 1-3h; duration 4-5 hours

**Long Acting Analog:** onset is 1.5 hours, sustained release over 24 hours

**NPH:** onset is 1.5 hours, peak 4-8 hours; duration 10-14 hours

*Upon discharge, the patient may be discharged on pre-mix based on individual needs.

4. **Additional Correction Doses of insulin are used to lower blood glucose greater than 140mg/dl at mealtime, bedtime and 0300 hours in addition to scheduled mealtime and basal doses**

4. **CORRECTION DOSE INSULIN TYPE:**

- □ Rapid Acting Analog
- □ Regular Insulin
[ ] Low Dose Algorithm (for thin, elderly, or renal patients) [Blood Glucose (BG) – 100 / 50]

<table>
<thead>
<tr>
<th>BG ac, hs, 0300 hours</th>
<th>Additional Insulin</th>
</tr>
</thead>
<tbody>
<tr>
<td>141-175</td>
<td>1 unit</td>
</tr>
<tr>
<td>176-225</td>
<td>2 units</td>
</tr>
<tr>
<td>226-275</td>
<td>3 units</td>
</tr>
<tr>
<td>276-325</td>
<td>4 units</td>
</tr>
<tr>
<td>326-375</td>
<td>5 units</td>
</tr>
<tr>
<td>If greater than 375</td>
<td>Contact M.D.</td>
</tr>
</tbody>
</table>

[ ] Moderate Dose Algorithm (for average size adult) [BG – 100/ 40]

<table>
<thead>
<tr>
<th>BG ac, hs, 0300 hours</th>
<th>Additional Insulin</th>
</tr>
</thead>
<tbody>
<tr>
<td>141-160</td>
<td>1 unit</td>
</tr>
<tr>
<td>161-200</td>
<td>2 units</td>
</tr>
<tr>
<td>201-240</td>
<td>3 units</td>
</tr>
<tr>
<td>241-280</td>
<td>4 units</td>
</tr>
<tr>
<td>281-320</td>
<td>5 units</td>
</tr>
<tr>
<td>If greater than 320</td>
<td>Contact M.D.</td>
</tr>
</tbody>
</table>

[ ] Moderate High Dose Algorithm (for obese or infected patients or those on steroids) [BG-100/30]

<table>
<thead>
<tr>
<th>BG ac, hs, 0300 hours</th>
<th>Additional Insulin</th>
</tr>
</thead>
<tbody>
<tr>
<td>141-145</td>
<td>1 unit</td>
</tr>
<tr>
<td>146-175</td>
<td>2 units</td>
</tr>
<tr>
<td>176-205</td>
<td>3 units</td>
</tr>
<tr>
<td>206-235</td>
<td>4 units</td>
</tr>
<tr>
<td>236-265</td>
<td>5 units</td>
</tr>
<tr>
<td>296-325</td>
<td>7 units</td>
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<tr>
<td>If greater than 326</td>
<td>Contact M.D.</td>
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</tbody>
</table>

[ ] High Dose Algorithm (for very insulin resistant patients or septic patients) [BG-100/20]

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<thead>
<tr>
<th>BG ac, hs, 0300 hours</th>
<th>Additional Insulin</th>
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<tbody>
<tr>
<td>141-150</td>
<td>2 units</td>
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<tr>
<td>151-170</td>
<td>3 units</td>
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<tr>
<td>171-190</td>
<td>4 units</td>
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<td>191-210</td>
<td>5 units</td>
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<tr>
<td>211-230</td>
<td>6 units</td>
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<td>231-250</td>
<td>7 units</td>
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<tr>
<td>251-270</td>
<td>8 units</td>
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<tr>
<td>271-290</td>
<td>9 units</td>
</tr>
<tr>
<td>If greater than 291</td>
<td>Contact M.D.</td>
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</tbody>
</table>

*If above correction is not working and BG is persistently greater than 140 mg/dl, consider using an individualized correction dose algorithm with calculations.*

[ ] Calculate the Individualized Correction Dose for BG greater than 140 mg/dl, using the formula:

\[
\text{Rapid acting insulin dose} = \frac{\text{Current BG} - \text{Target BG}}{\text{Correction Factor}}
\]
*How to calculate correction factor:
1700 divided by Total Daily Insulin Dose or 3000 divided by weight in kg

Examples of Target BGs:

- 100 mg/dl if not prone to hypoglycemia
- 120 mg/dl if prone to hypoglycemia

5. Document blood glucose and all aspects of correction doses, mealtime doses, and basal doses of insulin delivery (i.e., dose, injection site, initials, and time) on the Nursing Flowsheet.

6. Notify MD:
   - If patient NPO for procedure/surgery
   - If bedside blood sugar is greater than 200 for 2 consecutive BG measurements
   - If continuous enteral feeding or TPN is stopped or interrupted
   - If K+ level drops to greater than 4
   - If BG is less than 60mg/dl two times in a row

7. Hypoglycemia: Implement hypoglycemia protocol if blood glucose is less than or equal to 70 mg/dL
   - If able to drink, give 15 grams of glucose in the form of 4 oz of juice or 3 glucose tablets;
     - Recheck BG in 15 minutes and retreat if needed
   - If unable to eat, give D50 IV push where cc of D50 = (100 – BG) x 0.4

Physician Signature _____________________________ Date : ________________
Skill Performance Checklist:

Measuring Capillary Blood Glucose Levels Using a Glucometer*

_____1. Review orders.
_____2. Gather equipment. Review instructions for meter usage. Calibrate meter following manufacturer’s instructions.
_____3. Wash hands.
_____4. *Identify patient.
_____5. Explain the procedure to the patient.
_____6. *Have the client wash hands with soap and warm water, or use alcohol swab per hospital policy. If alcohol is used, wipe or let dry prior to puncture.
_____7. Assist the client into a comfortable position.
_____8. *Apply gloves.
_____9. Load sterile lancet in device; set spring if necessary.
_____10. Turn meter on.
_____11. Place unused reagent strip in glucometer as per manufacturer’s directions.
_____12. Hold client’s finger in a dependent position for about 30 seconds to promote blood flow, and squeeze to collect blood in fingertip.
_____13. *Place puncture device on side of fingertip (not sensitive center of finger pad) and perform puncture.
_____14. Wipe away the first drop of blood from the site.
_____15. Gently knead around the site to produce a large droplet of blood.
_____16. *Apply the droplet of blood to the reagent strip without the finger itself touching strip.
_____17. *Press timer on the machine to begin.
_____18. Apply pressure with 2x2 or cotton ball to puncture site to stop bleeding.
_____19. Wait the correct time interval before reading the results.
_____20. Turn off meter, dispose of test strip, 2x2 or cotton ball, and lancet properly.
_____21. Remove gloves and wash hands.
_____22. Record and report findings, and intervene as needed.
_____23. Use this opportunity for patient teaching, particularly regarding the importance of frequent testing.

Score ____________  Instructor: ________________________

Estimated time to complete the skill: 10 minutes
## DIABETES RECORD

**SUMMIT MEDICAL CENTER**

**GLUCOSE KEY:**
- L: LAB  F: FINGERTIP
- M: METER

**INJECTION SITE LEGEND:**
- L = LADY  R = R.G.O.O  G = L
- VENTROGLUTEAL  D = R  VENTROGLUTEAL
- G = L  D = R  H = R  D = L

<table>
<thead>
<tr>
<th>Date</th>
<th>Time</th>
<th>Blood Glucose</th>
<th>Meter Number</th>
<th>Insulin</th>
<th>Injection Site</th>
<th>Administered By</th>
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**INITIAL**  
**SIGNATURE/TITLE**

**INITIAL**  
**SIGNATURE/TITLE**
Skill Performance Check-List:  
Administration of Subcutaneous Insulin*

Student Name:___________________________________Date:_________________________________

Definition:  To deposit the prescribed amount of insulin into the subcutaneous tissues with the least amount of tissue damage.

Assessment:
- Check the MAR with the physician’s written order for accuracy.
- Review purpose(s) of medication, normal dosage range, administration routes, side-effects, contraindications, and nursing considerations.
- Assess for contraindications to administration of insulin (e.g., low serum glucose, NPO status without a source of glucose).
- Assess the client’s medical record for age, allergies, and lab results (consider especially serum glucose).

Planning:
- Check scheduling of medications for problems/conflicts.
- Check that medication is available. If not, order from pharmacy.

Implementation: Preparation and Administration of Medication
Preparation:
_____Wash hands.
_____Prepare medication for one client at a time using the Five Rights.
_____Obtain equipment: Insulin syringe 1/2cc or 1cc (100 units/cc) with 28 gauge 3/8-5/8 inch needle; alcohol prep pad.
- Unlock the medication cart, log on to the computer/Pyxis, or go into the refrigerator to obtain the prescribed type of insulin (e.g., Lispro, Regular, NPH, Lente, Semilente, Ultralente, Iletin, Humulin/Novolin, Pork, Beef).
- Cleanse the top of vial with alcohol swab. Pull back barrel of syringe to an amount of air equal to the amount of med dosage to be used. Remove needle cap. Insert needle into vial and inject air. Invert vial and withdraw desired volume of medication, being careful to expel air bubbles whose presence can affect the dosage. Cover needle with cap using scoop method.
- Check the medication 3 times: 1) when removing it from drawer/refrigerator, compare it to the med sheet; 2) when drawing it up from the vial into the syringe, compare it to the med sheet; 3) when you are in the room preparing to administer it to the client, compare it to the med sheet.
- Double-check the dose you have prepared with another nurse. NOTE: Most hospital policies and procedures require that insulin dosages be double-checked with another licensed nurse. The licensed nurse who is double-checking the insulin dose should 1) ask for/read the blood sugar result; 2) read the physician’s insulin order; 3) check the medication vial for the name/type of insulin, the expiration date, and 4) check that the dosage in the syringe is correct. The licensed nurse who is double-checking should use the same amount of care as if the nurse was administering the drug him/herself.

Administration:
- Insulin is usually administered routinely before meals, though it may also be ordered at other times. Plan administration of routine insulin doses around meal times, allowing enough time to check the client’s finger stick glucose, prepare the injection, and provide adequate time for the insulin’s onset.
- Identify the client: Ask the individual to state his/her name. Compare the name on MAR with name on individual’s ID bracelet.
Explain the procedure to the patient. Assess the client’s knowledge about the medication. Do patient teaching as appropriate; explain the purpose of the drug and answer any questions. **Tell the patient his blood glucose level and the amount of insulin you are giving.**

Provide privacy.

Wash hands and put on clean gloves.

Assist the client to a comfortable position, sitting or supine, and swab the administration site with alcohol: Allow alcohol to dry. (Alcohol is optional at home). It is recommended that the abdomen be the primary site for injections. Give injections one inch away from the previous site. If the client is used to giving injections in other sites, give them in the same body part at the same time of each day: e.g., AM abdomen, PM left buttock.). To avoid too rapid absorption, it is recommended that limbs which may be exercised be avoided. However, the arms can be used for PM doses, the legs for HS doses.

Perform third check: Ensure that this is the correct patient, med, dosage, route, and time and that insulin in this dose seems appropriate for this patient at this time (e.g., patient does not have signs/symptoms of hypoglycemia, patient has a source of food or glucose.)

Gently accumulate a well-defined roll of skin without pinching—use “bunch” technique.

Remove needle cap.

Hold the syringe like a pencil. Using dart motion, inject at a 90 degree angle. **Do not aspirate.** Push the plunger down and release the skin. Wait 1-2 seconds.

Withdraw the needle quickly

**Do not rub area;** apply gentle pressure.

Assist patient to return to a comfortable position.

*Dispose of syringe and needle in Sharps container and wash hands.

Documentation:

Record the time and the administration site on the MAR, and the FSBS, according to hospital policy. Sign and initial.

If drug was withheld, enter and circle the time it was scheduled to be given on the MAR and record the code indicating the reason it was withheld. Also note the reason the medication was withheld in the nurse’s notes.

Evaluation:

- Make sure client has food or a source of glucose available after giving insulin.
- Return within 30 minutes to evaluate the patient’s response to the medication.
- Report any untoward effect, according to hospital policy, and document.

Grade: Pass/No Pass

Instructor’s Signature____________________________
Skill Performance Check-List:  
Mixing Regular and NPH Insulin*

(Note: Students may find that they rarely mix Regular and NPH Insulin in clinical settings due to new types of insulin and new diabetes management protocols)

Student Name:___________________________________Date:_________________________________

Definition/Purpose: To administer a short-acting and a longer-acting insulin in prescribed amounts simultaneously into the subcutaneous tissues with the least amount of discomfort and tissue damage.

Assessment:
- Check the MAR with the physician’s written order for accuracy.
- Check med order against result of FSBS to determine correct dosage (for insulin ordered according to a Sliding Scale—also called Rainbow Coverage).
- Review purpose(s) of medication, normal dosage range, onset of action, administration routes, side-effects, contraindications, and nursing considerations.
- Assess for contraindications to administration of insulin (e.g., low serum glucose, NPO status without a source of glucose).
- Assess the client’s medical record for age, allergies, and lab results (consider especially serum glucose).

Planning:
- Check scheduling of medications for problems/conflicts.
- Check that medications are available. If not, order from pharmacy.
- Plan administration of routine insulin doses around meal times, allowing enough time to check the client’s finger stick glucose, prepare the injection and double-check it with another nurse, and administer it far enough in advance to allow adequate time for the insulin’s onset before a meal.

Implementation: Preparation and Administration of Meds

Preparation:
- Wash hands.
- Prepare medication for one client at a time using the Five Rights.
- Obtain equipment: Insulin syringe 1/2cc or 1cc (100 units/cc) with 28 gauge 3/8-5/8 inch needle; alcohol prep pad.
- Unlock the medication cart, log on to the computer/Pyxis, or go into the refrigerator to obtain the prescribed types of insulin (e.g., Regular, NPH, Humulin/Novolin, Pork, Beef).
- Cleanse top of each vial with an alcohol swab. Pull back barrel of syringe to an amount of air equal to the volume of both insulin dosages. Remove needle cap. Insert needle into NPH vial first and inject air without inverting vial and contaminating needle.
- Inject remaining air into Regular insulin vial, invert vial, and withdraw desired volume of medication, being careful to expel air bubbles whose presence can affect the dosage. Have another nurse check the dosage.
- Insert needle into NPH vial and withdraw correct dose. Have another nurse check the dosage.
- Cover needle with cap using scoop method.

Administration:
- Identify the client: Ask the individual to state his/her name. Compare the name on MAR with name on individual’s ID bracelet.
- Explain the procedure to the patient. Assess the client’s knowledge about the medication. Do patient teaching as appropriate; explain the purpose of the drug and answer any questions.
- Provide privacy.
- Wash hands and put on clean gloves.
____Assist the client to a comfortable position, sitting or supine, and swab the administration site with alcohol. Allow alcohol to dry. (Alcohol is optional at home). It is recommended that the abdomen be the primary site for injections. Give injections one inch away from the previous site. If the client is used to giving injections in other sites, give them in the same body part at the same time of each day: e.g., AM abdomen, pm left buttock.). To avoid too rapid absorption, it is recommended that limbs which may be exercised be avoided. However, the arms can be used for PM doses, the legs for HS doses.

____Perform third check: Check to ensure that this is the correct patient, med, dosage, route, and time.

____Gently accumulate a well-defined roll of skin without pinching—use bunch technique.

____Remove needle cap.

____Hold the syringe like a pencil. Using dart motion, inject at a 90 degree angle. Do not aspirate. Push the plunger down and release the skin. Wait 1-2 seconds.

____Withdraw the needle quickly

____Do not rub area; apply gentle pressure.

____Assist patient to return to a comfortable position.

____Dispose of syringe and needle in Sharps container and wash hands.

Documentation:

____Document administration of both the Regular and the NPH insulin, recording the time and the administration site on the MAR, as well as the FSBS, according to hospital policy. If giving Sliding Scale/Rainbow Coverage Regular insulin, record the FSBS and the number of units given. Sign and initial.

____If drug was withheld, enter and circle the time it was scheduled to be given on the MAR and record the code indicating the reason it was withheld. Also note the reason the medication was withheld in the nurse’s notes.

Evaluation:

____Make sure client has food or a source of glucose available after giving insulin.

____Return within 30 minutes to evaluate the patient’s response to the medication.

____Report any untoward effect, according to hospital policy, and document.

Grade: Pass/No Pass

Instructor’s Signature_______________________________
# DIABETES RECORD

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WEEK 10

WEEK 10: Administration of Intramuscular Medications.

1. Administration of Intramuscular Medications
   Student Preparation
   • Read Week 10 of NE 101 Syllabus:
   • Sign Waiver of Liability

   Discussion
   • IM Site selection and technique
   • Z track indications and technique

   Student Lab Practice
   • Practice locating IM sites on classmates and/or mannequins
   • Practice drawing up and administering an IM injection to a classmate 0.5 mls sterile, unexpired NS and a 3 ml 25 gauge, 1 inch needle

2. Student Skill Check-offs (skills introduced and practiced during the previous weeks):
   • Skill Performance Check-list: Administration of Oral Medications*
   • Skills Performance Check-list: Reconstitution of Medication from Powder to Liquid*
   • Skills Performance Check-List: Use of a glucometer*
   • Skills Performance Check-List: Administration of Subcutaneous Medications*
   • Skills Performance Check-list: Administration of Intramuscular Medications
Site Selection for Intramuscular Injections

**Definition:** To provide the student with anatomical landmarks to locate sites safe for intramuscular injections.

**Mid-Deltoid Site:**
1. Have individual place arm at side and flex elbow to relax muscle.
2. Palpate lower edge of acromion process. This forms the base of a triangle.
3. Locate the axillary fold and visualize the midpoint of the lateral aspect of the arm.
4. Draw an imaginary triangle with the apex at the midpoint of the lateral aspect of the arm.

**Child:**
1. Locate the most dense muscle mass by grasping area between fingers
2. Compress between thumb and forefinger
3. Cleanse area with alcohol.
4. Inject with needle pointed slightly upward toward shoulder.

**Adult**
1. Spread tissue between thumb and forefinger.
2. Cleanse area with alcohol.
3. Inject needle at 90 degree angle.

**Dorsogluteal Site**
1. Position person prone (face down) with toes together and heels averted.
2. Identify greater trochanter of femur and posterior iliac spine.
3. Draw an imaginary line between these two bony landmarks.
4. Spread tissue between thumb and forefinger to make skin taut
5. Cleanse area with alcohol sponge.
6. Insert needle perpendicular to surface on which person is lying.

**Ventriculogulateal Site** (gluteus medius/minimus muscle)
1. Position person on side with upper knee flexed and placed in front of lower leg.
2. Place palm on greater trochanter and make a “V” with middle and first fingers on iliac spine and iliac crest. Switch finger position for right or left sides.
3. In center of “V” space, spread tissue between thumb and forefinger.
4. Cleanse area with alcohol sponge.
5. Inject with needle at 75-80 degree angle to skin surface, pointing toward the head.
Administering Medication via Z-track Intramuscular Injection

Definition/Purpose: The Z-track method of administering an IM injection involves the lateral displacement of the skin prior to an intramuscular injection in an effort to seal off the medication and prevent it from seeping into the subcutaneous tissue. It is used to administer medications which can be irritating to the tissues and stain the skin.

Assessment:
- Check the MAR with the physician’s written order for accuracy.
- Review purpose(s) of medication, normal dosage range, administration routes, side-effects, contraindications, and nursing considerations.
  - What is the primary reason this drug is prescribed?
  - Why is my patient getting this drug?
  - Is the dosage ordered within the normal range for this drug?
  - Is the administration route ordered appropriate for this drug, and appropriate for this patient?
  - Are there any drug or food interactions to be aware of?
  - What are the most important side effects and adverse reactions to be aware of?
  - Are there any special considerations (e.g., labs to be monitored, medication to be taken before meals, etc.) to be aware of?
  - Assess the client’s medical record for age, allergies, and lab results (consider especially kidney and liver function, therapeutic drug levels, electrolytes, and coagulation studies).

Planning:
- Check scheduling of medications for problems/conflicts.
- Medications are to be administered to client on time: 30 minutes before or 30 minutes after designated time.
- Check that medication is available. If not, order from pharmacy.

Implementation:
- *Wash hands.
- Gather equipment: appropriate size syringe with larger bore (18-19 gauge) needle for drawing up the medication. And a 20-22 gauge, 1-1/2 inch long needle to place on syringe for client injection; alcohol swab; medication; MAR.
- Determine the medication concentration and calculate the volume of medication needed to obtain correct dosage.
- *Check medication according to 5 Rights. Perform 3 checks: 1) before drawing up medication, 2) after drawing up medication, 3) just prior to administration of medication to patient.
- Cleanse top of medication vials with alcohol sponge.
- Using sterile technique, uncap the large bore needle and set needle cap down on clean surface.
- Placing the needle in the center of the vial, slowly inject an amount of air equal to the amount of medication desired into the vial.
- *Recap the needle you used to withdraw the medication using scoop method and then remove this needle. Replace it with a sterile needle of appropriate size to be used for client injection to ensure that no solution which may cause staining or irritation of tissues remains on the outside of the needle shaft.
- *Label the syringe with drug, dose, date, and time.
- *If the medication is a multi-dose vial, label it with the current date and time, and your initials.
- *Identify the client: Ask the individual to state his/her name and compare the name on MAR with name on individual’s ID bracelet.
- *Explain the procedure to the patient. Assess the client’s knowledge about the medication. Do patient teaching as appropriate; explain the purpose of the drug and answer any questions.
Provide privacy.

*Wash hands. Put on clean gloves.

*Perform third check: Check to ensure that this is the correct patient, medication, dosage, route, and time.

Assist the client to a comfortable position.

*Select appropriate administration site, using anatomic landmarks and assessing skin for bruises, inflammation, edema, masses, tenderness, and sites of previous injections. Rotate sites to prevent muscle irritation. A large, deep muscle such as the dorsogluteal or ventrogluteal are the preferred sites for Z-track administration. Rotate sites to prevent muscle irritation.

*Using non-dominant hand, pull the skin and subcutaneous tissue to the side or downward about 1 – 1 1/2 inches.

Using sterile technique remove the needle cap using your non-dominant hand.

While maintaining traction on the skin, using your dominant hand, dart the needle into the skin at a 90 degree angle.

Aspirate for a minimum of 5 seconds. Observe for a blood return.

If no blood return present, slowly inject the medication.

If injecting iron dextran or another irritating substance, allow the needle to stay in place for 10-20 seconds after the medication is injected to allow medication to disperse evenly.

While still maintaining traction on the skin with the non-dominant hand, smoothly remove the needle and allow the skin to slide over the now interrupted injection track.

*Dispose of needle and syringe in non-penetrable container.

*Remove gloves and wash hands.

**Documentation**

Document the date, time, medication, dose route, and injection site used. Note any unusual findings.

Record the time and the administration site on the MAR according to hospital policy. Sign and initial.

If drug was withheld, enter and circle the time it was scheduled to be given on the MAR and record the code indicating the reason it was withheld. Also note the reason the medication was withheld in the nurse’s notes.

**Evaluation:**

Return within 30 minutes to evaluate the patient’s response to the medication.

Report any untoward effect, according to hospital policy, and document.
**Skill Performance Check-List:**

**Administration of Intramuscular Injections**

Student Name:___________________________________ Date:_________________________________

**Definition:** To provide guidelines for the accurate administration of medications to pediatric and adult clients via the intramuscular route.

**Assessment:**
- Check the MAR with the physician’s written order for accuracy.
- Review purpose(s) of medication, normal dosage range, administration routes, side-effects, contraindications, and nursing considerations.
- Assess the client’s medical record for age, allergies, and lab results (consider especially kidney and liver function, therapeutic drug levels, electrolytes, and coagulation studies).

**Planning:**
- Check scheduling of medications for problems/conflicts.
- Check that medication is available. If not, order from pharmacy.

**Implementation: Preparation and Administration of Meds**

**Preparation:**
- *Wash hands.
- *Gather equipment: appropriate size syringe (1-3cc) and needle (19-23 gauge, 1 ¼ --1 ½ inch for adults, ½--1 inch, 25--27 gauge needle for infants), alcohol prep pad, and medication. (Note: infants should receive no more than 0.5 ml IM, adults no more than 2 ml IM in one site.) Adjust needle size for pediatric, geriatric, obese, and cachexic patients.
- *Determine medication concentration, and calculate volume of medication needed to obtain correct dosage. Double check your calculation with a colleague.
- *Check medication according to 5 Rights. Perform 3 checks: 1) before drawing up medication, 2) after drawing up medication, 3) just prior to administration of medication to patient.
- *Cleanse top of medication vials with alcohol sponge.
- *Uncap the needle and set the needle cap down on clean surface.
- *Placing the needle in the center of the vial, slowly inject an amount of air equal to the amount of medication desired into the vial.
- *Maintain sterility while inverting the vial and slowly, using gentle negative pressure, withdraw the correct amount of the medication into the syringe. Keep the needle tip in the medication.
- *(Optional: Add “air lock”—0.1-0.2cc of air to the dose in the syringe; the air will push the medication out of the needle when the last of the medication has been injected.)
- *Re-cap needle using scoop method.
- *Label the syringe with drug, dose, date, and time.
- *If the medication is a multi-dose vial, label it with the current date and time, and your initials.

**Administration:**
- *Medications are to be administered to client on time: 30 minutes before or 30 minutes after designated time.
- *Identify the client: Ask the individual to state his/her name and compare the name on MAR with name on individual’s ID bracelet.
- *Explain the procedure to the patient. Assess the client’s knowledge about the medication. Do patient teaching as appropriate; explain the purpose of the drug and answer any questions.
- *Provide privacy.
- *Perform third check: Check to ensure that this is the correct patient, medication, dosage, route, and time.
Assist the client to a comfortable position.

*Select appropriate administration site, using anatomic landmarks and assessing skin for bruises, inflammation, edema, masses, tenderness, and sites of previous injections.

- For vastus lateralis (desirable for all ages; anterior, lateral aspect of thigh) have lie flat or supine with knee slightly flexed
- For ventrogluteal (desirable for all ages) have client lie on side or back with knee and hip slightly flexed
- For dorsogluteal (for adults only, not for use in children less than 5 years of age since this muscle is not developed), have client lie prone with feet turned inward or on side with upper knee and hip flexed and placed in front of lower leg.
- For deltoid (only for small volumes of fluid, 1-2 inches below acromium process.), stand with arm relaxed at side or site with lower arm relaxed on lap or lie flat with lower arm relaxed across abdomen.
- For quadriceps (for children under 3 years of age).

*Swab the administration site with alcohol. Allow alcohol to dry.

*While applying traction to the skin with non-dominant hand, hold syringe between fingers of dominant hand, like a dart. Using dart motion, insert the needle into the skin at a 90 degree angle.

*Aspirate and observe for blood return. If not blood seen, inject medication slowly (1 ml/10 seconds) with even pressure.

*Withdraw the needle gently, and apply gentle pressure with cotton, 2x2, or alcohol prep.

*Assist patient to return to a comfortable position.

*Dispose of syringe and needle in Sharps container, remove gloves, and wash hands.

**Documentation:**

*Record the time and the administration site on the MAR according to hospital policy. Sign and initial.

*If drug was withheld, enter and circle the time it was scheduled to be given on the MAR and record the code indicating the reason it was withheld. Also note the reason the medication was withheld in the nurse’s notes.

**Evaluation:**

*Return within 30 minutes to evaluate the patient’s response to the medication.

*Report any untoward effect, according to hospital policy, and document.

**Grade:** Pass/No Pass

Instructor’s Signature ____________________________
WEEK 11

WEEK 11: Administration of Medications via Various Routes

3. Administration of Medications via Various Routes
   Student Preparation
   • Review NE 101 Syllabus sections on medication administration
     - Chapter 20: Safe Medication Preparation
     - Chapter 21: Oral and Topical Medications
     - Chapter 22: Parenteral Medications

   Student Lab Practice
   • Practice medication administration

4. Student Skill Check-offs (skills introduced and practiced during the previous weeks):
   • Skill Performance Check-list: Administration of Oral Medications*
   • Skills Performance Check-list: Reconstitution of Medication from Powder to Liquid*
   • Skills Performance Check-List: Use of a Glucometer*
   • Skills Performance Check-List: Administration of Subcutaneous Medications*
   • Skills Performance Check-list: Administration of Intramuscular Medications
WEEK 12

WEEK 12: Assessing and Promoting Skin Integrity and Wound Healing

3. Assessing and Promoting Skin Integrity and Wound Healing
   Student Preparation
   • Read Week 12 of NE 101 Syllabus on Assessing and Promoting Skin Integrity and Wound Healing
     o Chapter 12: Support Surfaces and Special Beds, Procedural Guidelines: Selection of Pressure Reducing Surfaces
     o Chapter 18: Pressure Ulcer Care, Risk Assessment, Skill 18-1: Skin Assessment and Prevention Strategies; Skills 18-2: Treatment of Pressure Ulcers
     o Chapter 38: Wound Care and Irrigations
     o Chapter 39: Dressings, Bandages, and Binders

   Discussion and Demonstration
   • Review of purpose of dressings and drains
   • Various types of dressings, and methods for securing dressings
   • Techniques for emptying drains
   • Wound irrigations using 20 mL syringe and 18 gauge angiocath with stylet removed

   Student Lab Practice
   • Practice identifying various types of dressings and drains
   • Practice Skill Performance Check-List: Wound Care: Assessing Wounds and Performing Dressing Changes (focus on Wet to Moist Dressing Change
   • Wound Care and Infection Control Critical Thinking and Practice Exercises

4. Student Skill Check-offs (skills introduced and practiced during the previous weeks):
   • Skill Performance Check-list: Administration of Oral Medications*
   • Skills Performance Check-list: Reconstitution of Medication from Powder to Liquid*
   • Skills Performance Check-List: Use of a Glucometer*
   • Skills Performance Check-List: Administration of Subcutaneous Medications*
   • Skills Performance Check-list: Administration of Intramuscular Medications*
Assessing and Promoting Skin Integrity and Wound Healing

I. Principles of Medical and Surgical Asepsis:

Definitions:
- **Asepsis** is defined as the absence of disease-producing (pathogenic) organisms. The two types of aseptic technique the nurse utilizes are medical and surgical asepsis.
- **Medical asepsis, or clean technique**, includes procedures used to reduce the number of and prevent the spread of microorganisms. Hand washing, barrier techniques, and routine environmental cleaning are examples of medical asepsis.
- **Surgical asepsis, or sterile technique**, includes procedures used to eliminate all microorganisms from an area. Sterilization destroys all microorganisms and their spores. Sterile technique is practiced by nurses in the operating room, labor and delivery, and procedural areas where sterile instruments and supplies are used.

Principles of Surgical Asepsis:
1. All items used within a sterile field must be sterile.
2. A sterile barrier that has been permeated by punctures, tears, or moisture must be considered contaminated.
3. Once a sterile package is opened, a 2.5cm (1 inch) border around the edges is considered unsterile.
4. Tables draped as part of a sterile field are considered sterile only at table level.
5. If there is any question or doubt of an item’s sterility, the item is considered to be unsterile.
6. Sterile person or items contact only sterile areas; unsterile persons or items contact only unsterile areas.
7. Movement around and in the sterile field must not compromise or contaminate the sterile field.
8. A sterile object or field out of the range of vision or an object held below a person’s waist is contaminated.
9. A sterile object or field becomes contaminated by prolonged exposure to air; stay organized, and complete any procedures as soon as possible.

II. Skin Integrity and Principles of Wound Healing

Layers of the Integument:
- Stratum corneum
- Epidermis
- Dermis

Factors Affecting Pressure Ulcer Formation and Wound Healing:
- Shearing Force
- Friction
- Moisture
- Nutrition
- Infection
- Impaired Peripheral Circulation
- Age

Types of Wounds:
- Abrasion
- Laceration
- Puncture
- Incision

Phases of Wound Healing:
- Inflammatory Stage/Reaction
- Proliferative Stage/Regeneration
- Maturation Phase/Remodeling
- Granulation/wound contraction

**Types of Wound Healing:**
- Primary intention: No loss of tissue. Edges of a clean surgical incision remain close together
- Secondary intention—Wound has some loss of tissue, e.g., burns, pressure ulcers, severe lacerations. Wound edges do not approximate, but fill in with scar tissue.
- Tertiary intention—Wound healing is by delayed primary intention or closure. Healing by tertiary intention occurs when surgical wounds are not closed immediately but left open for 3-5 days to allow edema or infection to diminish. Wound edges are later sutured or stapled closed.

**Complications of Wound Healing:**
- Hemorrhage/bleeding
- Infection
- Evisceration
- Dehiscence
- Fistula
- Delayed wound healing
- Necrosis

**Factors Influencing Wound Healing:**
- Aging
- Prematurity
- Obesity
- Diabetes
- Compromised circulation
- Poor nutritional state
- Immunosuppressive drugs
- Irradiation in area around wound
- High levels of stress
- Steroids

**III. Pressure Ulcers**

**Prevention of Pressure Ulcers:**
- Early identification of clients at risk: Norton Scale, Braden Scale
- Pressure management
- Hygiene and skin care
- Positioning
- Utilize appropriate support surfaces: pressure relieving and pressure reducing
- Education

**Management of Pressure Ulcers:**
1. Assess and document (consider using “Pressure Sore Status Tool,” Ayello’s Assessment or simple staging)

**PSST: Pressure Sore Status Tool (c. 1990 Barbara Bates-Jensen)**
- Size
- Depth
- Edges
- Undermining
- Necrotic Tissue
- Exudate/Drainage: Type and amount
- Skin Color Surrounding Wound
- Peripheral Tissue edema and induration
- Granulation Tissue
- Epithelization
Staging of Pressure Ulcers
- Stage I: Observable alteration of intact skin: skin temperature, tissue, sensation
- Stage II: Partial thickness skin loss involving epidermis and or dermis. The ulcer is superficial and presents clinically as an abrasion, blister, or shallow crater.
- Stage III: Full thickness skin loss involving damage or necrosis of subcutaneous tissue that may extend down to but not through underlying fascia. The ulcer presents as a deep crater or without undermining adjacent tissue.
- Stage IV: Full thickness skin loss with extensive destruction tissue necrosis, or damage to muscle bone or supporting structure e.g., tendon, joint capsule.

2. Develop and Implement plan of care
3. Evaluate
4. Revise plan as necessary

Types of Wound Drainage:
- Serous: clear, watery plasma
- Sanguineous—indicates fresh bleeding
- Serosanguineous—paler, more watery drainage than sanguineous drainage
- Purulent—thick yellow, green, or brown drainage. (Collecting a specimen may be necessary. Never collect a wound culture sample from old drainage. Clean wound first with NS to remove skin flora.

IV. Drains:
Drains are used to evacuate drainage from wounds in order to avoid tension on sutures and keep wound layers closed. Common types of drains include:
- Penrose
- Jackson-Pratt
- Drainage evacuators, e.g. Hemovac

V. Wound Care
Cleansing Wounds
- Cleanse in the direction from the least contaminated area, such as the wound or incision, to the surrounding skin, or from a drain site to the surrounding skin.
- Use gentle friction when applying solutions locally to the skin.
- Irrigation uses mechanical force of a stream of solution to loosen particulate matter on the wound surface. Cleanse in direction from the least contaminated area to most contaminated area. Use a 35cc syringe with a 19 gauge angiocath with needle removed.
- The suture line is the least contaminated area and is always cleansed first. Start at center and work toward one end. All other cleansing involves moving from one end to the other on each side of the incision on the skin surrounding the incision, working in straight lines and moving away from the suture line with each successive stroke.
- Drains are cleansed using a circular stroke, starting with the area immediately next to the drain and working outward.
- Wounds should be cleansed initially and at each dressing change with non-cytotoxic solutions using sterile gauze or by irrigation.
- Pressure ulcers should be cleansed only with wound cleanser such as normal saline or some commercial wound cleansers that are not cytotoxic (will not damage or kill cells such as fibroblasts and healing tissue). Skin cleaners are not the same as wound cleansers. Infected or necrotic ulcer wounds should not be cleaned with skin cleaners or antiseptic agents. (Some commonly used solutions that are cytotoxic and therefore should not be used to clean granulating wounds are Dakins solution (sodium hypochlorite solution), acetic acid, povidone iodine, hydrogen peroxide.)

Products Used for Closure of Wounds:
- Staples
- Retention sutures—steel
- Sutures—silk, cotton, linen, nylon, Dacron
- Steri-Strips (sterile butterfly tapes)
- Adhesive

**Purpose of Dressings:**
- Protect wound from injury
- Maintain a moist environment to speed healing
- Prevent contamination
- Prevent spread of microorganisms
- Reduce physical and psychological discomfort
- Absorb drainage
- Control bleeding (pressure dressings)
- Fill dead space
- Support and splint the wound site

**Dressing Materials:**
The type of dressing used depends on whether the goal of wound care is debridement or wound healing. Examples include:
- Dry dressings: Used for abrasions and non-draining postoperative (primary intention) healing incisions. Not appropriate for an open wound that is healing by secondary intention. If a dry dressing adheres to a wound, the dressing should be moistened with sterile normal saline or sterile water before removing the woven gauze.
- Wet to moist/damp to damp/moist to moist dressings: Used in clean, granulating wounds to maintain the moist environment needed for wound healing.
- Wet to dry dressings: Used for wounds requiring mechanical debridement.
- Telfa dressing: Used when dressing needs to be non-adherent.
- Hydrocolloid dressings (DuoDERM, Comfeel, Restore, RepliCare): Hydrocolloid dressings provide a moist environment for wound healing while facilitating the softening and subsequent removal of wound debris. Provide an occlusive, protective barrier that absorbs drainage from the wound into the dressing.
- Hydrogel dressings (Vigilon, Biolex, NuGel IntraSite Gel, Saf Gel) have high moisture content causing them to swell and retain fluid. Used over clean, moist, or macerated tissues. Provide a non-adherent, protective barrier with the ability to absorb wound drainage.
- Foam dressing (e.g., Allevyn, Lyofoam, Reston, EpiLock IOPATCH, CURAFORM) absorb light to heavy amounts of exudates, are conformable/can be made to fit a wound.
- Thin self-adhesive elastic film dressing (OpSite, Bioclusive, blisterfilm, Acu-derm, Tegaderm, PROCLUDE, Polyskin): Provide protection of high-friction areas; serve as a synthetic permeable membrane that acts a temporary second skin. Clear adherent non-absorptive, polymer-based dressing that is permeable to oxygen and water vapor but not to water. Moisture retentive, non-absorptive.

**Products to Secure Dressings**
- Tapes of various sizes and materials
- Montgomery straps
- Stockinet
- Kerlix wrap
- Binders

**Vacuum Assisted Closure:**
Vacuum assisted closure uses controlled negative pressure on wounds. Negative pressure stretches and distorts the cells within the wound, pulling them close together. It is believed that this distortion causes the epithelial cells to multiply rapidly and form granulation tissue. Biochemical mediators stimulate the growth of new blood vessels to improve circulation to the region. Good results with VAC o chronic wounds such as stasis ulcers and Stage III and Stage IV pressure ulcers.
Documentation:
After visual inspection and palpation of the wound, and completion of the wound care, the nurse documents:

- Location of wound
- Measurement of wound (length, width, depth)
- Appearance of wound: wound edges (clean/well-approximated vs. open/poorly approximated), color of wound bed, presence of swelling or inflammation
- Drainage characteristics: color, odor, amount, consistency
- Presence of drains and amount of drainage
- Presence of wound closure devices (e.g., retention sutures, Steri-Strips)
- Epithelization, granulation, wound contraction
- Presence of pain and use of analgesics
- Tolerance of client to procedure

Photographic documentation is often used.
**Wound Care and Infection Control**

**Critical Thinking and Practice Exercises**

**Directions:** Read the situations, answer the questions, and carry out the physician orders

1. A 9 year old is admitted to the pediatric Ward, accompanied by his father, 3 days post-operative repair of ruptured appendix. How does the dressing change of a child differ from an adult? Is this wound more likely to heal by primary, secondary, or tertiary intention?

   **MD orders:** Wet to dry dressing q shift; temperature q 4 hours; culture wound with next dressing change.

2. A patient is transferred from ICU to a Med-Surg unit with a leg wound and cellulites. The patient has an excessive amount of drainage that cultures positive for Methcillin resistant staph aureus (MRSA). What are the priority nursing assessments and interventions for this client?

   **MD orders:** Wet to dry dressing with NS q shift; reinforce dressing prn.

3. An elderly diabetic client develops an infection of the right groin after undergoing a cardiac catheterization. He has a Jackson Pratt drain, and a deep wound measuring 2.5 cm X 3.0 cm, and is receiving IV antibiotics. What kind of dressing change will he need and what supplies will you need? What is the relationship between diabetes and infections?

   **MD orders:** Dressing change bid; measure Jackson Pratt drainage q shift.

4. A 16 year old surfer is admitted to the ED after sustaining multiple wounds on the thigh from a shark attack. How would you prioritize nursing care for this client?

   **MD orders:** Irrigate wound with NS; draw admission labs.

5. A 64 year-old paraplegic, diabetic patient with a large gaping decubitus ulcer on the sacrum is admitted for treatment with IV antibiotics. The patient is allergic to tape. Given the client’s medical history and current diagnosis, what is the priority nursing diagnosis?

   **MD orders:** Measure and document wound size; pack wound with NS dressing q 4 hours; position patient off sacral area.
1. **ALLERGIES:**  
   □ None known

2. **TESTS:**  
   □ Serum Albumin
   Other ____________

3. **RISK ASSESSMENT:**  
   • Complete skin risk assessment tool: on day of admission, every seven days, on day of transfer and day of discharge.
   • Inspect and chart skin condition q shift.
   • Apply lavender arm band. Place sign above bed.

4. **DIET:**  
   • Obtain Nutrition consultation or follow-up consultation.
   • Record food and fluid intake.
   □ High calorie, high protein diet.
   □ Other: ____________

5. **ACTIVITY:**  
   • Turn/reposition with pillows q 2 hours
   □ Head of bed <30 degrees except during meals
   □ Ambulate patient x ____________
   □ Rehab consult for positioning
   □ OT consult for seating evaluation
   □ Initiate use of specialty support surface (refer to current Wound Care Algorithm/Policy) ____________
   □ Air waffle boots
   Other ____________

6. **INCONTINENT PATIENTS:**  
   • Clean patient's perineum exclusively with incontinent spray cleaner and water
   • Apply moisture barrier cream to perineum
   • Do not diaper patient, except during ambulation if patient is incontinent

7. **MEDICATIONS:**  
   □ IV continuous fluids: ____________ at _____ ml/hr
   □ Add MVI 10 ml to IV fluid once daily
   □ Multivitamins with minerals 1 tablet PO QD, if tolerating PO
   □ Ascorbic Acid (Vitamin C) 500 mg PO QD
   □ Nystatin powder 100,000 units/gm apply to ____________ TID
   □ Clotrimazole cream 1% apply to ____________ BID

8. **TREATMENT:** Skin breakdown treatment—Refer to Wound Care Manual/Policy  
   • Clean wound with normal saline.
   • Use paper tape only.
   • Minimize use of tape.
   • Do not use tape if skin tears are present.
   • Leave any blister dome intact.
   □ Apply transparent dressing pm to ____________ and change pm.
   Other: ____________

Date ____________ Time ____________ AM/PM  MD Signature: ____________ MD
Skill Performance Check-list

Wound Care: Assessing Wounds and Performing Dressing Changes

Student Name: ___________________________________ Date: ________________________________

_____1. Review wound care orders and nursing notes. Gather appropriate supplies as needed for:
   • Measuring wound
   • Irrigation of wound
   • Using sterile technique
   • Cleansing of skin around wound
   • Application of protectants, absorbent materials, and other dressings
   • Debridement with prescribed enzymes
   • Packing of tunneled areas
   • Securing dressings

_____2. Provide privacy: draw curtains and close door. Close windows to prevent wound and dressing contamination from drafts.

_____3. Explain procedure to client.


_____5. Wash hands.

_____6. Apply clean gloves and other needed personal protective equipment. Inform client that the old dressing is going to be removed.

_____7. Remove old dressing and dispose of appropriately. Note color and amount of drainage on old dressing.

_____8. Inspect and measure the wound.

_____9. Remove gloves.

_____10. Wash hands.

_____11. Create a sterile field and maintain sterility of supplies while opening packages needed to treat the wound according to the prescribed regimen. Use the old dressing as a template.

For a wet to moist dressing using NS:

_____12. Check expiration date of NS solution. After cleaning lip of solution container by pouring some solution out, saturate packing material in “boat” or bowl with the solution.

_____13. Apply sterile gloves.

_____14. Wring gauze or packing until damp. Open and “fluff” packing material.

_____15. Gently place wet gauze over wound area so all areas are in contact with dressing. Be sure the packing material contacts all the surfaces. Pack tunneled areas loosely.

_____16. Apply dry external dressing and secure dressing with tape, Kerlix gauze wrap, Montgomery straps, or tubular mesh. Make tabs on tape for easy removal later.
_____17. Dispose of any waste appropriately. Remove any soiled bedding or foul-smelling waste.
_____18. Remove gloves and wash hands.
_____19. Mark the dressing with the date, time and initials.
_____20. Provide client/family education about the wound condition and dressing.

Score ___________  Instructor: ____________________________

Estimated time to complete the skill: 15 minutes
WEEK 13

WEEK 13: Sterile Dressing Changes: Performing a Central Line Dressing Change

1. Performing a Central Line Dressing Change

   **Student Preparation:**
   - Read Week 13 of NE 101 Syllabus on Overview of Central Venous Catheters (CVCs) and Vascular Access Devices (VADs)
   - Read Perry and Potter, *Clinical Nursing Skills and Techniques, 7th edition*
     - Chapter 28, Skill 28-6: Insertion and Care of Central Venous Access Devices
     - Chapter 8: Sterile Technique, Skills 8-2 Preparing a sterile field; Skill 8-3 Sterile Gloving

   **Discussion and Demonstration:**
   - Overview of Central Lines and Venous Access Devices

   **Student Practice**
   - Practice Skill Performance Check List: Central Venous Line Dressing Change

2. **Student Skill Check-offs** (skills introduced and practiced during the previous weeks):

   - Skill Performance Check-list: Administration of Oral Medications*
   - Skills Performance Check-list: Reconstitution of Medication from Powder to Liquid*
   - Skills Performance Check-list: Use of a Glucometer*
   - Skills Performance Check-List: Administration of Subcutaneous Medications*
   - Skills Performance Check-list: Administration of Intramuscular Medications
Overview of Central Venous Catheters (CVCs) and Vascular Access Devices (VADs)

The following information is provided so that students have a general understanding of central lines in preparation for performing sterile central line dressing changes. Students will not be using IVs or CVCs (i.e., administering fluids, or medications, etc.) through peripheral or central IVs during this course.

**Definition of a Central Venous Catheter:**

A peripheral IV is a small, flexible catheter that is inserted into one of the smaller veins in a client’s extremities (usually the hands and arms) for the purpose of administering intravenous fluids and medications.

A central venous catheter is a larger, often multi-lumened, flexible intravenous catheter in which the tip rests in a large central vein, usually the superior vena cava.

**Purpose of Central Venous Catheters and VADs**

Central venous catheters (CVCs) and vascular access devices (VADs) provide long-term access to a large central vein for the purpose of:
- Drawing blood
- Administering fluids
- Administering drugs
- Administering total parenteral nutrition
- Administering blood and blood products

CVCs and VADs can have one, two, or three lumens.

**Veins used for Placement of “Long-term” and “Short-term” CVCs and Vascular Access Devices:**

- subclavian
- right and left brachiocephalic
- external and internal jugular
- right and left innominate veins
- superior vena cava
- femoral vein

**Common Types**

“Triple Lumen CVC”: Usually placed in subclavian or jugular vein, or occasionally in the femoral vein. Those catheters that are placed in vessels in the upper thorax have their tip placed in the superior vena cava or right atrium.

**Peripherally inserted central catheters (PICC)**: These catheters are inserted peripherally into a smaller vessel, and then the catheter is threaded through the vasculature so that the tip rests in the superior vena cava or right atrium. Types of PICCs include:

- Groshong PICC catheters
- Non-Groshong PICC catheters

**Centrally inserted tunneled catheters**: These catheters have their tip placed in the superior vena cava or right atrium and then are tunneled under the skin to decrease the risk of infection. Types of tunneled catheters include:

- Hickman
• Broviac (most common catheter used for children)
• Groshong

Ports, Port-a-caths (Vascular Access Ports (VAPs)/Vascular Access Devices (VADs): Ports consist of a stainless steel or plastic reservoir body with a silicone rubber septum and a catheter. The reservoir of an intravenous port is placed in a subcutaneous pocket in the chest wall, between the ribs, and sutured to the fascia. The catheter is inserted into a large vessel—the superior vena cava or the right atrium. They are accessed through the skin and silicone rubber septum using a non-coring needle (a Huber needle or Gripper needle.) Ports can be single or double-lumen. Types of ports include:

• Venous
• Arterial
• Peritoneal
• Epidural

Appropriate Candidates for Central Venous Catheters and VADs:

• Clients with poor peripheral veins and/or those who will be receiving long-term and/or irritating antibiotic therapy, chemotherapy, and/or total parenteral nutrition
• CVCs/VADS should be placed on a pro-active basis
• It is an important nursing responsibility to identify patients who might benefit from the placement of VADs.

Advantages:

• Peripheral veins are preserved for use when CVC/VAD is not functioning properly or after it has been removed
• Physical and emotional distress from frequent IV starts is minimized
• Time-saving for health care personnel (when CVC/VAD is functioning properly)
• Risk of chemical and mechanical phlebitis minimized.
• Client may have greater freedom of mobility of extremities

Disadvantages:

• Potential for infection
• Cost (associated with surgical procedure, the device, and device maintenance such as dressing changes, flushing, technical/professional support).
• Maintenance (flushing, dressing changes, cap changes, needle changes, patient education)

Major Potential complications of CVCs and VADs:

• Local and/or systemic infection
• Sluggish flow due to clotting or formation of precipitates from infusion of multiple drugs, or drugs such as Dilantin, Valium and Mannitol
• Backflow/blood return absent due to fibrin sheath formation or catheter pinch-off sign
• Pain in neck shoulder or arm--thrombosis
• Air embolism
• Catheter or port migration or separation
• Extravasation

General Principles of Management of IV Therapy and IVs/CVCs/VADs:

• Organize care to minimize entry into system.
• Maintain strict aseptic technique.
• Never leave central access catheters or ports open to air.
• Use needle-locking devices or tape connections to prevent tubing dislodgement, contamination, and entrance of air.
- Tape catheter to the patient’s body, forming a “stress loop,” to prevent accidental dislodgment.
- Inspect all IV sites at least every 8 hours/ every shift.
- Catheters dressing changes should be done every 48-72 hours (e.g., on a M-W-F schedule) and prn (e.g., after a shower or if dressing becomes soiled and/or dislodged)
- Use a transparent, occlusive dressing (Tegaderm, Op-site) and a TPN dressing change kit (or gather together the equivalent supplies) to do a central access device dressing change. The dressing should combine gauze with a transparent occlusive dressing to prevent the Tegaderm from sticking to the catheter or needle and dislodging it when the Tegaderm dressing is changed or removed, and to prevent maceration of the skin by wicking away perspiration and moisture.
- There are no CDC guidelines. Recommendations in literature range from QOD to Q 7days. Check the agency policy.
- Plan to change injection caps routinely on the same day every week (e.g., every Monday).
- In patients receiving frequent intermittent IVs or blood draws, change injection caps along with dressing change every 48-72 hours (e.g., Monday, Wednesday, and Friday).
- Change injection caps whenever the cap is removed or damaged.

Institute for Healthcare Improvement
Prevention of Central Line-Associated Bloodstream Infection

Intervention – Central Line Bundle

The power of a “bundle” is that it brings together those scientifically grounded concepts that are both necessary and sufficient to improve the clinical outcome of interest. The focus of measurement is the completion of the entire bundle as a single intervention, rather than completion of its individual components.

The “central line bundle” has five components:
1. Hand hygiene
2. Maximal barrier precautions,
3. Chlorhexidine skin antisepsis
4. Optimal catheter site selection (the subclavian vein is the preferred site for non-tunneled catheters in adults)
5. Daily review of line necessity with prompt removal of unnecessary lines.

The various components of the central line bundle are all part of a broader guideline for the prevention of CR-BSIs developed by the Centers for Disease Control and Prevention (CDC).

ICUs that have implemented multifaceted interventions similar to the central line bundle have nearly eliminated CR-BSIs.

Reference: Institute for Health Care Improvement
www.ihi.org/ihi/programs/campaign
Skill Performance Check-List

Central Venous Line Dressing Change

Student Name:___________________________________ Date:___________________________________

Central venous line dressing changes are to be done at least Q 72 hours, and PRN.

_____1. Review the hospital policy and procedure and gather equipment: central venous line dressing change kit, or equivalent supplies (clean gloves, sterile gloves, chlorhexidine swabsticks/betadine swabsticks/alcohol swabsticks, 2x2 gauze dressing, Tegaderm or 4x4 gauze dressing, tape).

_____2. Explain the procedure to the patient and check with patient regarding allergies.

_____3. Wash hands.

_____4. Position the patient supine (HOB may be raised but patient should not be in high-Fowler’s position as this makes it difficult to keep the new dressing in place before it is taped down) with face turned away from the central venous catheter site.

_____5. Open the dressing change kit and put on the mask while keeping other items in the kit sterile.

_____6. Put on clean, disposable gloves and remove the old dressing. Hold the catheter in place and gently grasp the edge of dressing, slowly pulling the dressing from the skin in the direction of the catheter insertion.

_____7. Inspect the site for redness, drainage, or swelling.

_____8. Put on sterile gloves.

_____9. Clean the skin around the insertion site with prescribed agent (chlorhexidine swab in new kits, or betadine swabsticks in old kits) moving first in a horizontal plane and then in a vertical plane, and the final swab in a circular pattern moving outward from the insertion site in concentric circles. Allow to air dry for 1-2 minutes. (Note: do not use the usual cleansing product if the patient is allergic or has developed a rash or broken skin; consider using alcohol or sterile NS. If using betadine, remove the betadine with an alcohol swabstick prior to placing Tegaderm dressing. Rationale: betadine left on skin and covered with a plastic dressing or tape may cause irritation and blistering.)

_____11. Apply a sterile 2x2 dressing over the catheter, keeping the insertion site visible. (Rationale: Insertion site should be kept visible so signs/symptoms of infection are detectable without removing the dressing. 2x2 dressing is used to wick away moisture from perspiration from the skin and prevent the adherence of the Tegaderm dressing to the catheter which could result in it being inadvertently dislocated when dressing is next changed.)

_____12. Optional: Apply skin prep to skin to be covered by tape or edge of Tegaderm dressing. (Rationale: protects skin from damage by adhesive while aiding adhesion.)

_____13. Apply Tegaderm dressing to cover the catheter insertion site and the sutured hub of the catheter. (Alternative method: Apply a 4x4 gauze dressing over the entire catheter and insertion site and cover entire the gauze dressing with tape.)

_____14. Apply label with the time and date of dressing change and your initials.

_____15. Frame the Tegaderm dressing with tape, including cutting a “window” of tape to secure the dressing where the catheter lumens protrude (movement there due to pulling from the attached IV tubing is likely to dislodge dressing).
16. Tape a stress loop of IV tubing to prevent direct tension on the catheter.

17. Document according to hospital policy.

Score: _____

Instructor’s Signature: __________________ Date: __________
WEEK 14

WEEK 14: Assessing and Promoting Optimal Urinary Elimination:

2. Assessing and Promoting Optimal Urinary Elimination
   Student Preparation:
   • Read Perry and Potter, Clinical Nursing Skills and Techniques, 7th edition
     o Chapter 33: Urinary Elimination
   • Complete Homework Assignment on Assessment and Promotion of Optimal Urinary Elimination

   Discussion and Demonstration:
   • Purpose of urinary catheters and demonstration of insertion of Foley catheter using sterile technique

   Student Practice
   • Skill Performance Check List: Inserting an Indwelling Catheter: Male*
   • Skill Performance Check-List: Inserting an Indwelling Catheter: Female*

2. Student Skill Check-offs (skills introduced and practiced during the previous weeks):
   • Skill Performance Check-List: Central Line Dressing Change
Name:______________________________

Homework Assignment
on Assessment and Promotion of Optimal Urinary Elimination

Prior to class, review chapter on urinary elimination in Potter and Perry and answer the following questions:

1. What factors influence urination?

2. Describe 3 factors contributing to alterations in urinary elimination?

3. Describe color, clarity, and odor characteristics of normal and abnormal urine.

4. What are some of the indications for insertion of a urinary catheter?

5. How common are urinary tract infections in patients with catheters?

6. Describe methods to prevent urinary tract infection.

Case Studies:

1. Your patient has had no urine output this shift. You are concerned about urinary retention. How you would assess the bladder? What are some of the causes of urinary retention?

2. Your patient has had only 150cc of urine output in the past 8 hours. Is this within normal limits? What are some reasons for decreased urine output? (Consider pre-renal, renal, and post-renal causes.)
Skill Performance Check-list:
Inserting an Indwelling Catheter: Male

1. Gather the needed equipment: Foley catheter kit with attached drainage bag, an extra Foley catheter, an extra pair of sterile gloves, a Foley leg strap or tape to secure the catheter to the client’s leg. Ask for assistance if patient is unable to fully cooperate or if you need someone to hold a flashlight for better vision.

2. Introduce yourself and explain the procedure to the patient.

3. Positively identify the client using two identifiers prior to beginning the procedure.

3. Provide for privacy. Set the bed to a comfortable height to work, and raise opposite side rail.

4. Drape the client’s torso and thighs for modesty and warmth, and assist the client to a supine position with knees open/legs spread, or to a side-lying position with upper leg flexed.

5. Wash hands, apply disposable clean gloves. Wash the patient’s perineal area with soap and water if heavily soiled.

6. Remove gloves and wash hands.

7. Clean the table with disinfectant or soap and water.

*8. Open the catheterization kit maintaining sterility. Save the outer plastic wrapper, folding over the top edge, to use as a waste container and place it at the foot of the bed on the side where you will be working. Use the inner white paper wrapper to establish a sterile field on the table.

9. Remove the underpad from the kit and place it, plastic side down, under the patient’s buttocks.

10. *Remove the package of sterile gloves from the kit and apply them.

12. Place the fenestrated drape over the client’s perineal area with the penis extending through the opening.

14. Maintaining sterility, pick up both trays of the catheter kit in the outer wrapper, and move them over to the bed between the patient’s legs. Separate the trays.

15. Lubricate the distal end of the catheter with the water-soluble lubricant (Silicone)

16. Designate your dominant hand “sterile” and your non-dominant hand “non-sterile.” With the non-dominant/non-sterile hand, gently grasp the penis and retract the foreskin (if present).

17. *Using the forceps with the dominant/sterile hand, cleanse the glans penis with the cotton balls moistened with betadine.

18. Hold the penis perpendicular to the body and pull up.
19. *Coat catheter tip with sterile, water-soluble lubricant (silicone spray) [or inject lidocaine local anesthetic gel <Uroject> into the urethra, if ordered].

20. *Maintaining sterility, insert the catheter about 8 inches, until urine is seen.

21. If the catheter will be indwelling with a retention balloon, continue inserting until the hub of the catheter is met.

22. Inflate the retention balloon with sterile water-filled syringe to the inflation port.

23. Once the balloon has been inflated, gently pull the catheter until the retention balloon is resting against the bladder neck.

24. Secure the catheter to either the client’s thigh or abdomen.

25. *Place the drainage bag below the level of the bladder. Secure the drainage tubing to prevent pulling directly on the urethra.

26. Remove gloves, dispose of equipment, and wash hands.

27. Help client adjust position. Lower the bed.

28. Assess color, clarity, and quantity of client’s urine. Send urine specimen as ordered.


Score ____________  Instructor: _____________________________

Estimated time to complete the skill: 20 minutes
Skill Performance Check-list

Inserting an Indwelling Catheter: Female*

Student Name:___________________________________ Date:_________________________________

_____1.  Gather the needed equipment: Foley catheter kit with attached drainage bag, an extra Foley catheter, an extra pair of sterile gloves, a Foley leg strap or tape to secure the catheter to the client’s leg. Ask for assistance if patient is unable to fully cooperate or if you need someone to hold a flashlight for better vision.

_____2.  Introduce yourself and explain the procedure to the patient.

_____3.  Positively identify the client using two identifiers prior to beginning the procedure.

_____3.  Provide for privacy. Set the bed to a comfortable height to work, and raise opposite side rail.

_____4.  Drape the client’s torso and thighs for modesty and warmth, and assist the client to a supine position with knees open/legs spread, or to a side-lying position with upper leg flexed.

_____5.  Wash hands, apply disposable clean gloves. Wash the patient’s perineal area with soap and water if heavily soiled.

_____6.  Remove gloves and wash hands.

_____7.  Clean the table with disinfectant or soap and water.

_____8.  Open the catheterization kit maintaining sterility. Save the outer plastic wrapper, folding over the top edge, to use as a waste container and place it at the foot of the bed on the side where you will be working. Use the inner white paper wrapper to establish a sterile field on the table.

_____9.  Remove the underpad from the kit and place it, plastic side down, under the patient’s buttocks.

_____10. *Remove the package of sterile gloves from the kit and apply them.

_____11.  Place the fenestrated drape over the client’s perineal area with the labia visible through the opening.

_____12.  While both hands are still sterile, prepare the rest of the equipment:

  _____Attach the syringe filled with sterile water to the Luer-Lock tail of the catheter. (It is no longer recommended that the patency of the retention balloon be tested by inflating and deflating it with the sterile water) the retention balloon.

  _____Open the betadine solution and apply it to the cotton balls

  _____Open the lubricant (Note: use only silicone spray on mannequins) and place some in one of the spaces on the tray

_____13.  Maintaining sterility, pick up both trays of the catheter kit in the outer wrapper, and move them over to the bed between the patient’s legs. Separate the trays.

_____14.  Lubricate the distal end of the catheter with the water-soluble lubricant (Silicone)

_____15.  Designate your dominant hand “sterile” and your non-dominant hand “non-sterile.” With non-dominant/non-sterile hand, gently spread the labia minora with your fingers and visualize the urinary meatus.
16. *While holding the labia apart with the non-dominant hand, hold the forceps in dominant hand and use them to pick up a cotton all soaked in povidone-iodine and cleanse the peri-urethral mucosa going in one sweep from top to bottom, inside to outside. Use a new cotton ball for each stroke.

17. While still holding the labia apart with the non-dominant hand, pick up the catheter with the dominant hand, lubricate it, and insert it into the urethral meatus until urine is noted. If the catheter will be indwelling with a retention balloon, continue inserting another 1-3 inches.

18. *Inflate the retention-balloon with the water-filled syringe and remove it. If the client experiences pain during balloon inflation, deflate the balloon, and insert the catheter farther into the bladder. If pain continues with balloon inflation, remove the catheter and notify the client’s qualified practitioner.

19. Once the balloon has been inflated, gently pull the catheter until the retention balloon is resting against the bladder neck.

20. Secure the catheter to the leg using a catheter strap or by placing tape on the thigh and then taping the catheter tubing to the tape on the thigh. Ensure that there is enough slack so that the catheter will not pull on the bladder if the patient moves her legs.

21. *Place the drainage bag below the level of the bladder.

22. Remove gloves, dispose of equipment, and wash hands.

23. Help client adjust position. Lower the bed.

24. Assess the color, clarity, and quantity of the client’s urine. Send specimens as ordered.

25. Document the procedure. (Use the PIE format of Problem Identification, Intervention, and Evaluation.)

Score ___________  Instructor: ____________________________

Estimated time to complete the skill: 20 minutes
WEEK 15

WEEK 15: Assessing and Promoting Optimal Functioning of Clients Experiencing Alterations in Neuro/Sensory Systems:

2. Assessing and Promoting Optimal Functioning of Clients Experiencing Alterations in NeuroSensory Systems

   Student Preparation:
   • Read Week 15 of NE 101 Syllabus on Assessing and Promoting Optimal Functioning of Clients Experiencing Alterations in Neuro/Sensory Systems:
     o Glasgow Coma Scale
     o Mini Mental Status Exam
     o Assessment of Causes of Changes in Level of Consciousness
     o Appropriate Use and Alternatives to Restraints
     o Seizure Precautions
   • Read Perry and Potter, Clinical Nursing Skills and Techniques, 7th edition
     o Chapter 13: Safety

   Discussion and Demonstration:
   • Assessment of patients experiencing alterations in Neuro/Sensory Systems: Using the Glasgow Coma Scale, Mini-Mental Status Exam
   • Keeping Patients Safe: Appropriate Use and Alternatives to Restraints and Seizure Precautions

   Student Practice
   • Glasgow Coma Scale
   • Mini Mental Status Exam
   • Applying Restraints
   • Responding when a patient has a seizure

2. Student Skill Check-offs (skills introduced and practiced during the previous weeks):
   • Skill Performance Check-list: Inserting and Indwelling Catheter Male or Female*
   • Skill Performance Check-List: Central Line Dressing Change*
Glasgow Coma Scale

**Eyes Open:**

4 = Spontaneous  
3 = To speech  
2 = To pain  
1 = None  
\( C = \) eyes closed by swelling

**Best Verbal Response**

5 = Oriented  
4 = Confused  
3 = Inappropriate  
2 = Incomprehensible  
1 = None  
\( T = \) Tube or Tracheotomy

**Best Motor Response:**

6 = Obeys commands  
5 = Localizes  
4 = Withdraws  
3 = Abnormal flexion (decorticate)  
2 = Abnormal extension (decerebrate)  
1 = None

**Limb Movement:**

- **Arms:** (+Present, -Absent, NT-Not Tested)  
  Voluntary motor (strength 0-5)  
  Pronator drift  
  Flexion withdrawal  
  Flexion abnormal  
  Extension  
  No response

- **Legs:** (+ Present, -Absent, NT Not Tested)  
  Voluntary motor (0-5 strength)  
  Flexion  
  Extension  
  No response

**Eyes:** PERRLA (Pupils Equal, Round, Reactive to Light and Accommodation)  
Pupil scale: 1mm-8 mm; (See attached example (UCSF Neurological Assessment Record)  
Equality  
Reactivity to light:  
++ = brisk  
+ = sluggish  
- = not reactive  
\( C = \) closed by swelling

**Accommodation**
/U.C.S.F.
Medical Center
The University of California, San Francisco
NEUROLOGICAL ASSESSMENT RECORD

<table>
<thead>
<tr>
<th>DATE</th>
<th>TIME</th>
<th>Eyes opened</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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<table>
<thead>
<tr>
<th>Eyes Open</th>
<th>4 Spontaneously</th>
<th>3 To speech</th>
<th>2 To pain</th>
<th>1 None</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
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<table>
<thead>
<tr>
<th>Best Motor Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>Obey commands (8)</td>
</tr>
<tr>
<td>Locate pain (7)</td>
</tr>
<tr>
<td>Flexion withdrawal (4)</td>
</tr>
<tr>
<td>Flexion ant. (3)</td>
</tr>
<tr>
<td>Extension (2)</td>
</tr>
<tr>
<td>None (1)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Usually record the best arm response</th>
</tr>
</thead>
<tbody>
<tr>
<td>Endotracheal tube or tracheostomy (t)</td>
</tr>
</tbody>
</table>

**COMA SCALE**

<table>
<thead>
<tr>
<th>Best Verbal Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>Orientation (5)</td>
</tr>
<tr>
<td>Confused (4)</td>
</tr>
<tr>
<td>Inappropriate words (3)</td>
</tr>
<tr>
<td>Incomprehensible sounds (2)</td>
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<tr>
<td>None (1)</td>
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**TOTALS**

<table>
<thead>
<tr>
<th>Voluntary motor (10-4)</th>
<th>Promotor drift (7)</th>
<th>Flexion withdrawl (4)</th>
<th>Flexion ant. (3)</th>
<th>Extension (2)</th>
<th>No response (1)</th>
</tr>
</thead>
<tbody>
<tr>
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**LIMB MOVEMENT**

<table>
<thead>
<tr>
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<th>Flexion</th>
<th>Extension</th>
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<tbody>
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**ARMS**

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<th>Flexion withdrawl (4)</th>
<th>Flexion ant. (3)</th>
<th>Extension (2)</th>
<th>No response (1)</th>
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**LEGS**

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<th>Extension</th>
<th>No response</th>
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</thead>
<tbody>
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**PUPILS**

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<tr>
<th>Size (mm.)</th>
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<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
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<table>
<thead>
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<th>Reaction</th>
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DEPARTMENT OF NEUROSURGERY/NEUROLOGY
NEUROLOGICAL ASSESSMENT RECORD
Mini Mental Status Exam

Orientation:
- Ask the client for the date. Then ask specifically for the parts that were left out, e.g., the season/date/day/month/year? Score one point for each correct answer. (Maximum score=5)
- Ask the client can you tell me the name of this hospital/floor/town/county/state?” Score one point for each correct answer. (Maximum score = 5)

Registration:
- Ask the patient if you may test his memory. Then say the names of 3 unrelated objects clearly and slowly, about 1 second for each. After you have said all 3, ask him to repeat them. This first repetition determines his score (0-3), but keep saying them until he can repeat all 3, up to 6 trials. If he does not eventually learn all 3, recall cannot be meaningfully tested. (Maximum score 3)

Attention and Calculation:
- Ask the client to begin with 100 and count backwards by 7 (Serial 7’s), 1 point for each correct. Stop after 5 answers.
- Alternatively, ask the patient to spell the word “world” backwards. The score is the number of letters in correct order. (Maximum score=5)

Recall:
- Ask the patient if he can recall the 3 words you previously asked him to remember. Give 1 point for each correct answer. (Maximum score=3)

Language:
- Naming: Show the client a wrist watch and ask him what it is. Show the client a pencil and ask him what it is. Score 1 point for each correct answer.
- Repetition: Ask the client to repeat the sentence after you, “No ifs, ands, or buts.” Allow only one trial. Score 1 point for correct repetition.
- Ability to Follow a 3-stage Command: Give the patient a piece of plain blank paper and repeat the command: “Take a paper in your right hand, fold it in half, and put it on the floor.” Score 1 point for each part executed.
- Reading: On a blank piece of paper print the sentence, “Close your eyes.” Ask the client to read the sentence and do what it says. Score 1 point only if the client actually closes his eyes.
- Writing: Give the patient a blank piece of paper and ask him to write a sentence for you. Do not dictate a sentence; it is to be written spontaneously. It must contain a subject and verb and be sensible. Correct grammar and punctuation are not necessary.
- Copying: On a clean sheet of paper, draw intersecting pentagons, each side about 1 inch, and ask the patient to copy it exactly as it is. All 20 angles must be present and 2 must intersect to score 1 point.

Assess level of consciousness along a continuum: alert drowsy stuporous coma.
Assessment of Causes of Changes in Level of Consciousness

Causes of changes in level of consciousness include hypoxic, metabolic and pathological conditions of the brain.

**AEIOU-TIPPS** (mnemonic)

- Alcohol
- Epilepsy
- Insulin
- Opiates
- Urates
- Trauma
- Infection
- Psychogenic
- Poison
- Shock

**DELIRIUM** (acronym to assess for causes of delirium, agitation, restlessness)

- **D**: Drugs
- **E**: Electrolytes
- **L**: Liver failure
- **I**: Ischemia or hypoxia
- **R**: Renal failure
- **I**: Impaction of stool
- **U**: Urinary tract (or other) infection
- **M**: Metastases to brain
Seizure Precautions

A seizure is a hyper-excitation of neurons in the brain leading to a sudden, violent, involuntary series of muscle contraction that may be paroxysmal and episodic, as in seizure disorder, or transient and acute, as a

1. Position client safely. If standing or sitting at time of seizure, guide client to floor and protect head by cradling in nurse’s lap or placing a pillow under the head. Clear the surrounding area of furniture. If client is in bed, raise side rails, pad, and put be in low position.

2. If possible, provide privacy.

3. If possible, place client in the “recovery position:” turn the client on side, with head flexed slightly forward.

4. Do not restrain client. Loosen clothing

5. Do not force any objects into client’s mouth.

6. Stay with client, observing sequence and timing of seizure activity

7. After seizure is over, explain what happened and answer client’s questions

8. For clients experiencing status epilepticus, put on clean gloves and insert an oral airway when jaw is relaxed, between seizure activity. Hold airway with curved side up insert downward until airway reaches back of throat, then rotate and follow natural curve of tongue.
Appropriate Use of and Alternatives to Restraints

Clients at risk for injury from falling or other injuries, those whose behavior is inappropriate or dangerous because of confusion, disorientation, or combativeness, those who may be at risk for injury or harm due to manipulation of or removal of medical devices, and those who harm others or the environment may need restraints temporarily. There are many alternatives to the use of restraints and all should be employed before using restraints.

Alternatives to Physical Restraints:
- Determine the client’s need for restraint and/or monitoring (pulling at lines and tubes, risk of injury to others by combative patients, falling out of bed or falling while ambulating, eloping)
- Attempt to determine the underlying cause of unsafe behaviors (e.g., medications or side effects which may contribute to falling or altered mental status, urinary frequency/urgency causing need to get out of bed to the toilet, pain causing restlessness and agitation) and attempt to remove/treat the cause.
- Provide pain and comfort measures
- Provide diversional activities
- Provide visual and/or auditory stimuli (night lights, clock, calendar, radio, television, pictures)
- Schedule position changes
- Schedule toileting
- Place the patient closer to the nurses’ station
- Orient the client to environment and safety features—e.g., call lights, intercom devices, wearing slippers, using assistive devices
- Encourage family/friends to visit
- Obtain an order for a sitter
- Utilize wandering devices
- Utilize adaptive wheelchairs/walkers which permit patients to move about safely, unrestrained
- Utilize low beds
- If possible, place tubes/lines out of reach or cover them to prevent manipulation
- Use chemical restraints, e.g., with patients experiencing DTs, psychotic clients

Standards for Use of Restraints

In 1999, the Health Care Financing Administration revised its standards regarding the use of restraints, which all hospitals must meet to participate in Medicare and Medicaid programs. The Health Care Financing Administration standards define the client’s rights and choices regarding restraints, and the reasons for the use of physical restraints. The use of mechanical or physical restraints must be part of the prescribed medical treatment, all less-restrictive interventions must be tried first (e.g., pain/comfort measures, scheduled position changes, scheduled toileting, re-orienting, placing client closer to the nurses’ station), other disciplines must be used, and supporting documentation must be provided. (It is important to realize that side rails may be considered a restraint device when used to prevent ambulatory client from getting out of bed [HCFA, 1999]. Therefore nurses must check agency policies regarding side rail use.)

A face to face assessment by the physician is required and a physician’s order is necessary before a restraint device is placed on the client. The physician’s order must be written, or the telephone order countersigned by the ordering or “covering” physician within 24 hours of the order being given. “Restrain PRN” orders are not permitted. Orders must include a time limit not to exceed 24 hours.
Behavior for which restraints may be used includes:
- Confusion/disorientation/combative
- Self harm
- Harm to others/surroundings
- Removing medical devices.

When restraints are necessary for client safety, the nurse must follow agency specific policies. A physician’s time-limited order is needed and the appropriate restraint must be used and applied correctly. In the long-term care setting, the client or family member’s informed consent is necessary.

Measures to prevent the hazards of immobility and other complications that may result from the use of restraints must be instituted, including:
- Ensuring correct application of the restraint and client positioning to maintain adequate respiration, circulation and neurovascular integrity. Assess skin integrity, pulses, temperature, color, and sensation of the restrained body part at least every hour, or according to agency policy. JCAHO 1999 require that restraints be removed at least every 2 hours. If the client is violent or noncompliant, one restraint should be removed at a time and/or the nurse should have additional staff assistance while removing restraints. Violent or aggressive clients should not be left unattended while restraints are off.
- Maintenance of skin integrity;
- Providing for repositioning, ROM, hydration, nutrition, and elimination;
- Ensuring the client’s ability to communicate (e.g., placing a nurse call light within the client’s reach);
- Providing opportunities for socialization.

**Types of Restraints**

1. Jacket (Vest or Posey) Restraint:
   Apply jacket or vest over gown, pajamas or clothes. Jacket restraints have sleeves and close in back with zippers. Vest restraints have a front and back and are labeled as such. Cross the vest in front; one side crosses over the other side across the chest, and straps are placed at the client’s hips. Secure restraint straps to bed frame. Do not attach to side rails. Secure with quick release ties.

2. Belt Restraint:
   Belt restraint are applied when the client is in a sitting position. The belt is applied over clothes, gown, or pajamas. Remove wrinkles or creases from the front and back of the restraint while placing it around client’s waist. Bring ties through slots in the belt. Help the client lie down in bed and secure the belt to an area of the bed frame that will not cause the restraint to tighten when the bed frame is raised or lowered. Avoid placing the belt too tightly across client’s chest or abdomen.

3. Extremity (Ankle or Wrist) Restraints:
   These restraints are designed to immobilize one or all of the extremities. The limb restraint is wrapped around the wrist or ankle with the soft part next to the skin, and secured in place with Velcro straps.

4. Mitten Restraints:
   These are thumb-less mitten devices to restrain a client’s hands. They prevent clients from dislodging invasive equipment, removing dressing, or scratching, but allow greater movement than a wrist restraint.
Pre-Printed MD/LIP Orders: Acute Medical Surgical Restraints

1. Restraint initiated: ___________________________ AM/PM
   Date ___________________________ Time ___________________________

2. Primary Care MD: ___________________________

3. Justification for application of acute medical surgical restraints:
   □ Attempts at pulling out lines or tubes
   □ Disconnecting or removing therapeutic devices
   □ Voluntary or involuntary movements that may re-injure a treated condition
   □ Unable to follow directions and verbal limits

REMINDER:
Use of Acute Medical and Surgical Restraints requires an MD/LIP to conduct a face-to-face reassessment with a new order written no less than once each calendar day.

4. Restraint type and site:
   □ Hand mitts □ R □ L □ Wrist □ R □ L □ Ankle □ R □ L
   □ Waist □ Wheelchair Safety Belt □ Vest
   □ Enclosure Bed □ Four side rails
   □ Other: ___________________________

5. Length of time:
   □ Maximum of 24 hours
   □ ___________________________ hours (Not to exceed 24 hours)

6. Trial reduction/release can be initiated when patient no longer exhibits listed behavior.

7. Provide patient education restraint material(s) for patient/family.

   ___________________________ AM/PM ___________________________, MD/LIP
   Date ___________________________ Time ___________________________ Signature ___________________________

PRE-PRINTED MD ORDERS:
ACUTE MEDICAL-SURGICAL
RERAINTS rev 11/01

Copies: White-Med Records Yellow-CQI
# 24-HOUR RESTRAINT FLOWSHEET

<table>
<thead>
<tr>
<th>DATE</th>
<th>TIME APPLIED</th>
</tr>
</thead>
</table>

- **Intervention attempted to avoid initial or continued use of restraint now?” Performed**

- **Reorientation**
- **Relocation**
- **Lighting adjustments**
- **Companionship**
- **Medication(s)**
- **Frequent checks**
- **Reminder to use call light**
- **Activity/diversion**
- **Unnecessary lines removed**
- **Siderals up/alarms**
- **Physiological interventions**
- **Other:**

## CLINICAL JUSTIFICATION AND INTENT OF RESTRAINTS (Check ✓ ALL that apply)

<table>
<thead>
<tr>
<th>Self Protection</th>
<th>Safety/Surgical Management</th>
</tr>
</thead>
<tbody>
<tr>
<td>Confusion w/safety risk</td>
<td>Unsteady on feet</td>
</tr>
<tr>
<td>Disorientation</td>
<td>Attempts to pull out necessary lines/dressings</td>
</tr>
<tr>
<td>Previous fall(s)</td>
<td>Other (specify):</td>
</tr>
</tbody>
</table>

- **Restraint(s) explanation & education given to (check ✓ all that apply):**
  - Patient
  - Spouse or S/O
  - Other family
  - Guardian/POA
  - Visitors
  - Instructional materials given

<table>
<thead>
<tr>
<th>Type of restraint devices used (check ✓ all that apply):</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mittens</td>
</tr>
<tr>
<td>Limb Soft -or- Limb Locked</td>
</tr>
<tr>
<td>Vest (not available at SFO, SSF)</td>
</tr>
<tr>
<td>Other:</td>
</tr>
</tbody>
</table>

## INTERVENTIONS/ASSESSMENTS: CONTINUOUSLY UPDATED

- **Document intake assessment:**
- **Restrain while in modified position if unstable:**
- **Progress report:**
- **Address additional needs/red flag situation:**

**To include each episode of early termination and reapplication**

| Time | 23-01 | 01-03 | 03-05 | 05-07 | 07-09 | 09-11 | 11-13 | 13-15 | 15-17 | 17-19 | 19-21 | 21-2

- **Skin integrity WNL**
- **Circulation, Sensation, Movement WNL**
- **ROM (if limb restraints used)**
- **Hydration, nutrition, toileting needs met**
- **Restrain released**
- **Comfort and privacy needs met**
- **Position changed**
- **Breathing patterns/airway maintained**
- **Call bell within reach**

<table>
<thead>
<tr>
<th>Nurse’s Initials</th>
</tr>
</thead>
</table>

*Complete reverse for Restraint for Behavioral Management*

## SUMMARY/EVALUATION: RN REVIEWED

Circle the check ✓ mark for exceptions that deviate from normal findings and document findings/intervention on the reverse side.

- **Restraint(s) effective for intended use?**
  - Nights
  - Days
  - Evenings

- **Restraint(s) still necessary?**

<table>
<thead>
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<th>RN’s Initials</th>
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</thead>
</table>

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<tr>
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<th>RN:</th>
<th>Documentation</th>
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<th>Signature</th>
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</table>

04/18-000 (REV. 5-01)
WEEK 16

WEEK 16: Clinical Simulation: Assessment of the Post Op Patient

2. **Assessment of the Post-Op Patient**
   **Student Preparation:**
     - Skill 36-2: Demonstrating Post-operative Exercises
     - Skill 36-3: Performing Post-Operative Care of a Surgical Patient
   - Read Week 16 of the NE 101 Syllabus, Exercise and Simulation on Care of the Postoperative Patient and review the nursing care of the post-op appendectomy patient in your medical surgical textbook as directed in the exercise.

**Discussion and Demonstration:**
- Assessment and care of post-operative patients

**Student Practice**
- Complete the Exercise and Simulation on Care of the Postoperative Patient

2. **Student Skill Check-offs** (skills introduced and practiced during the previous weeks):
   - Skill Performance Check-list: Inserting and Indwelling Catheter Male or Female*
   - Skill Performance Check-List: Central Line Dressing Change*
Exercise and Simulation on Caring for the Post-Op Client

1. With a partner, read about the care of the patient with appendicitis who has undergone an uncomplicated appendectomy. Using the space below, record the orders you anticipate that the surgeon would write for this fresh post-op patient who has just arrived on your unit.

  Admit:
  Diagnosis:
  Condition:
  Vitals:
  Activity:
  Allergies:

  Nursing Procedures: (e.g., bed position/client position, respiratory care (percussion, postural drainage, pulmonary toilet/TCDB)

  Diet:
  IVs
  Ins and Outs:
  Medications:
  Labs:

2. With your partner, demonstrate the initial assessment and care of this post-op surgical patient who has just arrived back on the nursing unit after an appendectomy.
WEEK 17

Week 17: FINAL EXAM
TUTORING SESSION RECORD

Directions: Tutor is to initiate this form, see that it is completed, and return it to the appropriate instructor.

Tutor: _______________________________ Length of Session: ____________________ Hours

Student: __________________________________________________

Goals of Tutoring Session:

Outline of Session's Content:

Student's Evaluation of Session:

Signed:
Student: ___________________________ Tutor: ______________________________
COLLEGE OF MARIN
Registered Nursing and Allied Health Programs
Release/Waiver of Liability

I, ________________________________, understand that I am participating in an activity ________________________________ which may result in injury/illness to myself or others. I agree to accept this liability and risk of injury and to release and hold harmless the Marin Community College District, its Board, employees and agents, from any subsequent claim or loss resulting from my participation.

______________________________    ____________________________
Student                      Date

COLLEGE OF MARIN
Registered Nursing and Allied Health Programs
Release/Waiver of Liability

______________________________, decline to participate in the activity of ________________________________.

______________________________    ____________________________
Student                      Date