NUR 116/117

FUNDAMENTALS OF NURSING
FALL /SPRING

SYLLABUS

INSTRUCTOR: JACQUE SNYDER RN, BSN
Fundamentals of Nursing 116 is primarily a lecture course offered Fall and Spring quarters. It is the first required course in the Practical Nursing Program and sets the fundamentals of nursing in place. The required companion course Nursing 117 Skills Lab is the active participation lab component that meets in room IB1313. You will be taught, practiced and tested on each nursing skill in the lab. These companion courses must be passed together or repeated together. If you fail either course, you may not continue in the companion course that quarter.

Texts =116/117  
E- packet/syllabus Nursing 116/117 @ http://northonline.northseattle.edu/jsnyder


Equipment =  
Required= Skills Lab Nursing 117 Kit = NSCC book store supplies for skills lab 117,118,119. 
Scrub shirt and pants, nametag , stethoscope, gait belt, penlight, watch, to be purchased/used promptly. School uniform shirt and white pants by week 10.

Lead Instructor 116/117 =  
Jacque Snyder RN, BSN, Office Hours by appointment, see office door for details,  
E-Mail jsnyder@sccd.ctc.edu Office phone 206-528-4564. Division office 527-3790 for emergency.  
Suzann Martin RN, CCN, MSN, Office Hours by appointment, see office door for details,  
E-Mail smartin@sccd.ctc.edu cell phone for emergency only 425-750-6441.

Grading 116 = Passing score = 77% per Nursing Program Policy (see handbook for grading scale)  
Quizzes 40% (4 scheduled)  
One Research Paper 10%  
One Comprehensive Survey 50%

Grading 117 = Passing score = 77% per Nursing Program Policy  
Practical skills tests + participation= 25%  
Written final = 50%  
Intro to Patient Care = 25%

Course Requirements= 116/117  

Attend each class, (see accompanying schedule), and be on time. Lecture classes begin at 5 minutes after 8AM to allow for life to happen. Arriving late disturbs the class and causes you to miss pop quizzes and receive a zero. These cannot be made up or changed. Students are responsible for all information or handouts missed while absent from scheduled classes. An excused absence is for extreme illness and is accompanied by a medical care provider excuse note.
Course Requirements= 116/117  cont’d

**Plan** to study at least 3-4 hours per day preparing for classes and studying fundamentals of nursing materials and skills.

**Read** all assignments prior to class then read/study assigned material again after lectures and labs, possibly with a study group to maximize learning.

**Tutoring** sessions should be considered as much as possible to maximize learning. To go over your quiz scantrons from 116, attend the tutoring sessions right after a quiz. Quiz reviews for 116 will not be repeated again later on in the quarter.

**Cell phones and pagers** should be turned off during class times. You may check for messages and make calls during breaks.

**Scented products are not allowed in the classrooms.** NSCC has a general non-scented policy on campus. This instructor must have a “scent free” classroom due to severe allergy/asthma!

**Take** all quizzes, practical skills tests and written finals at scheduled times. If, due to extreme illness, a quiz or the survey is missed, it will be taken at the soonest possible time with the instructor’s arrangements and the medical excuse letter. No other reasons are accepted for taking quizzes, practical skill tests or finals other than as scheduled, you will receive a zero and there will not be make ups at another time.

**Pass** each Nur 116 quiz, final survey and skills written final with a 77% minimum to pass course. If you earn less than 77% on a quiz, you must meet with the instructor to discuss problems and trouble shoot solutions. Remember, we are here to help you succeed.

**Pass** each skills test at the “excellent” level. This means you are able to perform each nursing skill taught in a timely manner, correctly with a maximum of 2 cues. You may be given two attempts to pass on each test date as time allows. Make-up practical skills tests are given at the discretion of the lab instructors. Skills tests must be passed in order to move on to the next skill and continue in lab.

**Participate** in skills lab to maximize the shared learning experience with fellow students. Participation means that you assist with setting up and putting away supplies, remain in lab for the entire class meeting, and use the time wisely to practice, practice, practice.

**Bring** textbooks to Nur 116 every class and e-packet pages as required, and bring textbooks, skills checklist, e-packet pages and equipment bag to Nur 117 every class.

**Introduction to Patient Care=117**
IPC is a 3 day clinical experience in a long term care facility at the end of the quarter. Students who successfully pass Nur 116 and Nur 117 enroll for IPC. This unit is a continuation of Nur 117 and will add to that grade. Each student must pass IPC in order to move on to 2nd quarter.
Academic dishonesty=116/117

Do your own work. A nurse must practice independently and is individually licensed and liable by law. Studying and having practice sessions together are good ways to learn. Copying another person’s work to turn in as your own is unacceptable, as is having another person do your work. If it is discovered that you have copied, used another’s work or cheated in any of a myriad ways, the assignment will receive a grade of zero.

Plagiarism is using the ideas, words or work of another person and not giving them the credit through proper citation. The library has much information to offer regarding plagiarism for your research paper, as do the tutors.

Classroom diversity=116/117

Respect for diversity is a core value of NSCC. Our college community fosters an optimal learning climate and an environment of mutual respect. We recognize individual differences. Therefore, we are responsible for the content and tone of our statements and are empathetic speakers and listeners.

American Disability Act=116/117

If you need classroom or course accommodations because of a disability that does not disqualify you from the nursing program per the nursing handbook; or if you need to share emergency medical info contact the instructor as soon as possible. Accommodations require documentation from the NSCC Educational Access/Disability Services Office at the beginning of the quarter.

Tutors= 116/117

Tutors will be introduced the first week of the quarter. They will post telephone numbers and email addresses for easy contact. They will make their schedules and availability known at that time also. Tutoring in the nursing program is paid for by a grant and has no fee to the students. Inappropriate behaviors in tutoring sessions will result in the privilege being removed for that student for the ¼.

Homework =116/117

All homework and pre-class assignments are due at the beginning of class. If the instructor accepts work turned in late, it is by the end of the class time and worth 50% of credit otherwise earned. Pre-class assignments in 117 are part of your participation.

GENERAL DISCLAIMER=

The lead instructor may modify the terms of this syllabus in the event that the instructor believes such modification will improve the student’s learning experience. Any changes will be communicated to the students in writing as soon as is practical. Students are responsible for all changes once they have been communicated in writing. We are here to help you learn the fundamentals of nursing with the goal in mind of your passing the State Board Exam for LPN’s and safely practicing as an LPN.

SEE CLASS SCHEDULE BELOW FOR SPECIFIC DAILY ASSIGNMENTS AND CONTENT
CLASS SCHEDULE:

<table>
<thead>
<tr>
<th>DATE/LECTURE 116</th>
<th>ASSIGNMENT 116</th>
<th>SKILLS LAB 117</th>
</tr>
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<tbody>
<tr>
<td>WEEK ONE</td>
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<td></td>
</tr>
<tr>
<td><strong>Monday 0800-1150</strong></td>
<td>Read chapters 1, 2, 3, 27</td>
<td>Mon-Tues-Wed Pre-lab Asepsis/Restraints due Wed</td>
</tr>
<tr>
<td>Orientation to nursing program policies, Intro to nursing, Basic needs, Asepsis,</td>
<td>Read “Hand Hygiene” article and complete/bring test.</td>
<td>Procedures 4-1,2,3,4 Handwashing, sterile gloving, sterile fields, PPE Procedures 3-1,2,3 restraints</td>
</tr>
<tr>
<td><strong>Tuesday 0800-1150</strong></td>
<td>Read chapters 4 and 26</td>
<td>Thursday 8am-12pm Testing on All Procedures</td>
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<tr>
<td>Safety, Health/Illness</td>
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<tr>
<th>WEEK TWO</th>
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<tr>
<td><strong>Monday 0800-1150</strong></td>
<td>Read chapters 37, 34 and 6</td>
<td>Mon-Tues-Wed Pre-lab Vital Signs due Wed</td>
</tr>
<tr>
<td>Hygiene&amp; Sensory Values &amp; Ethics</td>
<td></td>
<td>Procedures 1-1,2,3,4 &amp; 14-1 VS Procedures 7-1,2,3,4,5,6,7,10 bedbath, bedmaking, AM care, TEDs</td>
</tr>
<tr>
<td><strong>Tuesday 0800-1150</strong></td>
<td>Read chapter 24</td>
<td>Thursday 8am-12pm Testing on All Procedures</td>
</tr>
<tr>
<td>General survey, Vital signs</td>
<td>And chpt 25 to page 572</td>
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<td></td>
<td>And chpt 45 to page 1390</td>
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Amended August 2006
Required Fundamentals Textbooks

**Fundamentals of Nursing: The Art and Science of Nursing Care**, 5th Edition
Carol Taylor CSFN, RN, MSN, PhD
Carol Lillis RN, MSN
Priscilla LeMone RN, DSN, FAAN
ISBN: 0-7817-4480-6

The new 5th Edition is the perfect text for your beginning nursing students. With unique and engaging features such as the “blended skills” approach, consistent real-world case scenarios appearing throughout the text, extensive, relevant photos and artwork, and an overall clear, readable format, this book helps students learn and remember difficult concepts with ease.

**Taylor’s Clinical Nursing Skills: A Nursing Process Approach**
Pamela Evans-Smith MSN, FNP
ISBN: 0-7817-5138-1

150+ skills at the basic, intermediate, and advanced levels are outlined in a clear, step-by-step manner, with rationales. Each skill follows the nursing process format and includes “unexpected situations” followed by an explanation of how best to react. This unique feature helps students understand what could go wrong as well as how to do things right.

**Skills Checklist to Accompany Taylor’s Clinical NURSING SKILLS**
By Pamela Evans-Smith, MSN, FNP and Marilee LeBon

This checklist was designed to accompany Taylor’s Clinical NURSING SKILLS and promote proper technique and increase confidence.
NURSING 117 SKILLS LAB DRESS POLICY

Practice Laboratory

To ensure safety and asepsis in the Nursing Practice Labs at NSCC, the student is expected to:

a. Wear scrub tops, scrub pants and name tag;
b. Wear low-heeled slip-proof shoes with covered toes to prevent accidental injury;
c. Wear no dangling jewelry;
d. Maintain personal hygiene;
e. Wear no scented products, as some people are highly sensitive to such;
f. Keep fingernails cut short and clean.
g. Wear a watch with second hand
h. Be prepared with proper equipment for each session.

Life Uniform Shop will be at school the first week for ordering uniform scrub tops. If you do not order them ahead of time, this will be the last date to order. Students are not required to purchase scrubs to wear in the skills lab aside from uniform scrub tops. Students will begin complying with the dress code immediately if there is access to scrubs or the uniform scrub top.

If you choose to wear inappropriate shirts, pants or shoes in the skills lab you will be asked to leave. It is up to each student to arrange for missed lab time or testing in that circumstance. The skills laboratory rotation schedules will not be changed to accommodate students dressed inappropriately nor will faculty extend work hours.

Thank you for your attention to these important details of the skills laboratory.

Practical Nursing Faculty NSCC

Northgate Mall   Store #163
401 NE Northgate Way Suite 758
Seattle, WA 98125
Phone:206 363 4412
Hours: Mon-Fri:10-9:30, Sat:10-9:30, Sun:11-7
Required Materials in addition to books:

- Equipment bag available at NSCC bookstore
- Quality Stethoscope with both diaphragm and bell-to be discussed first week of classes
- Penlight
- Black pen/notepad
- Forest green uniform scrub tops with embroidered NSCC logo on left chest-Life Uniform @ Northgate Mall
- Name pin w/ black letters on white background-see nursing student handbook
- Gait belt
- Watch with second hand
Study Tips For The First & Second Week of Classes
North Seattle Community College
Counseling Center 2nd floor College Center
(206) 527-3676

1. **Read the syllabus for each class you are taking.** In the syllabus, the instructor tells you: what assignments you must do, by when. The syllabus provides information such as: how the instructor will arrive at your grade, how to contact your instructor if you have any questions about assignments, and guidelines for behaviors your instructor expects. Let your instructor know immediately, if you are unclear about any item on the syllabus or if you have special needs or situations (such as a disability, or a job, family situation, or bus commute that may occasionally make you late).

2. **Do not miss class!** If an emergency arises, call the instructor before the class and explain why you will miss and when you will return.

3. **Smile and make friends** with your classmates so you can share notes and ask each other questions about assignments. **Consider forming a study group.**

4. **Try to study on campus,** where there are fewer distractions, so that when you go home you can relax and pay attention to other things and people in your life.

5. **Study every day.** Take notes on what you are reading so you will have a summary (and less to review) when the test comes around.

6. **Break big assignments into smaller tasks.** This makes it easier to start. Study for thirty minutes, take a five-minute break, and go back for thirty minutes more. When memorizing (vocabulary lists, formulas, etc.) break lists into shorter lists of three or four concepts/vocabulary words. Learn them, take a break, and learn four more. If you try to learn a long list all at once, you may remember the first four items and the last three, but everything in between will likely be a blur.

7. **Plan some leisure time everyday** (aim for one hour per day) and every weekend (aim for a three to four hour block) to do something you enjoy! It is easier to study when you know you have a break scheduled and it is easier to relax and enjoy yourself when you know you have completed some of your homework.

The NSCC Counseling Center helps students identify careers, pick programs of study, strengthen study skills, manage time and stress, deal with depression, confront prejudice and learn other student success skills. Stop by our offices on the second floor of the College Center M-F 8-4:30 (across from registration) or call 527-3676. Some evening appointments available.

Faculty:
Diedra Clay, Psy.D. Counselor
Jerry Schneider, Ed.D. Counselor
How To Prepare for Exams
North Seattle Community College
Counseling Center
Lydia Minatoya, Ph.D.

Concentration and Memory
• As you read, say the words aloud. Talk to yourself saying things like, “What is the main idea? Let me write that down.” The secret to this technique is that when you are calmly “talking yourself through” an assignment, you cannot also be distracting yourself with panicky thoughts like “I’ll never get through all this!”

• Break big chunks of material into smaller parts. When memorizing, don’t try to learn more than three or four new pieces of information at a time. Take breaks in your memorizing, otherwise, you’ll remember the first two things, the last two things, and forget the material in the middle.

• Repeat difficult information several times, write it down and post it on your mirror, on the refrigerator, etc.

• Color-code related information in your notes, in the textbook. Make lists of key ideas and practice closing your eyes and visualizing the material.

Before an Exam
• Ask the instructor what the format of the test will be: How many multiple choice, how many essays, etc.

• Review course outline, notes, text. Summarize key information on several sheets of paper, arranging material in small groups or lists. Make these summary sheets easy to read and recall by the use of spacing or colored highlights.

• Get enough sleep, eat a light healthy meal.

During an Exam
• Take a deep breath. Tell yourself, “What’s most important now is that I stay calm and read each question carefully.”

• Quickly jot down formulas, lists, things that you’ve memorized to use during the test but are afraid you might forget.

• Read directions and questions aloud under your breath (as described in the concentration and memory section)

• Don’t select the first multiple-choice item that sounds right. Often, there are several choices that are partially correct and another (the correct answer) that provides a fuller answer.
Watch out for items that seem to come from the text or lectures but have been changed to be negative. For example, “three factors found to be unimportant in the development of the American West were...” Underline key words like: never, not, always, usually.

If you get stuck, eliminate the answers you know are wrong, make a mark next to the item and move on.

It’s better to go through a test once, carefully, than to rush through making errors in reading, just so you can “go over it again” making the same reading errors.

Don’t leave any items blank. Narrow things down and guess if you must.

Essay Exams
• Be sure you do what is asked: define, list, compare and contrast.

• Answer as directly and concisely as possible.

• Outline quickly the important facts and ideas you want to include in your answer.

• Write. First sentences explain what your main points are. Following sentences provide specific examples or details to support your main points. Conclusion shows how your body text supported your opening statements.

• If you run out of time, provide an outline rather than writing in full sentences.

• Be sure your handwriting is legible.

Remember
• Praise and encourage yourself
• Pay attention to deadlines
• Start studying early, study for short periods (30-45 minutes) and give yourself (3-5 minute) breaks
• Try not to study for more than 2 hours at a stretch
• Ask for help if you need it
• Eat healthy foods
• Get enough sleep!

The NSCC Counseling Center helps students identify careers, pick programs of study, strengthen study skills, manage time and stress, deal with depression, confront prejudice and learn other student success skills. http://www.northseattle.edu/services/counsel.htm To make an appointment, stop by our offices on the second floor of the College or call 527-3676.

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North Seattle Community College
Counseling Center
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✓ WELCOME AND INTRODUCTIONS

✓ COURSE SYLLABUS AND HANDBOOK

✓ STUDENT SUPPORT SERVICES

✓ INTRODUCTION TO NURSING

✓ CHPT 1 NURSING PROCESS & ART/SCIENCE

✓ CHPT 2 HEALTH/HUMAN NEEDS

✓ CHPT 3 CULTURAL DIVERSITY

✓ CHPT 27 ASEPSIS AND INFECTION CONTROL

CLASS #2

✓ CHPT 4 HEALTH AND ILLNESS

✓ CHPT 26 SAFETY
## Nursing School Readiness/Preparation

### Personal Assessment Grid

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<th>CURRENT PROBLEM</th>
<th>FUTURE PROBLEM</th>
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<td>1/ TRANSPORTATION PLAN</td>
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<td>2/ TRANSPORTATION BACK-UP PLAN</td>
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<td>5/ CHILDCARE PLAN</td>
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<td>14/ TEST ANXIETY CONTROL PLAN</td>
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Figure 2-1 Maslow’s hierarchy of basic human needs.
Hand Hygiene

A Brief Review

Nursing courses are approved in all 50 states. For more accreditation information, click here.

The material in this course originated in the National Center for Infectious Diseases, James M. Hughes, MD, Director; and the Division of Healthcare Quality Promotion, Steve Solomon, MD, Acting Director. The complete text of the Guidelines is available from the CDC website: http://www.cdc.gov/mmwr/preview/mmwrhtml/rr5116a1.htm.

Learning objectives, post test and formatting by Lauren Robertson, BA, MPT.

LEARNING OBJECTIVES

Upon completion of this course, you will be able to:

- Summarize the relationship between hand hygiene and the acquisition of healthcare-associated pathogens.
Hand Hygiene: A Brief Review - continuing education course for nurses, occupational therapists, physical therapists, paramedics, EMTs and first responders - © Wild Iris Medical Education

- State accepted principles of surgical hand antisepsis.
- Relate the incidence of irritant and allergic contact dermatitis to hand hygiene products.
- Identify factors affecting adherence to hand hygiene guidelines among healthcare workers (HCWs).

For generations, handwashing with soap and water has been considered a measure of personal hygiene. In 1961 the U.S. Public Health Service recommendations directed that personnel wash their hands with soap and water for 1 to 2 minutes before and after client contact. Rinsing hands with an antiseptic agent was believed to be less effective than handwashing and was recommended only in emergencies or in areas where sinks were unavailable.

In 1975 and 1985 guidelines on handwashing practices in hospitals were published by the Centers for Disease Control (CDC), which recommended handwashing with non-antimicrobial soap between client contacts and washing with antimicrobial soap before and after performing invasive procedures or caring for clients at high risk. Use of waterless antiseptic agents (eg, alcohol-based solutions) was recommended only in situations where sinks were not available.

In 1988 and 1995 guidelines for handwashing and hand antisepsis were published by the Association for Professionals in Infection Control (APIC) that were similar to those listed in the CDC guidelines. The 1995 APIC guideline included discussion of alcohol-based hand rubs and supported their use in more clinical settings than had been recommended earlier.

In 1995 and 1996 the Healthcare Infection Control Practices Advisory Committee (HICPAC) recommended that either antimicrobial soap or a waterless antiseptic agent be used for cleansing hands upon leaving the rooms of clients with multidrug-resistant pathogens such as vancomycin-resistant enterococci (VRE) and methicillin-resistant Staphylococcus aureus (MRSA).

These guidelines also provided recommendations for handwashing and hand antisepsis in other clinical settings, including routine client care. Although the APIC and HICPAC guidelines have been adopted by the majority of hospitals, adherence of healthcare workers (HCWs) to recommended handwashing practices remains low.

NORMAL BACTERIAL SKIN FLORA

Traditionally, bacteria recovered from the hands are divided into two categories: transient and resident. Transient flora, which colonize the superficial layers of the skin, are more amenable to removal by routine handwashing. Transient flora are the organisms most frequently found in healthcare-associated
infections. Resident flora, which are attached to deeper layers of the skin, are more resistant to removal.

The hands of HCWs may become persistently colonized with pathogenic flora (eg, \textit{S. aureus}), gram-negative bacilli, or yeast. Investigators have documented that, although the number of transient and resident flora varies considerably from person to person, it is often relatively constant for any specific person.

Skin irritation caused by chemicals, removal of tape, and other physical disruptions leads to a decrease in skin-barrier function. Detergents and acetones remove glycerolipids and sterols from the skin, which are necessary for barrier function. It takes time for normal barrier function to return: 50% to 60% of barrier recovery typically occurs within 6 hours, but complete normalization of barrier function requires 5 to 6 days.

**TRANSMISSION OF PATHOGENS ON HANDS**

Pathogens can be transmitted from one client to another via the hands of HCWs. Healthcare-associated pathogens can be recovered not only from infected or draining wounds but also from frequently colonized areas of normal intact skin. The perineal or inguinal areas are usually most heavily colonized, but the axillae, trunk, and upper extremities (including the hands) are also frequently colonized.

The number of organisms present on intact areas of the skin varies with clients. Individuals with diabetes, those undergoing dialysis for chronic renal failure, and those with chronic dermatitis are likely to have areas of intact skin colonized with \textit{S. aureus}.

Client gowns, bed linen, bedside furniture, and other objects in the client's immediate environment can easily become contaminated with client flora. Such contamination is particularly likely to be caused by staphylococci or enterococci, which are resistant to desiccation (drying). HCWs can contaminate their hands with gram-negative bacilli, \textit{S. aureus}, enterococci, or \textit{Clostridium difficile} by performing "clean procedures" or touching intact areas of the skin of hospitalized clients.

Hospital staff caring for infants with respiratory syncytial virus (RSV) infections have acquired RSV by performing certain activities (eg, feeding or playing with infants, changing diapers). Even those who had contact only with surfaces contaminated with infant secretions acquired RSV by contaminating their hands and inoculating their oral or conjunctival mucosa. Other studies have documented that HCWs may contaminate their hands (or gloves) merely by touching inanimate objects in client rooms.

Hand antisepsis reduces the incidence of healthcare-associated infections. Trials have studied the effects of handwashing with plain soap and water versus some form of hand antisepsis on infection rates. The rates were lower when antiseptic handwashing was performed.
Healthcare-associated infection rates were lower after antiseptic handwashing using a chlorhexidine-containing detergent compared with handwashing with plain soap or an alcohol-based hand rinse. Investigators have determined also that healthcare-associated acquisition of MRSA was reduced when the antimicrobial soap used for hygienic handwashing was changed.

Increased handwashing frequency among hospital staff has been associated with decreased transmission of *Klebsiella* spp. among clients. Outbreak investigations have indicated an association between infections and understaffing or overcrowding; the association was consistently linked with poor adherence to hand hygiene.

**EVALUATING HAND-HYGIENE PRODUCTS**

In the United States, antiseptic handwash products intended for use by HCWs are regulated by FDA's Division of Over-the-Counter Drug Products (OTC). Accepted methods of evaluating hand-hygiene products require that test volunteers wash their hands with a plain or antimicrobial soap for 30 seconds or 1 minute, despite the observation in the majority of studies that the average duration of handwashing by hospital personnel is less than 15 seconds.

Only a few investigators have used 15-second handwashing or hygienic hand-wash protocols. Therefore, almost no data exist regarding the efficacy of plain or antimicrobial soaps under conditions in which they are actually used. Similarly, certain accepted methods for evaluating waterless antiseptic agents for use as antiseptic hand rubs require that 3 mL of alcohol be rubbed into the hands for 30 seconds, followed by a repeat application for the same duration. Clearly the 15-second average handwashing falls short of that standard.

**PREPARATIONS USED FOR HAND HYGIENE**

**Plain (Nonantimicrobial) Soap**

Soaps are detergent-based products that possess a cleansing action. Their cleansing activity is due to their detergent properties, which remove dirt, soil, and various organic substances from the hands. Plain soaps have minimal, if any, antimicrobial activity (destroying or inhibiting the growth of microorganisms). However, handwashing with plain soap can remove loose transient flora. In several studies, handwashing with plain soap failed to remove pathogens from the hands of hospital personnel.

**Alcohols**
The majority of alcohol-based hand antiseptics contain either isopropanol, ethanol, n-propanol, or a combination of two of these products. Alcohol solutions containing 60% to 95% alcohol are most effective; higher concentrations are less potent. Alcohols have excellent in vitro (laboratory) germicidal activity against gram-positive and gram-negative vegetative bacteria, including multidrug-resistant pathogens (eg, MRSA and VRE), *Mycobacterium tuberculosis*, and various fungi.

Certain viruses such as herpes simplex virus (HSV), human immunodeficiency virus (HIV), influenza virus, respiratory syncytial virus (RSV), and vaccinia virus are susceptible to alcohols when tested in vitro. Hepatitis B virus (HBV) is somewhat less susceptible but is killed by 60% to 70% alcohol; hepatitis C virus (HCV) also is likely killed by this percentage of alcohol. Despite its effectiveness against these organisms, alcohols have very poor activity against bacterial spores, protozoan oocysts, and certain nonenveloped (nonlipophilic) viruses.

Alcohols are rapidly germicidal when applied to the skin, but they have no appreciable persistent or residual activity (prolonged or extended antimicrobial activity that prevents or inhibits the proliferation or survival of microorganisms after application of the product). However, regrowth of bacteria on the skin occurs slowly after use of alcohol-based hand antiseptics, presumably because of the sublethal effect alcohols have on some skin bacteria.

Addition of chlorhexidine, quaternary ammonium compounds, octenidine, or triclosan to alcohol-based solutions can result in persistent activity. Alcohols, when used in concentrations present in alcohol-based hand rubs, also have in vivo activity against several nonenveloped viruses (eg, rotavirus, adenovirus, and rhinovirus, hepatitis A, poliovirus).

Alcohols are not appropriate for use when hands are visibly dirty or contaminated with proteinaceous materials. However, when relatively small amounts of proteinaceous material (eg, blood) are present, ethanol and isopropanol may reduce viable bacterial counts on hands more than plain soap or antimicrobial soap.

Alcohol can prevent the transfer of healthcare-associated pathogens. This experimental model indicates that when the hands of HCWs are heavily contaminated, an antiseptic hand rub using an alcohol-based rinse can prevent pathogen transmission more effectively than handwashing with plain soap and water.

Alcohol-based products are more effective for standard handwashing or hand antisepsis than soap or antimicrobial soaps. Alcohols are effective for pre-operative cleansing of the hands of surgical personnel. The efficacy of alcohol-based hand-hygiene products is affected by several factors, including the type of alcohol, concentration of alcohol, contact time, volume of alcohol, and whether the hands are wet when the alcohol is applied.
Chlorhexidine

Chlorhexidine’s immediate antimicrobial activity occurs more slowly than that of alcohols. Chlorhexidine has good activity against gram-positive bacteria, somewhat less activity against gram-negative bacteria and fungi, and only minimal activity against tubercle bacilli. Chlorhexidine is not sporicidal.

Chlorhexidine has in vitro activity against enveloped viruses (eg, HSV, HIV, cytomegalovirus, influenza, RSV) but substantially less activity against nonenveloped viruses (eg, rotavirus, adenovirus, and enteroviruses [polio]). It has substantial residual activity. Addition of low concentrations (0.5%–1.0%) of chlorhexidine to alcohol-based preparations results in greater residual activity than alcohol alone.

Chloroxylenol

Chloroxylenol, also known as parachlorometaxylenol (PCMX), is a compound that has been used as a preservative in cosmetics and other products and as an active agent in antimicrobial soaps. The antimicrobial activity of PCMX likely is attributable to inactivation of bacterial enzymes and alteration of bacterial cell walls.

It has good in vitro activity against gram-positive organisms and fair activity against gram-negative bacteria, mycobacteria (leprosy, TB), and certain viruses. PCMX is less active against P. aeruginosa, but addition of ethylene-diaminetetraacetic acid (EDTA) increases its activity against Pseudomonas spp. and other pathogens.

Hexachlorophene

In the 1950s and early 1960s, emulsions containing 3% hexachlorophene were widely used for hygienic handwashing, as surgical scrubs, and for routine bathing of infants in hospital nurseries. Studies of hexachlorophene as a hygienic handwash and surgical scrub demonstrated only modest efficacy after a single handwash.

Hexachlorophene has residual activity for several hours after use and gradually reduces bacterial counts on hands after multiple uses (ie, it has a cumulative effect). With repeated use of 3% hexachlorophene preparations, the drug is absorbed through the skin. Infants bathed with hexachlorophene and personnel regularly using a 3% hexachlorophene preparation for handwashing have blood levels of 0.1 to 0.6 ppm hexachlorophene.

In the early 1970s certain infants bathed with hexachlorophene developed neurotoxicity (vacuolar degeneration). As a result, in 1972, the FDA warned that hexachlorophene should no longer be used routinely for bathing infants. However, after routine use of hexachlorophene for bathing infants in
nurseries was discontinued, investigators noted that the incidence of healthcare-associated *S. aureus* infections in hospital nurseries increased substantially. In several instances, the frequency of infections decreased when hexachlorophene bathing of infants was reinstituted.

Current guidelines still recommend against the routine bathing of neonates with hexachlorophene because of its potential neurotoxic effects. The agent is classified by FDA as not generally recognized as safe and effective for use as an antiseptic handwash. Hexachlorophene should not be used to bathe clients with burns or extensive areas of susceptible, sensitive skin. Soaps containing 3% hexachlorophene are available by prescription only.

**Iodine and Iodophors**

Iodine has been recognized as an effective antiseptic since the 1800s. However, because iodine often causes irritation and discoloring of skin, iodophors have largely replaced iodine as the active ingredient in antiseptics.

Iodine and iodophors have bactericidal activity against gram-positive, gram-negative, and certain spore-forming bacteria (eg, clostridia, *Bacillus spp.* ) and are active against mycobacteria, viruses, and fungi. However, in concentrations used in antiseptics, iodophors are not usually sporicidal.

The majority of iodophor preparations used for hand hygiene contain 7.5% to 10% povidone-iodine. Formulations with lower concentrations also have good antimicrobial activity because dilution can increase free iodine concentrations. However, as the amount of free iodine increases, the degree of skin irritation also may increase. Iodophors cause less skin irritation and fewer allergic reactions than iodine, but more irritant contact dermatitis than other antiseptics commonly used for hand hygiene.

**Quaternary Ammonium Compounds**

Of this large group of compounds, alkyl benzalkonium chlorides are the most widely used as antiseptics. Other compounds that have been used as antiseptics include benzethonium chloride, cetrimide, and cetyl Pyridium chloride.

Quaternary ammonium compounds are primarily bacteriostatic and fungistatic, although they are microbicidal against certain organisms at high concentrations; they are more active against gram-positive than against gram-negative bacilli. Quaternary ammonium compounds have relatively weak activity against mycobacteria and fungi and have greater activity against lipophilic viruses.

A recent study of surgical ICU personnel found that cleansing hands with antimicrobial wipes containing a quaternary ammonium compound was about as effective as using plain soap and water for handwashing;
both were less effective than decontaminating hands with an alcohol-based hand rub.

**Triclosan**

Triclosan is a nonionic, colorless substance that was developed in the 1960s. It has been incorporated into soaps for use by HCWs and the public and into other consumer products. Concentrations of 0.2% to 2% have antimicrobial activity.

Triclosan has a broad range of antimicrobial activity, but it is often bacteriostatic. The agent possesses reasonable activity against mycobacteria and *Candida spp.*, but it has limited activity against filamentous fungi. Like chlorhexidine, triclosan has persistent activity on the skin. Its activity in hand-care products is affected by pH, the presence of surfactants, emollients, or humectants and by the ionic nature of the particular formulation.

Some reports indicate that providing hospital personnel with a triclosan-containing preparation for hand antisepsis has led to decreased MRSA infections. Triclosan's lack of potent activity against gram-negative bacilli has resulted in occasional reports of contamination.

**Antiseptic Agents with Spore-Forming Bacteria**

The widespread prevalence of healthcare-associated diarrhea caused by *Clostridium difficile* and the recent occurrence in the United States of human *Bacillus anthracis* infections associated with contaminated items sent through the postal system has raised concern regarding the activity of antiseptic agents against spore-forming bacteria. None of the agents (including alcohols, chlorhexidine, hexachlorophene, iodophors, PCMX, and triclosan) used in antiseptic handwash or antiseptic hand-rub preparations are reliably sporicidal against *Clostridium spp.* or *Bacillus spp.*

During outbreaks of *C. difficile*-related infections, washing hands with a nonantimicrobial or antimicrobial soap and water after removing gloves is prudent. Healthcare workers with suspected or documented exposure to *B. anthracis*-contaminated items also should be encouraged to wash their hands with a nonantimicrobial or antimicrobial soap and water.

**SURGICAL HAND ANTISEPSIS**

Antiseptic preparations intended for use as surgical hand scrubs are evaluated for their ability to reduce the number of bacteria released from hands at different times. Immediate and persistent activity are considered the most important in determining the efficacy of the product. Guidelines recommend that agents used for surgical hand scrubs should substantially reduce microorganisms on intact skin, contain a
nonirritating antimicrobial preparation, have broad-spectrum activity, and be fast-acting and persistent.

Formulations containing 60% to 95% alcohol alone or 50% to 95% when combined with limited amounts of a quaternary ammonium compound, hexachlorophene, or chlorhexidine gluconate, lower bacterial counts on the skin immediately post scrub more effectively than do other agents. The next most active agents (in order of decreasing activity) are chlorhexidine gluconate, iodophors, triclosan, and plain soap.

Surgical staff have been traditionally required to scrub their hands for 10 minutes preoperatively, which frequently leads to skin damage. Several studies have demonstrated that scrubbing for 5 minutes reduces bacterial counts as effectively as a 10-minute scrub. In other studies, scrubbing for 2 or 3 minutes reduced bacterial counts to acceptable levels. Studies have indicated that a two-stage surgical scrub using an antiseptic detergent, followed by application of an alcohol-containing preparation, is effective.

Scrubbing with a brush can damage the skin and result in increased shedding of bacteria from the hands. Scrubbing with a disposable sponge or combination sponge-brush has reduced bacterial counts on the hands as effectively as scrubbing with a brush. However, several studies indicate that neither a brush nor a sponge is necessary to reduce bacterial counts on the hands of surgical personnel to acceptable levels, especially when alcohol-based products are used.

CONTACT DERMATITIS

In certain surveys, approximately 25% of nurses report symptoms or signs of dermatitis involving their hands, and as many as 85% give a history of having skin problems. The potential for detergents to cause skin irritation can vary considerably and can be ameliorated by the addition of emollients and humectants. Damage to the skin also changes skin flora, resulting in more frequent colonization by staphylococci and gram-negative bacilli.

Although alcohols are among the safest antiseptics available, they can cause dryness and irritation of the skin. Irritant contact dermatitis is more commonly reported with iodophors. Other antiseptic agents that can cause irritant contact dermatitis include chlorhexidine, PCMX, triclosan, and alcohol-based products. Skin that is damaged by repeated exposure to detergents may be more susceptible to irritation by alcohol-based preparations.

Other factors that can contribute to dermatitis associated with frequent handwashing include using hot water for handwashing, low relative humidity (most common in winter months), failure to use supplementary hand lotion or cream, and the quality of paper towels. Shear forces associated with wearing or removing gloves and allergy to latex proteins may also contribute to dermatitis.
ALLERGIC CONTACT DERMATITIS

Allergic reactions to products applied to the skin (contact allergies) may present as delayed type reactions (allergic contact dermatitis) or less commonly as immediate reactions (contact urticaria). The most common causes of contact allergies are fragrances and preservatives; emulsifiers are less common causes. Liquid soaps, hand lotions or creams, and "udder" ointments may contain ingredients that cause contact allergies among HCWs.

Allergic reactions to alcohol-based products may represent true allergy to alcohol, allergy to an impurity or aldehyde metabolite, or allergy to another constituent of the product. Allergic contact dermatitis or immediate contact urticarial reactions may be caused by ethanol or isopropanol.

Allergic reactions can be caused by compounds that may be present as inactive ingredients in alcohol-based hand rubs, including fragrances, benzyl alcohol, stearyl or isostearyl alcohol, phenoxyethanol, myristyl alcohol, propylene glycol, parabens, and benzalkonium chloride.

REDUCING ADVERSE EFFECTS

Potential strategies for minimizing irritant contact dermatitis in HCWs include:

- Reducing the frequency of exposure to irritating agents
- Replacing products with high irritation potential with preparations that cause less damage to the skin
- Educating personnel regarding the risks of irritant contact dermatitis
- Providing caregivers with moisturizing skin-care products or barrier creams

One strategy for reducing the exposure of personnel to irritating soaps and detergents is to promote the use of alcohol-based hand rubs containing various emollients. Hand lotions and creams often contain humectants and various fats and oils that can increase skin hydration and replace altered or depleted skin lipids that contribute to the barrier function of normal skin.

Recently, barrier creams have been marketed for the prevention of hand-hygiene–related irritant contact dermatitis. Such products are absorbed to the superficial layers of the epidermis and are designed to form a protective layer that is not removed by standard handwashing.

Studies indicate that the frequency of handwashing or antiseptic handwashing by personnel is affected by the accessibility of hand-hygiene facilities. In certain healthcare facilities, only one sink is available in rooms housing several clients, or sinks are located far away from the door of the room, which may discourage handwashing by personnel leaving the room.
In intensive-care units, access to sinks may be blocked by bedside equipment. In contrast to sinks used for handwashing or antiseptic handwash, dispensers for alcohol-based hand rubs do not require plumbing and can be made available adjacent to each client's bed and at many other locations in client-care areas.

Pocket carriage of alcohol-based hand-rub solutions—including flat containers designed to fit into a scrub pocket—combined with availability of bedside dispensers has been associated with substantial improvement in adherence to hand-hygiene protocols. To avoid any confusion between soap and alcohol hand rubs, alcohol hand-rub dispensers should not be placed adjacent to sinks.

Healthcare workers should be informed that washing the hands with soap and water after each use of an alcohol hand rub is neither necessary nor recommended, because it may lead to dermatitis. However, because personnel feel a "build-up" of emollients on their hands after repeated use of alcohol hand gels, washing hands with soap and water after 5 to 10 applications of a gel has been recommended by certain manufacturers.

Hospital administrators must consider that by purchasing more effective or more acceptable hand-hygiene products to improve hand-hygiene practices, they will avoid the occurrence of nosocomial infections; preventing only a limited number of additional healthcare-associated infections per year will lead to savings that exceed any incremental costs of improved hand-hygiene products.

HAND-HYGIENE ADHERENCE

Adherence to recommended hand-hygiene procedures has been poor among healthcare workers, with an overall average of 40%. Risk factors for poor adherence to hand hygiene have been determined objectively in several observational studies or interventions to improve adherence. Among these, being a physician or a nursing assistant, rather than a nurse, was consistently associated with reduced adherence.

In the largest hospital-wide survey of hand-hygiene practices, predictors of poor adherence to hand-hygiene measures were identified. Predictor variables included:

- Professional category
- Hospital ward
- Time of day/week
- Type and intensity of client care

In 2,834 observed opportunities for hand hygiene, average adherence was 48%. Adherence was highest
among nurses and during weekends. Nonadherence was higher in intensive-care units compared with internal medicine wards, during procedures that carried a high risk of bacterial contamination, and when intensity of client care was high. The higher the demand for hand hygiene, the lower was the adherence.

The lowest adherence rate (36%) was found in intensive-care units, where indications for hand hygiene were typically more frequent. The highest adherence rate (59%) was observed in pediatrics wards, where the average intensity of client care was lower than in other hospital areas. The results of this study indicate that full adherence to previous guidelines may be unrealistic, and that facilitated access to hand hygiene could help improve adherence.

**Barriers to Adherence**

Perceived barriers to adherence with hand-hygiene practice recommendations include:

- Skin irritation caused by hand-hygiene agents
- Inaccessible hand-hygiene supplies
- Interference with HCW-client relationships
- Priority of care (i.e., the clients' needs are given priority over hand hygiene)
- Wearing of gloves
- Forgetfulness
- Lack of knowledge of the guidelines
- Insufficient time for hand hygiene
- High workload and understaffing
- Lack of scientific information about healthcare-associated infection rates

**Education**

Education is a cornerstone for improvement of hand-hygiene practices. Healthcare workers should receive scientific information related to hand hygiene and healthcare-associated infection and resistant organism transmission rates. They must also be educated about hand hygiene during daily client care and the low average adherence rate to hand hygiene by the majority of HCWs. The appropriateness and efficacy of hand-hygiene and skincare-protection agents also requires ongoing education.

Examples of possible targets for hand-hygiene promotion at the group level include:

- Education and performance feedback on hand-hygiene adherence
- Efforts to prevent high workload, downsizing, and understaffing
Hand Hygiene: A Brief Review - continuing education course for nurses, occupational therapists, physical therapists, paramedics, EMTs and first responders - © Wild Iris Medical Education

- Encouragement and provision of role models from key members in the work unit

At the institutional level, targets for improvement include:

- Written guidelines, hand-hygiene agents, skincare promotions and agents, or hand-hygiene facilities
- Culture or tradition of adherence
- Administrative leadership, sanction, support, and rewards

IMPACT OF IMPROVED HAND HYGIENE

Evidence supports the belief that improved hand hygiene can reduce healthcare-associated infection rates. Failure to perform appropriate hand hygiene is considered the leading cause of healthcare-associated infections and spread of multiresistant organisms and has been recognized as a substantial contributor to outbreaks.

Promotional strategies involving multidisciplinary teams of HCWs, the use of wall posters, promotion of antiseptic hand rubs located at bedsides throughout the facility, and regular performance feedback to all HCWs have had good results in some studies. The results of other studies indicate that improved hand-hygiene practices reduced the risk of transmission of pathogenic microorganisms. The beneficial effects of hand-hygiene promotion on the risk of cross-transmission also have been reported in surveys conducted in schools and daycare centers, as well as in a community setting.

OTHER ISSUES

Fingernails and Artificial Nails

Studies have documented that subungual (under a fingernail) areas of the hand harbor high concentrations of bacteria, most frequently coagulase-negative staphylococci, gram-negative rods (including Pseudomonas spp.), Corynebacteria, and yeasts. Freshly applied nail polish does not increase the number of bacteria recovered from periungual skin, but chipped nail polish may support the growth of larger numbers of organisms on fingernails.

Jewelry

Several studies have demonstrated that skin underneath rings is more heavily colonized than comparable
areas of skin on fingers without rings. One study found that 40% of nurses harbored gram-negative bacilli on skin under rings and that certain nurses carried the same organism under their rings for several months.

Gloving Policies

The CDC recommends that HCWs wear gloves to:

- Reduce the risk of personnel acquiring infections from clients
- Prevent HCW flora from being transmitted to clients
- Reduce transient contamination of the hands of personnel by flora that can be transmitted from one client to another

Preventing heavy contamination of the hands is considered important, because handwashing or hand antisepsis may not remove all potential pathogens when hands are heavily contaminated.

The following caveats regarding use of gloves by HCWs must be considered:

- Gloves do not provide complete protection against hand contamination.
- Bacterial flora colonizing clients may be recovered from the hands of approximately 30% of HCWs who wear gloves during client contact.
- Wearing gloves does not provide complete protection against acquisition of infections caused by HBV and HSV.

The barrier integrity of gloves varies on the basis of type and quality of glove material, intensity of use, length of time used, manufacturer, whether gloves were tested before or after use, and method used to detect glove leaks. Vinyl gloves have had defects more frequently than latex gloves, the difference in defect frequency being greatest after use.

Intact vinyl gloves provide protection comparable to that of latex gloves. Limited studies indicate that nitrile gloves have leakage rates that approximate those of latex gloves. Having more than one type of glove available is desirable, because it allows personnel to select the type that best suits their client-care activities.

Hands should be decontaminated or washed after removing gloves. Gloves should not be washed or reused. Use of petroleum-based hand lotions or creams may adversely affect the integrity of latex gloves. After use of powdered gloves, certain alcohol hand rubs may interact with residual powder on the hands of personnel, resulting in a gritty feeling on the hands.
In facilities where powdered gloves are commonly used, various alcohol-based hand rubs should be tested after removal of powdered gloves to avoid selecting a product that causes this undesirable reaction. Personnel should be reminded that failure to remove gloves between clients may contribute to transmission of organisms.

CONCLUSION

To ensure improvement in hand hygiene practices, an institution must measure improvements in hand-hygiene adherence. Periodically monitor and record adherence in terms of the number of hand-hygiene episodes performed by personnel/number of hand-hygiene opportunities, by ward or by service. Provide feedback to personnel regarding their performance.

Monitor the volume of alcohol-based hand rub (or detergent used for handwashing or hand antisepsis) used per 1,000 client-days. Monitor adherence to policies dealing with wearing of artificial nails. When outbreaks of infection occur, assess the adequacy of healthcare worker hand hygiene.
Hand Hygiene: A Brief Review

Post Test

You must score 70% or higher to pass this course.

1. APIC and HICPAC added to earlier CDC guidelines by recommending which of the following?
   ○ a. Use an antimicrobial soap or a waterless antiseptic agent for cleansing hands upon leaving the rooms of clients with multidrug-resistant pathogens.
   ○ b. Discouraged the use of alcohol-based hand rubs in some clinical settings.
   ○ c. Relaxed earlier guidelines because adherence of HCWs to recommended handwashing practices has improved.
   ○ d. Use soap and water for cleansing hands upon leaving the rooms of clients with multidrug-resistant pathogens.

2. Transient flora is defined as all of the following except:
   ○ a. Flora that colonize the superficial layers of the skin.
   ○ b. Flora that are amenable to removal by routine handwashing.
   ○ c. Organisms most frequently found in healthcare-associated infections.
   ○ d. Flora attached to deeper layers of the skin.

3. All of the following statements are true except:
   ○ a. There is an association between infections and understaffing or overcrowding.
   ○ b. Nursing staffing below a critical threshold may contribute to increased infection rates.
   ○ c. The understaffing of nurses has no effect on the spread of MRSA in intensive-care settings.
   ○ d. Being hospitalized during peak periods with understaffing was associated with increased risk of acquiring a healthcare-associated infection.

4. Which of the following statements about plain soap is false?
   ○ a. The cleansing activity is due to its detergent properties, which removes of dirt, soil, and various organic substances from the hands.
   ○ b. Plain soaps have minimal, if any, antimicrobial activity.
   ○ c. Soaps are usually not associated with skin irritation.
   ○ d. Handwashing with plain soap can remove loose transient flora.

5. All of the following are true about alcohol except:
   ○ a. Alcohols have excellent in vitro germicidal activity against gram-positive and gram-negative vegetative bacteria.
b. Certain organisms are susceptible to alcohols when tested in vitro.
c. Hepatitis C virus is likely killed by 60%–70% alcohol.
d. Alcohols have very good activity against bacterial spores.

6. All of the following methods have been shown to be effective for surgical scrubbing except:
a. Scrubbing for 5 minutes reduces bacterial counts as effectively as a 10-minute scrub.
b. Scrubbing for 2 or 3 minutes reduces bacterial counts to acceptable levels.
c. Scrubbing for 1 to 2 minutes with an alcohol-based product is as effective as a 5-minute scrub.
d. A two-stage surgical scrub using an antiseptic detergent, followed by application of an alcohol-containing preparation, is effective.

7. Factors that can contribute to dermatitis associated with frequent handwashing include:
a. Using hot water for handwashing.
b. Failure to use supplementary hand lotion or cream.
c. The quality of paper towels.
d. All of the above.

8. Studies indicate that the frequency of handwashing by personnel is affected by all of the following except:
a. The tendency of products to cause skin irritation and dryness.
b. The accessibility of hand-hygiene facilities.
c. The availability of pocket carried alcohol-based hand-rub solutions.
d. The overall cost of the hand-hygiene product.

9. All of the following were predictors of poor adherence except:
a. Professional category
b. Age of the client
c. Time of day/week
d. Intensity of client care

10. All of the following statements about nails and artificial nails and hand hygiene are true except:
a. There is no evidence to indicate that long nails or artificial nails harbor higher concentrations of bacteria.
b. Subungual areas of the hand harbor high concentrations of bacteria.
c. Chipped nail polish may support the growth of larger numbers of organisms on fingernails.
d. HCWs who wear artificial nails are more likely to harbor gram-negative pathogens on their fingertips.
PRE-CLASS ASSIGNMENT RERAINTS AND STERILE FIELDS

PROCEDURES 3-1, 3-2, 3-3 AND 4-1, 4-2, 4-3

1. Prior to applying restraints of any kind, what specific information does the nurse need from the patient’s physician?

2. How loose/tight should the nurse apply a restraint to an extremity, specifically?

3. On a hospital style bed, where should the nurse fasten restraint straps?

4. How often must restraints be removed at a maximum?

5. What must the nurse do for the patient while restraints are periodically removed?

6. How loose/tight should the nurse apply a vest restraint?

7. What hand/wrist jewelry may be worn during hand hygiene?

8. What position are the hands in during hand washing and rinsing, related to wrists and elbows?

9. In what order does a nurse dry the hands and wrists?

10. What part of a sterile drape is considered contaminated?

11. The topmost flap of a sterile wrapped pack is opened in what direction from the nurse?

12. From what height are sterile items added to a sterile field?

13. From what height are sterile solutions poured?

14. Which hand does the nurse glove first?

15. What is an easy way to remember the process for removing soiled gloves?
The nurse, in all professional relationships, practices with compassion and respect for the inherent dignity, worth and uniqueness of every individual, unrestricted by considerations of social or economic status, personal attributes, or the nature of health problems.

The nurse's primary commitment is to the patient, whether an individual, family, or community.

The nurse promotes, advocates for, and strives to protect the health, safety, and rights of the patient.

The nurse is responsible and accountable for individual nursing practice and determines the appropriate delegation of tasks consistent with the nurse's obligation to provide optimum patient care.

The nurse owes the same duty to self as to others, including the responsibility to preserve integrity and safety, to maintain competence, and to continue personal professional growth.

The nurse participates in establishing, maintaining, and improving healthcare environments and conditions of employment conducive to the provision of quality health care and consistent with the values of the profession through individual and collective action.

The nurse participates in the advancement of the profession through contributions to practice, education, administration, and knowledge development.

The nurse collaborates with other health professionals and the public in promoting community, national, and international efforts to meet health needs.

The profession of nursing, as represented by associations and their members, is responsible for articulating nursing values, for maintaining integrity of the profession and its practices, and for shaping social policy.

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General Survey

General Appearance
  ❖ Gender
  ❖ Race
  ❖ Body build + height/weight proportion
  ❖ Posture
  ❖ Gait
  ❖ Coordination of movements
  ❖ Hygiene
  ❖ Grooming
  ❖ Signs of illness
  ❖ Signs of pain or distress
  ❖ Attention span
  ❖ Affect
  ❖ Attitude
  ❖ Mood
  ❖ Eye contact
  ❖ Behavior
  ❖ Cognitive abilities
  ❖ Speech content and patterns
  ❖ Orientation to person/place/time
  ❖ Appropriate verbal responses

Vital Signs
  ❖ Height
  ❖ Weight
  ❖ Temperature
  ❖ Respirations
  ❖ Pulse
  ❖ Blood pressure
The ups and downs of orthostatic hypotension

Ever had a patient stand up and then sit right back down again, complaining of dizziness? That wavy feeling may be orthostatic (postural) hypotension, which occurs when blood pressure drops at least 20 mm Hg systolic or 10 mm Hg diastolic within 3 minutes of standing up.

Symptoms of orthostatic hypotension may include dizziness, light-headedness, blurred vision, and syncope (fainting), all of which are the result of decreased blood flow to the brain. Interestingly, orthostatic hypotension can also be asymptomatic.

Why would the seemingly simple act of standing up cause so much trouble? Because it’s not as simple as it seems.

When a person stands, a complex series of responses—cardiac, vascular, neurologic, neurochemical, and muscular—that affect blood pressure are set in motion. If any of these compensatory mechanisms don’t function properly, your patient’s world starts spinning around. The most common problems are too little blood or fluid volume (hypovolemia) in the circulatory system, inadequate vasoconstrictor mechanisms, and an insufficient autonomic effect on vascular constriction.

Let’s get down to the details.

What’s happening?

Baroreceptors (or pressure receptors) are sensory nerve endings in the aorta and carotid arteries that are the first to detect a change in position, like going from lying down to sitting up or standing. How do they know? When a person stands up, the blood pressure in the upper body falls and there’s a decrease in venous return to the heart. The baroreceptors fire off impulses through nerves to the brain. The brain takes over and signals the vessels in the lower extremities to constrict, the leg muscles to contract, and the heart to speed up a bit and increase the force of contractions. All of these responses push blood back up toward the heart and quickly return the blood pressure in the upper body to the proper level.

These regulatory responses are based in the autonomic nervous system. The neurotransmitters epinephrine and norepinephrine are responsible for prompting vasoconstriction and the heightened heart rate and contractility.

What happens if the patient’s autonomic nervous system can’t or won’t respond?

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Heart rate and contractility don’t increase, the vessels in the lower extremities don’t vasoconstrict, and the blood pressure rapidly decreases because of decreased venous return to the heart. The result: orthostatic hypotension. If he’s symptomatic, the patient’s going to get dizzy soon after he stands up.

Remember, circulating blood volume also plays a role in orthostatic hypotension. So if the patient is fluid depleted (dehydrated), the lack of venous return to the heart is even more pronounced and he’ll be even more likely to exhibit hypotension with position change.

**Getting to the bottom of it**

Finding out why your patient’s blood pressure is bottoming out is important: The treatment strategy depends on the underlying cause. Orthostatic hypotension is associated with a number of diseases, among them diabetes, congestive heart failure, cardiac insufficiency, and stroke. Certain drugs—like antihypertensives, antidepressants, and diuretics—can be a problem too. Orthostatic hypotension’s seen at virtually all ages, but it’s most common in older individuals.

Postural changes in the blood pressure and a detailed medical history will help you differentiate among the various potential causes. Here’s what to do when assessing postural blood pressure changes:

- Have your patient lie supine (as symptoms permit) for 10 minutes before taking the initial blood pressure and heart rate.
- Next, have the patient sit up on the edge of the bed or exam table with his legs dangling. Wait 1 to 3 minutes, then take the sitting blood pressure and heart rate.
- Finally, have the patient stand by the bed or table. Wait 1 to 3 minutes, then take the standing blood pressure and heart rate.

Watch for any sign that the patient’s feeling dizzy, lightheaded, or faint. If this happens, have him lie down. Symptom relief when the patient lies down is diagnostic of orthostatic hypotension. Be sure to record the patient’s blood pressure and heart rate, the position in which each reading is taken, and any symptoms the patient experiences.

**Normal...or not**

As we saw earlier, posture changes in a healthy individual produce normal alterations in the blood pressure and heart rate. When a person stands up, the blood pressure in the upper body goes down. The autonomic nervous system causes veins and arteries to constrict and the heart rate to speed up anywhere from 5 to 20 beats per minute (bpm) to offset reduced stroke volume and maintain cardiac output. (Remember, however, that if the patient’s taking a beta-blocker to slow down his heart rate, you probably won’t see any increase in the heart rate.) Systolic pressure is unchanged, or it may decrease slightly, up to 10 mm Hg. Diastolic pressure may also be slightly increased, up to 5 mm Hg.
Now suppose postural changes result in the heart rate-increased more than you’d normally expect, with the systemic pressure dropping 15 mm Hg or the diastolic pressure dropping 10 mm Hg. You’d suspect hypovolemia as the cause after diuretic therapy, hemorrhage, severe vomiting or diarrhea, excessive sweating, or chronic diuresis in uncontrolled diabetes melitus.

Vital signs alone, however, can’t help you differentiate between a decrease in intravascular volume and inadequate constriction of the blood vessels as the cause of orthostatic hypotension. With intravascular volume depletion, the reflexes that maintain cardiac output (increased heart rate and peripheral vasoconstriction) function correctly. However, the decreased fluid volume causes a drop in blood pressure. If vasconstrictor mechanisms are inadequate, the heart rate rises appropriately, but because of diminished peripheral vasoconstriction, the blood pressure drops.

Let’s look at a typical set of blood pressure and heart rate measurements in a patient with either intravascular fluid volume depletion or diminished vasoconstriction:
- lying down: blood pressure 120/70 mm Hg, heart rate 70 bpm
- sitting: blood pressure 100/55 mm Hg, heart rate 90 bpm
- standing: blood pressure 90/52 mm Hg, heart rate 94 bpm.

Another problem
In patients with autonomic insufficiency syndrome (characterized by a fixed heart rate, inconstancy, constipation, reduced ability to sweat, heat intolerance, impotence, and increased fatigability), the heart can’t speed up enough to compensate for the physiologic effects of standing up. Peripheral vasoconstriction may be absent or much diminished. Be aware that autonomic insufficiency, which is common and seen primarily in older patients, doesn’t necessarily rule out a concurrent decrease in intravascular fluid volume.

Here’s a typical example of blood pressure and heart rate measurements in a patient with autonomic insufficiency who’s on a beta-blocker:
- lying down: blood pressure 120/90 mm Hg, heart rate 60 bpm
- sitting: blood pressure 100/60 mm Hg, heart rate 60 bpm
- standing: blood pressure 90/50 mm Hg, heart rate 60 bpm.

Treatment options
As mentioned earlier, treatment and prognosis of orthostatic hypotension depend on the underlying cause. If drug-induced hypotension is causing the problem, expect the health care provider to lower the dosage or discontinue the drug as appropriate. For dehydration, you’ll treat the patient with fluid and electrolyte replacement therapy. A patient who’s been on prolonged bed rest may need to practice sitting for gradually longer periods of time. Elastic stockings may help with venous return to the heart.

Teach patients who are prone to orthostatic hypotension to sit or stand up slowly. Sleeping with the head of the bed raised may help. Remind patients to drink plenty of fluids and exercise daily as appropriate to their capability to boost overall vascular tone and reduce venous pooling.

Learn more about it
Stradley JC, Davis KA. Orthostatic hypotension. American Family Physician. 01/12/2003
ORTHOSTATIC OR POSTURAL HYPOTENSION

Pulse pressure normally 30-40mmHg
Difference b/w systolic and diastolic BP

Narrowed pulse pressure ≤30 occurs when systolic pressure dec and diastolic inc.
Changes reflect dec stroke volume and/or inc peripheral resistance.

Widened pulse pressure ≥50 occurs when systolic inc and diastolic= or when systolic= and diastolic dec
Changes reflect inc stroke volume and/or dec peripheral resistance.

Cause of hypotension usually hypovolemia or impaired vasoconstriction. Normally BP inc instantly r/t gravity change caused by change in positions—heart rate inc, peripheral vasoconstriction inc.

If pulse pressure abnormal or BP low, take in other arm first. If patient c/o dizzy, light-headed, or syncope when arising to sit or to stand, do postural BPs. No BP ever on side with mastectomy/lymph node removal, AV fistula, dialysis shunt or central IV line.
FUNDAMENTALS 117 PRE-LAB ASSIGNMENT

VITAL SIGNS

1. When we take and record person’s vital signs, we are monitoring the person’s ________, ________, __________, and ________________________.

2. Vital signs are extremely important because

3. When we take vital signs, we always want to compare them with

4. A person who is febrile would be said to have a _______________ than normal temperature.

5. Core temperatures are measured at what sites?

Core temperatures are usually (circle one) higher lower than surface body temperatures, which are measured at what sites?

6. List the different mechanisms, ways that heat loss can occur:

7. There are different types of thermometers. Why is it important for the nurse to be familiar with the different types?

8. Survival is rare when a person’s temperature is below ________ or above ____________.

9. Factors that affect respiratory rate and depth are:

10. Define simply: Tachypnea Hyperventilation

Bradypnea Hypoventilation
FUNDAMENTALS 117 PRE-LAB ASSIGNMENT

VITAL SIGNS

11. Describe a technique for accurately counting respirations:

12. Normal blood pressure for an adult (18yrs and older) would be __________
   high-normal would be __________________.

13. Define simply Hypertension
   Hypotension
   Orthostatic hypotension.

14. The highest pressure against the arterial walls is referred to as ___________pressure.
    The lowest pressure against the arterial walls is referred to as ___________pressure.

15. Blood pressure is recorded as a fraction. The top number referring to ____________
    pressure and the lower number referring to ______________ pressure.

16. *Pulse rate, ____________, __________________, when assessed, may be referred to as
    normal, ______________, ___________________. (page 436) (*of peripheral pulses).

17. Pulse amplitude may be further broken down and graded by numbers 0-4+. Define and
    describe:
    0= absent pulse
    1+=
    2+=
    3+=
    4+=