# CLINIC OPERATIONS REFERENCE GUIDE

**APPROVED ON: 2.20.15 by Executive Committee**

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Additional and more detailed information about our clinical policies and procedures may be found in the appendices and UUHC policy manuals available on the PULSE website. To access these manuals go to: https://pulse.utah.edu/SitePages/Pulse.aspx and log in with your University of Utah credentials. Questions regarding this document can be referred to Lisa Cannon, Clinic manager or Dr. James Bekker, Associate Dean of Clinical Services and Patient Care by telephone at 801-581-8951 or via e-mail at lisa.cannon@hsc.utah.edu and james.bekker@hsc.utah.edu respectively.
GENERAL OVERVIEW

The purpose of this manual is to provide a quick reference on clinic procedures for faculty, staff, and students. Each person working in the clinic is expected to review the document, including the appendices, and sign when the review is complete.

While each section of the document is important for the smooth and safe management of the clinic, there are certain areas that have broad implications:

- The Clinic Manager is the resource for the clinic and the source of accurate information.
- Food will be stored ONLY in designated areas, and eating and drinking may occur ONLY in designated areas.
- Every effort is made to prevent transmitting infections beginning with required immunizations.
- Personal Protective Equipment will be used in all clinical and simulation settings, and will be worn correctly.
- Instruments must be handled with care to prevent contamination and injury.

This manual will be reviewed and approved annually by the faculty and the Executive Council. Any changes in regulations or state or federal requirements will be reflected immediately and the faculty and staff will be notified.
BEST PRACTICES: INFECTION CONTROL

1. **PREVENTING CONTAMINATION IN THE OPERATORY**

   1.1. Any instrument, surface or item that has been in contact with bodily fluids is contaminated. Anything touched by contaminated gloves is contaminated.

   1.2. **Do not** handle patient records, radiographs, and other clean items, open cubicle supply drawers or restock supplies with contaminated gloves.

   *Appendices referenced in this section:*

   APPENDIX 5: Infection Prevention and Control Manual
   APPENDIX 9: Bloodborne Pathogens Exposure Control Policy
   APPENDIX 11: Radiation Protection Manual

2. **REDUCE/PREVENT TRANSMISSION OF INFECTIOUS DISEASES TO WORKERS**

   All faculty, staff and students must:

   2.1. Be immunized against hepatitis B, Measles, Mumps, Rubella (MMR) or equivalent immunity status if born before 1957, Varicella (chickenpox), Tetanus-Diphtheria-Pertussis (Tdap), and a test for TB. Annual influenza vaccinations are required. *(Appendix 1, Appendix 7)*

   2.2. Wear appropriate personal protective equipment (PPE) (e.g., gloves, protective eyewear, mask, and gown) in situations where exposure to blood, body fluids or environmental hazards is possible.

   2.3. Follow guidelines for instrument sterilization and surface disinfection as outlined in the Decontamination/Handling of Instruments and Equipment policy. *(APPENDIX 3: Decontamination/Handling of Instruments and Equipment)*

   2.4. Handle and dispose of sharps safely in accordance with the Infectious, Environmental and Bloodborne Pathogen Exposures Control Policy.

   2.5. Recap needles being used during the procedure (e.g. Novocain) using a **mechanical device or a one-handed scoop technique** according to standard practices in dentistry. Upon completion of the procedure, needles will be disposed of in the sharps container as directed by policy. If the needles are already capped, then they will be put in the sharps container with the cap on.

   2.6. Comply with annual training in infection control protocols (HIPAA, bloodborne pathogen, OSHA, and Compliance). The Learning Management System (LMS)
2.7. Be evaluated for and follow-up on all exposure incidents (i.e. needle and instrument sticks). The University of Utah Infection Prevention and Control Department is responsible for the day-to-day functioning of the infection control program within the hospitals and clinics, whereas the University of Utah Health Care Infection Prevention and Control Committee provides a forum for data reporting, discussion, decision-making, and approval concerning the program.

Appendices referenced in this section:
- APPENDIX 1: New Hire Immunization
- APPENDIX 2: Student Handbook Excerpts
- APPENDIX 3: Decontamination/Handling of Instruments and Equipment
- APPENDIX 4: Sharps Disposal Policy
- APPENDIX 5: Infection Control and Body Substance Precautions
- APPENDIX 6: Infection Prevention and Control Plan
- APPENDIX 7: Employee Health Requirements
- APPENDIX 9: Bloodborne Pathogens Exposure Policy

3. **HAND HYGIENE**

3.1. **Hand Hygiene (HH) is the single most important practice to reduce transmission of infectious agents in health care settings**, and is an essential element of Standard Precautions. HH consists of:

   3.1.1. Soap, water, and friction for a minimum of 15 seconds; or,

   3.1.2. The appropriate use of alcohol-based hand sanitizers (containing >60% alcohol).

3.2. In the absence of visibly soiled hands, approved alcohol-based products for hand disinfection are preferred over antimicrobial or plain soap and water because of their superior microbiocidal activity, reduced drying of the skin, and convenience.

3.3. HH must be performed:

   3.3.1. Before patient contact
   3.3.2. Before clean/aseptic procedures
   3.3.3. As needed during the care of the same patient
   3.3.4. After body fluid exposure risk
   3.3.5. After touching a patient and/or patient surroundings.

3.4. When an indication for HH precedes or follows a contact that also requires glove
usage, HH must be performed.

3.5. When an indication for HH applies while an individual is wearing gloves, gloves must be removed to perform HH.

Appendix referenced in this section:

APPENDIX 5: Infection Control and Body Substance Precautions Manual

4. PERSONAL PROTECTIVE EQUIPMENT (PPE) IS USED:

- During direct patient contact.
- When handling contaminated items.
- When cleaning and disinfecting operatory surfaces.
- For observers, interpreters, translators or security personnel who are present in the operatory.

4.1. Clinic Gowns

4.1.1. Long-sleeved, closed-front gowns may be either cloth or disposable; gowns must be worn during patient care.

4.1.2. Gowns should be tied, zipped or buttoned securely.

4.1.3. Gowns must be changed between patients and when visibly contaminated.

4.1.4. Gloves overlap gown cuffs.

4.1.5. Gowns are not to be worn outside the clinic or simulation lab setting. Gowns should be removed if leaving the clinic area.

4.1.6. Backpacks, briefcases and purses are to be stored in lockers or in offices, not chairside. Patient purses or backpacks will be hung on hooks in the operatory.

4.1.7. Disposable surgical gowns are worn for all oral surgery and periodontal surgery patients.

4.1.8. Gowns should be discarded after patient care is complete or when visibly contaminated, all instruments have been returned and the operatory has been cleaned and disinfected.

4.2. Masks

4.2.1. Masks must be used for all patient treatment except when interviewing patients.

4.2.2. Masks must be fitted to the face but not resting against mouth.

4.2.3. Masks must be changed between patients and sooner, if wet.
4.2.4. Masks for faculty who are working in a purely supervisory or observational role should be changed when wet or contaminated.

4.2.5. Masks are never reused.

4.3. **Protective eyewear or face shield**

4.3.1. Practitioners must wear eye protection during patient treatment except when interviewing.

4.3.2. Eye protection must be worn in the laboratory when using rotary instruments and lathes.

4.3.3. Eye protectors must have solid side shields.

4.3.4. Patients must wear eye protection during treatment in SOD clinics except when being interviewed.

4.3.5. Observers, interpreters or security personnel must wear protective eyewear while in the operatory.

4.4. **Gloves**

4.4.1. Use clean, non-sterile, latex-free gloves for routine dental procedures.

4.4.2. Use sterile gloves for sterile procedures.

4.4.3. Do not touch items or surfaces with contaminated gloves.

4.4.4. Gloves are put on last when worn with other PPE.

4.4.5. Do not wear contaminated gloves when leaving the operatory, lab or instrument processing areas.

4.4.6. Change gloves after every patient and if torn or punctured.

4.4.7. Do not wash or disinfect gloves between patients.

4.4.8. Wearing gloves does NOT replace the need for Hand Hygiene.

4.4.9. Staff should wear puncture resistant utility gloves when cleaning contaminated instruments. Utility gloves should be disinfected periodically, and replaced if cracked or torn.

4.4.10. Used gloves must be discarded into a trash receptacle upon removal.

4.5. **Surgical Bonnet**

4.5.1. When caring for patients, long hair that may interfere with patient treatment should be tied back.

4.5.2. Surgical bonnets are recommended to prevent contamination in the operatory during surgical set up and procedure. Bonnets are available for use worn during
surgical procedures.

5. **SAFE MANAGEMENT OF SHARPS**

5.1. **NEVER DISPOSE OF SHARPS IN THE TRASH.**

5.2. Sharps are any sharp objects capable of causing puncture wounds to employees. Examples include: needles, scalpels, lancets, skin hooks, sharp surgical instruments, scissors, orthodontic wires, broken glass, glass medicine ampules, blood collection tubes, slides, slide cover slips, pipettes, etc.

5.3. Sharps disposal container refers to a specifically designated plastic, puncture resistant containers that are color-coded (usually red) and labeled as Biohazard according to OSHA rules.

5.4. Disposable sharps, both contaminated and non-contaminated, and disposable sharps safety devices will be placed into a sharps disposal container immediately or as soon as possible after use by the person who used the sharp object.

5.5. Recap needles being used during the procedure (e.g. Novocain) **using a mechanical device or a one-handed scoop technique** according to standard practices in dentistry. Upon completion of the procedure, needles will be disposed of in the sharps container as directed by policy. If the needles are already capped, then they will be put in the sharps container with the cap on.

5.6. Broken glassware that may be contaminated may not be picked up directly with hands. Mechanical means, such as a brush and dustpan, tongs, or forceps must be used for such clean up.

5.7. Only sharps disposal containers that have been approved by Infection Prevention and Control will be used.

5.8. Sharps containers will be easily accessible to personnel and located as close as is feasible to the immediate area where sharps are used or can be reasonably anticipated to be found. Disposal containers must be secured whenever feasible to avoid tipping or spilling of contents.

5.9. Supervisors or managers are responsible to ensure that sharps disposal containers of appropriate size are located in accessible areas and that the containers are secured to prevent accidental spillage or inadvertent access to the contents.

5.10. University of Utah Environmental Health and Safety services will replace sharps disposal containers as requested. Change will be requested when containers are two-thirds full.

5.11. Area personnel using sharps disposal containers should request the replacement of
containers when they become more than two thirds full.

5.12. The employer maintains a sharps injury log for the recording of employee percutaneous injuries from contaminated sharps. The information in the sharps injury log will be recorded and maintained in such manner as to protect the confidentiality of the injured employee.

5.13. Employees who dispose of sharps inappropriately (witnessed or determined through investigation) will be counseled by their supervisors and subject to corrective and/or disciplinary action in accordance with University policy.

5.14. Occupational exposures to blood and other potentially infectious materials related to sharps use are compiled and analyzed by Work Wellness Center. Preventive measures, as indicated, are designed and implemented in conjunction with the Hospital Infection Committee, the Product Evaluation Committee, and area managers/supervisors. Safety devices are evaluated and instituted according to OSHA mandates and federal law.

Appendices referenced in this section:
  APPENDIX 4: Sharps Disposal Policy
  APPENDIX 5: Infection Control and Body Substance Precautions Manual
  APPENDIX 9: Bloodborne Pathogens Exposure Policy
6. EXPOSURE INCIDENTS AND INJURIES

Exposures

6.1. Exposure incidents include:
6.1.1. Stick or cut from contaminated instrument.
6.1.2. Contact of eyes, nose, mouth, and non-intact skin with blood or saliva.
6.1.3. Human bite that breaks the skin.

6.2. Management of Exposure Incidents
6.2.1. Stop the dental procedure as soon as feasible to allow the provider to obtain appropriate care.
6.2.2. Remove gloves and wash the wound or exposed area with soap and water for 3 - 5 minutes.
6.2.3. Inform your clinic manager. Any sentinel event should be reported to Risk Management.
6.2.4. It is critical to test the source patient whenever possible. Inform the patient and seek for permission to test the patient’s blood. *The person who seeks permission from the patient and who draws the blood must be a different person than the one who was exposed.*
6.2.5. The exposed person completes the Employers First Report of Injury or Illness Form 122 (may be obtained from the Clinic Manager or at http://www.hr.utah.edu/forms/lib/E1.pdf) as defined by the Academic Worker’s Compensation policy.
6.2.6. The exposed health care worker will report to the Work Wellness Center (University Hospital AA217 or 801-581-2227), bringing Form 122. The Work Wellness Center staff will direct the health care worker accordingly.
6.2.6.1. Either the person who was exposed or the attending dentist must complete the “Occurrence” portion of the form using your name as it appears on you School of Dentistry ID badge. The Work Wellness Center or the Emergency Department should complete the “Treatment” portion of the form. Within 24 hours, submit the completed form to the University of Utah Absence Management Team (420 Wakara Way Suite 105 Salt Lake City, UT 84108, phone 801-581-2169, fax 801-581-5571).
6.2.6.2. If you are rotating in a health care setting outside of the University, utilize the designated facilities at that location. Indicate to your health care provider that the Worker’s Compensation Fund of Utah (WCFU) will cover this incident.
6.2.6.3. If the work related exposure is potentially infectious, you will be directed by the Work Wellness Center or the Emergency Department to Employee Infection Control. (University Hospital Room AA217; 801-581-2706)

Injuries

6.2.7. If the work related injury or illness involves overnight hospitalization, broken bones, loss of limb, or a fatality, then the Senior Industrial Hygienist at the Environmental Health and Safety (EHS) must be contacted immediately (University of Utah Bldg. 605, 125 South Fort Douglas Blvd. Salt Lake City, Utah 84113, phone 801-581-6590, after hours use University Police Dispatch: 801-585-2707) and he/she will report to OSHA within 8 hours.

6.2.7.1. Notify Environmental Health and Safety of an industrial accident requiring investigation.

6.2.7.2. Inform the attending dentist of the outcome of your treatment(s). You must submit any physician note releasing you from work to your attending dentist and the Office of Student Life.

6.2.7.3. Note that additional medical services may need pre-authorization. Inform professionals providing these services that the Worker’s Compensation Fund of Utah WCFU insures you.

6.2.7.4. Occupational Health is required to report communicable infectious diseases (including HIV/AIDS, tuberculosis, viral hepatitis) to the State Health Department.

6.2.8. The employer shall establish and maintain a sharps injury log for the recording of employee percutaneous injuries from contaminated sharps. The information in the sharps injury log shall be recorded and maintained in such manner as to protect the confidentiality of the injured employee.

6.2.9. Employees who dispose of sharps inappropriately (witnessed or determined through investigation) will be counseled by their supervisors and subject to corrective and/or disciplinary action in accordance with University policy.

6.2.10. Occupational exposures to blood and other potentially infectious materials related to sharps use are compiled and analyzed by Work Wellness Center.

Appendices referenced in the section:

APPENDIX 2: Student Handbook
APPENDIX 4: Sharps Disposal Policy
APPENDIX 5: Infection Control and Body Substance Precautions Manual
APPENDIX 9: Bloodborne Pathogens Exposure Policy
7. DENTAL UNIT WATERLINE (DUWL) ASEPSIS

7.1. The waterlines to the high-speed handpiece and air/water syringe use a product called Adec ICX.

7.2. Adec ICX is specifically designed to prevent biofilms from colonizing inside of the waterline.

7.3. Dispensary staff will fill water bottles with distilled water and Adec ICX tablet once every two weeks unless notified by faculty or students that water level is below minimum/empty. Student, staff, or faculty member should take the bottle to the dispensary for filling with distilled water when found to be empty during the middle of a clinic session.

Start of the Day:
  Purge the air/water and handpiece lines thoroughly for 15 seconds each.
  Flush the cavitron lines for 1 minute prior to patient care.

Between patients:
  Flush lines for 15 seconds.

At the end of the day:
  Flush lines for 15 seconds.
  Check water levels. If empty, place the water bottle on the dental unit bracket tray and notify dispensary staff.

8. SURFACE DISINFECTION AND SURFACE BARRIERS

8.1. Wear gloves and mask! Remove paper products and contaminated instruments from the operatory.

8.2. An EPA-registered, surface cleaner/disinfectant is used to clean operatory surfaces before and after each patient, and at the end of the clinic day. ProSpray C-60 surface disinfectant is used in our general treatment clinics.

8.3. Spray ProSpray C-60 onto surfaces such as countertops, dental chairs, operator and assistant stools, and then wipe using paper towels. Hold spray bottle no more than 4-6 inches from surface.

8.4. Spray the agent onto surfaces a second time and allow it to sit for the required amount of time, (currently 10 minutes) and then wipe residual disinfectant with paper towels.

8.5. Use a disinfectant towelette (ProSpray C-60) to clean the dental unit light handles, switches, cords, bracket tray, touch, pad, x-ray view box, etc. Towelettes are also
used to clean amalgamators, curing lights, cavitrons, EPTs and the plastic cases they are stored in.

8.6. Use sleeves and/or blue wrap for areas difficult to disinfect such as light handles and electrical panels, tri-syringe and saliva ejector coupling.

8.7. Use clear plastic sleeves to cover the keyboard and mouse, and change after each patient.

8.8. Place blue wrap or plastic on X-ray power, exposure switches and hand switch.

8.9. Place a clear plastic bag over X-ray cone and head.

8.10. Change barriers after each patient.

Appendices referenced in this section:

APPENDIX 5: Infection Prevention and Control Manual
APPENDIX 9: Bloodborne Pathogens Exposure Control Policy
APPENDIX 11: X-ray Radiation Protection Manual

9. MANAGING MEDICAL WASTE

9.1. Food and drink will stored ONLY in designated areas and will not be kept in refrigerators, freezers, shelves, cabinets, counter tops or bench tops where blood or other potentially infectious materials are present.

9.2. Refrigerators/freezers used for specimen storage will have a Biohazard Label on the door.

9.3. Patient can choose to take his/her extracted tooth at the time of service. Any extracted teeth not requested by the patient should remain on the tray and returned to the dispensary for proper storage.

9.4. Patients can choose to keep teeth that have been removed and contain valuable restorative materials (e.g. gold) at the time of service. Any teeth not requested by the patient should remain on the tray and returned to the dispensary for proper storage. The sterilization staff will clean and store the teeth in a locked container in the dispensary. Sterilization staff will maintain a log of the same. The log will include date, material type and number of teeth collected.

9.5. Specimens of blood or other potentially infectious materials must be placed in a plastic specimen bag or in a container that prevents leakage during collection, handling, processing, storage, transport, or shipping.

9.5.1. Any container that is used for specimen collection/transport within the hospital that is not recognizable as containing a specimen must be labeled with a
Biohazard Label.

9.5.2. Specimens/containers that leave the facility must be labeled with a Biohazard Label.

9.5.3. If contamination of the primary specimen container occurs, it must be placed into a second container to prevent further leakage and labeled as stated above.

9.5.4. If the specimen could puncture the primary container, it must be placed into a puncture-resistant secondary container.

9.6. Equipment being serviced or shipped must be decontaminated as necessary, unless such decontamination is not feasible. If contamination is left on such equipment, a readily observable Biohazard Label must be attached to the equipment stating which portions remain contaminated so that appropriate precautions can be taken.

9.7. All equipment and environmental working surfaces must be routinely cleaned and decontaminated with an appropriate approved disinfectant, and immediately cleaned/disinfected if overtly contaminated.

9.8. Only trained personnel will be responsible for the decontamination of work surfaces or equipment that require special technical knowledge for handling and cleaning.

9.9. All trash receptacles in clinical work areas that can be anticipated to contain trash contaminated with blood or other potentially infectious materials will have a Biohazard Label affixed or be color coded. All trash will be handled as if potentially infectious.

9.10. During use, containers for contaminated sharps shall be easily accessible to personnel and located as close as is feasible to the immediate area where sharps are used, maintained upright, changed when 2/3 full, closed immediately prior to removal or replacement to prevent spillage or protrusion of contents during handling, storage, transport, or shipping as detailed in

9.11. Biological safety cabinets shall be certified when installed, whenever they are moved and at least annually.

Appendices referenced in this section:

APPENDIX 4: Sharps Disposal Policy
APPENDIX 5: Infection Control and Body Substance Precautions Manual
APPENDIX 9: Bloodborne Pathogens Exposure Policy for more details)

10. **CLINIC LABORATORY ASEPSIS: Disinfecting dental impressions and prostheses:**

10.1 Flush impressions/prostheses with tap water in the operatory to remove blood, saliva and debris.
10.2 Spray impression/prosthesis with surface disinfectant and place in plastic bag for transport to the laboratory.

10.3 After adequate contact time with disinfectant, rinse impression with water before stone is poured into the impression.

10.4 Before returning prosthesis to the operatory, clean the prosthesis with water, spray with surface disinfectant, and place in plastic bag for transport. Wash prosthesis with water before placing in mouth.

10.5 Gloves, mask and clinic coat (PPE) are worn when handling contaminated items in the laboratory.

10.6 Food and beverages are not permitted in the laboratory.

10.7 Pumice moistened with disinfectant is used when polishing prostheses.

10.8 Polishing lathes are cleaned daily, pumice is discarded, and trays cleaned.

10.9 Contaminated laboratory surfaces are disinfected after each case.

Appendix referenced in this section:
APPENDIX 12: Aseptic/Sterile Technique Policy

11. ASEPSIS IN THE SIMULATION CLINIC
11.1. PPE is worn in the Simulation Laboratory when treating the mannequin.

11.2. Food and beverages are not permitted in the laboratory.

Appendix referenced in this section:
APPENDIX 12: Aseptic/Sterile Technique Policy

12. MANAGING AMALGAM WASTE
12.1. Place unused amalgam in containers marked “Amalgam Waste”.

12.2. Place used amalgam capsules in containers marked “Amalgam Capsules”.

12.3. Take all amalgam waste and spent amalgam capsules to the designated area in your clinic to be deposited in the designated repository. The repository should be emptied and returned to the operatory.

12.4. Replace disposable traps in the dental unit when suction performance is diminished.

12.5. Place trap in biohazard bucket and return to the designated location in your clinic for disposal.
12.6. Never rinse or reuse disposable traps!

*Appendix referenced in this section:*
APPENDIX 12: Aseptic/Sterile Technique Policy

13. **HAZARDOUS WASTE SPILLS**
13.1. Clean-up kits for mercury and acrylic monomer spill are available in the dispensaries.

*Appendix referenced in this section:*
APPENDIX 10: Hazardous Materials and Waste Plan

14. **APPEARANCE GUIDELINES**
14.1. Proper identification must be worn and clearly displayed at all times unless covered by Personal Protective Equipment (PPE). The ID badge must be worn so that it is easily readable by patients and hospital personnel. The badge may not be clipped to a waistband or belt, put inside a pocket or otherwise obscured by clothing unless covered by PPE.

14.2. Clothing at the SOD is to be business professional, business casual or scrubs. The following are *not* acceptable: tank, halter, midriff or tube tops, sweatshirts/shirts with messages/lettering (except University of Utah logos/lettering), and short skirts or shorts. Clothing should be clean and in good condition.

14.3. Scrubs are acceptable and encouraged to wear in classrooms, and are required in the technique lab, the Simulation Lab and the clinic. Scrubs must comply with School specifications. They are expected to be clean and neat. A white coat that meets the School of Dentistry standards may be worn over scrubs in public areas.

14.4. Footwear must be clean, in good condition, and appropriate. For safety reasons, open-toed shoes and sandals are not allowed in patient care areas.

14.5. Hats, caps, and sunglasses should not be worn in the classroom or in the clinical setting.

14.6. Daily hygiene must include clean teeth, hair, clothes, and body, including use of deodorant.

14.7. Colognes, perfumes or scented hairspray are *not* acceptable.

14.8. Fingernails must be clean and short to allow for proper hand hygiene, use of instruments, to prevent glove puncture and prevent injury to the patient. Artificial nails are prohibited.
14.9. Mustaches, hair longer than chin length, and beards must be clean and well-trimmed. Students with long hair participating in patient care should wear their hair tied back or in a bonnet to avoid interfering with performance of procedures or coming into contact with the patient.

14.10. Jewelry should not be functionally restrictive or excessive. Jewelry that may affect the integrity of gloves or other infection control measures is prohibited.

14.11. All tattoos should be appropriately covered so as not to be visible.


14.13. Safety glasses with solid side shields must be worn during all foundation level and laboratory activities.

14.14. Clinic gowns are not to be worn in the lecture halls or outside of the dental building. If you are NOT involved in any category I or II tasks in or at the clinic, lab, dispensary or sterilization area, or in consultation with a faculty person, student or staff inside of the clinic, you should NOT be wearing a clinic coat.

Appendix referenced in this section:
APPENDIX 2: Student Handbook
BEST PRACTICES: INSTRUMENT AND EQUIPMENT MAINTENANCE & MANAGEMENT

1. MONITORING AND DISPENSING INSTRUMENTS AND EQUIPMENT
   1.1. Instrument cassettes, handpieces and individual items required for patient treatment are maintained, assembled and stored in the Central Sterilization Unit. These items are dispensed for patient care directly from the dispensing areas of the dental clinic. Instruments and supplies acquired from dispensing are returned to the dispensing. Acquisition is to occur immediately prior to patient care and instruments must be returned immediately following patient care. At no time should instruments or equipment be in the possession of a student when he/she is not providing patient care.

2. INSTRUMENT AND EQUIPMENT MAINTENANCE
   2.1. The Central Sterilization unit quality inspects all instrument cassettes, bur blocks and handpiece components when they are returned to the dispensary. Students are expected to return instrument cassettes organized as they received them (as displayed in pictures outside the dispensary for their reference).
   2.2. Students are responsible for reporting and returning defective or damaged components to dispensing and inform dispensing staff regarding the necessary repair. Dispensing staff will notate this information for the repair team in Central Sterilization and remove it from circulation.
   
   Students are responsible to assure all cement, impression material and debris are removed from instruments prior to returning them to dispensing.
   Students are expected to return instrument cassettes organized as they received them (as displayed in pictures outside the dispensary for their reference).

   2.3. Periodontal cassette inventory is sent out to Hu-Friedy twice during the academic school year to be professionally sharpened or replaced. Inventory will be sorted into three groups. Each group will be out for maintenance twice a year and the groups will be staggered to maintain a continuous supply to the clinics.
   2.4. Equipment maintenance and concerns will be addressed to the Clinic Manager.

3. MATERIAL CHOICE
   3.1. The clinical specialties at the School of Dentistry have identified specific instrumentation to be placed in our instrument cassettes for various treatment procedures. Consumable products are chosen by select members of the School’s Formulary Committee chaired by the Associate Dean, Clinical Affairs and Patient Care (Dr. James Bekker). Requests for certain types of consumables not currently
4. **STERILIZATION**

4.1. The Central Sterilization Unit at the School of Dentistry processes cassettes and sterile packages daily. All Instruments used in patient care activities at the School of Dentistry are sterilized using appropriate monitoring and sterilization processes. Bowie Dick, biological spore, and sterilization tests and reports are run daily to assure appropriate steam pressure and sterilization temperature has been achieved. In addition each sterilized package is date stamped and test strips are placed inside most packages as a quality assurance measure. All sterilized packages are quality inspected prior to distribution by the Central Sterilization staff. Students have a five-step process to follow when receiving instruments for patient care:

1. Check date stamp to assure package is not past 90 days since autoclaving.
2. Check to assure sterile packaging is not compromised.
3. Check heat indicator on package to verify it has changed color.
4. Check to assure indicator strip inside package has changed color.
5. Open package and verify instruments are clean and in good working condition.

5. **STOCKING AND MAINTAINING CONSUMABLE PRODUCTS**

5.1. The dental assistants will stock and maintain the consumable product drawers and shelves.

6. **INSTRUMENT AND EQUIPMENT DISPENSING/CHECK-OUT**

6.1. All undergraduate dental and dental hygiene students will use their U-card to sign out instrumentation, equipment and sundries from dispensing.

6.2. To receive items from dispensing you must be wearing appropriate clinic attire (scrubs recommended) to include:

1. Clean clinic gown
2. Appropriate footwear (no sandals, boots, open toe or open top shoes)
3. Hair should be pinned away or be tied away from face.

6.3. Do not bring or carry backpacks or patient records to dispensing when acquiring instruments.

6.4. You must have your U-card to receive instruments and equipment. **No exceptions.**

6.5. The student who signs out items is responsible for the return of those items in the condition and order in which they received them.

6.6. Students assisting other students may obtain certain materials that do not
require U-card. You should familiarize yourself with these items by talking to a dispensing staff.

7. **LOST, DAMAGED OR STOLEN INSTRUMENTS & EQUIPMENT**

7.1. When students receive instrument and handpiece cassettes from dispensing they are responsible to assure all instruments and handpiece parts are present and accounted for prior to starting patient care.

7.2. If you are missing an instrument or handpiece part, immediately return the entire cassette to dispensing for a replacement. Students failing to return the entire cassette will be invoiced for the cost of the item.

7.3. If an instrument inside one of the cassettes breaks during patient care, return the cassette and broken instrument to the contaminated return window at dispensing. A new cassette will be issued to you immediately from the clean side.

7.4. You will not be charged for broken dental instruments, dental burs or malfunctioning equipment.

7.5. Return any broken, damaged or malfunctioning item(s) to dispensing and inform the staff of the malfunction so Central Sterilization will know what the concern is.

8. **UPON COMPLETION OF PATIENT CARE**

8.1. Return all instruments and equipment to dispensing.

8.2. After instruments are returned to the dispensing area, then return to operatory to clean and disinfect using ProSpray C-60 instructions displayed at the operatory.

9. **QUESTIONS?**

Talk to the Clinic Manager and/or the Associate Dean for Clinical Affairs.
PATIENT RIGHTS & RESPONSIBILITIES

en Español

The University of Utah School of Dentistry, as part of the Health Sciences, shares a goal to provide excellent health care to each patient. Our patients have the following rights and responsibilities regardless of race, color, culture, language, ethnicity, religion, sex, sexual orientation, gender identity or expression, socioeconomic status, age, national origin, physical or mental disability, and / or veteran status:

It is your responsibility to:

• Give correct and complete information about your health insurance, health status and health history.
• Ask questions if you do not understand information or instructions.
• Inform your caregivers if you do not intend to or cannot follow the treatment plan.
• Accept health consequences that may occur if you decide to refuse treatment or instructions.
• Cooperate with your caregivers.
• Respect the rights and property of other patients.
• Tell your caregivers of any medications you brought from home.
• Report any changes in your health status to your caregivers.
• Keep your appointment or inform the clinic if you are unable to keep the appointment.

You have the right to:

• Respect and Privacy
  o Respect in a caring and safe environment
  o Personal privacy and confidentiality of your health information
• Quality Care
  o Proper evaluation and treatment
  o Proper pain assessment and pain management
  o Be free from restraints, except when needed to protect you or others from harm.
  o Be free from abuse.
  o Have access to protective services.
  o Spiritual services upon request
Have your concerns heard and resolved when possible. If you have concerns about your care, contact your caregivers or a supervisor. If you are not happy with how your concern is resolved, contact Customer Service at (801) 581-2668. You may also file a complaint with the Utah Department of Health by calling 1-800-999-7339, or write to: Utah Bureau of Health Facility Licensing, Certification, and Resident Assessment, PO Box 144103, Salt Lake City, Utah 84114.

Information & Communication
- Know the names and roles of those caring for you.
- Communicate with your caregivers in a language or method you can understand.
- Have your personal physician and a person of your choice notified if you are urgently or emergently admitted to a hospital.
- Be informed about your health status, recommended treatments, options, risks and benefits.
- Information about the costs of your care and payment methods.
- Review and receive a copy of your medical record, subject to state law and University policy.

Make Decisions
- Be involved with your care through discussions with your caregivers.
- Be informed of costs, benefits and risks of your treatment options and agree to or refuse a course of action.
- Designate a support person (or persons) of your choosing to be involved in your care when appropriate. You may restrict access of your support person or visitors at any time.
- Direct your care through an Advance Directive. Advance Directives are legal forms that state your choices about the care you want to receive in serious health situations.
- Choose whether or not to take part in research studies and to have studies explained to you before you decide. Other care will continue regardless of your decision to take part in research studies.
- Seek an alternate doctor or ask for a second opinion.
CONSENT FORM

I have read the 2015 version of the Clinic Operations Reference Guide and acknowledge my responsibility to understand and practice this information.

_____________________________________________
NAME

_____________________________________________
DATE

Please tear this page out and submit it to Office of the Associate Dean for Clinics and Patient Care to be included in your Education/Employment File.
BACKSIDE OF CONSENT FORM

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# APPENDICES

1. **NEW HIRE IMMUNIZATION**

   **Employee Health REQUIREMENTS Documentation**

<table>
<thead>
<tr>
<th>Two Step TB Skin Testing (TST):</th>
<th>TST #1</th>
<th>TST #2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Must provide documentation of one negative TST completed within 12 months of hire date.</td>
<td>Placed by:</td>
<td>to be placed no sooner than ________ and NOT on a Thursday</td>
</tr>
<tr>
<td>AND one TST completed within 2 months of hire date that was evaluated by a qualified reader and documented in MM. If prior TST positive, must provide documentation of a negative chest x-ray completed within 12 months prior to hire date.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>TST #1 (self evaluate) Employee evaluates 1st TST 48-72 hours after placement and signs off IF there is no swelling or hard raised area present.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>TST #2: (placed no sooner than 7 days after TST #1 was placed) Must be evaluated 48-72 hours after placement by a qualified reader and documented in MM.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Call the Employee Health Clinic at 801-581-2227 to locate a qualified reader if needed.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>MMR (Measles/Mumps/Rubella):</th>
<th>MMR #1</th>
<th>MMR #2</th>
</tr>
</thead>
<tbody>
<tr>
<td>If born 1957 or later must provide documentation of two MMR immunizations OR of a letter that proves immunity OR documentation from a healthcare provider of confirmed disease.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>If born before 1957, laboratory evidence of immunity is required: must receive MMRs if there is a measles, mumps, or rubella outbreak.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Varicella (Chickenpox):</th>
<th>Varicella #1</th>
<th>Varicella #2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Must provide documentation of 2 varicella vaccinations OR of a varicella that proves immunity OR documentation from the MD who treated/ evaluated you when you had chicken pox.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Hepatitis B:</th>
<th>Hepatitis B #1</th>
<th>Hepatitis B #2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Employees who may come in contact with blood or body substances, soiled equipment, or substances from patients must provide documentation of three appropriately spaced Hepatitis B immunizations AND a Hepatitis B tier that proves immunity.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Tetanus-Diphtheria-Pertussis (Tdap):</th>
<th>Date of last Tetanus-Diphtheria-Pertussis (Tdap):</th>
</tr>
</thead>
<tbody>
<tr>
<td>Must provide documentation of Tdap immunization within the past 10 years regardless of time since last tetanus/diphtheria (Td) vaccine.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Influenza:</th>
<th>Date of CURRENT Influenza vaccination:</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANNUALLY during influenza season (Oct-May), ALL EMPLOYEES must provide documentation of a current influenza vaccination OR a current official influenza exemption for an acceptable valid reason.</td>
<td></td>
</tr>
</tbody>
</table>

   You MUST provide supporting documentation for each of these requirements, dates alone are not sufficient.

   Please call the Employee Health Clinic for any questions at (801) 581-2227
2. **STUDENT HANDBOOK EXCERPTS**

2.1. **Immunizations (p.52):** To protect the health of patients, students and the community, dental students are required to meet School of Dentistry immunization requirements for health care workers at all times during their dental education. Admitted students must complete and submit the Pre-Matriculation Immunization Requirement and Verification Form to Student Health Services along with primary documentation that immunization requirements have been met. Additionally, prior to and while working in patient care venues students must submit to Student Health Services annual documentation of seasonal influenza immunization and, when required by the State or as a result of patient contact, tuberculosis testing. Immunization requirements must be met and all immunizations must be current as a condition of ongoing enrollment and prior to participating in any learning activities.

2.2. **Infectious, Environmental and Bloodborne Pathogen Exposures Control Policy (p. 38-43):**

**Purpose**
To provide a comprehensive plan to eliminate and/or reduce occupational exposure to infectious, environmental and/or bloodborne pathogens and to ensure compliance with federal regulations.

**Definitions**
Airborne Pathogen: infectious disease transmitted via aerosolized particles including tuberculosis, chicken pox, (Varicella), and measles.

Biohazard Label: a fluorescent orange label with the biohazard symbol.

Blood: human blood, blood products or blood components.

Bloodborne Pathogen: microorganisms present in human blood and can cause disease in humans, which include Hepatitis B Virus (HBV), Hepatitis C Virus (HCV), and Human Immunodeficiency Virus (HIV).

Body Substance Precaution (BSP): isolation precautions that consider all blood, body fluids visibly contaminated with blood, body fluids, substances, unfixed tissues, organs or cultures from living or dead human sources as potentially infectious.

Clinical Work Area: any area involving exposure/potential exposure to blood or other potentially infectious materials, such as dental operatories, laboratories, dirty utility rooms, lab case holding areas, etc.

Contaminated: the presence or the reasonably anticipated presence of blood or other potentially infectious materials on an item or surface.

Decontamination: the use of physical or chemical means to remove, inactivate, or destroy bloodborne pathogens on a surface or item to the point where the surface or item is rendered safe for handling, use, or disposal.

Engineering Controls: controls that isolate or remove a bloodborne pathogen hazard from the work place such as blades or needles that retract after use, needleless devices, sharps disposal containers or ventilation devices.
Environmental Hazard: any exposure that may have health repercussions, such as chemical spills or radiation.

Exposure Determination: based on the definition of occupational exposure without regard to personal protective clothing and equipment.

Exposure Incident: a specific eye, mouth, other mucous membrane, non-intact skin, or parenteral contact with blood or other potentially infectious materials or an exposure to an environmental hazard that results from an activity related to education or employment.

Occupational Exposure: skin, eye, mucous membrane, or parenteral contact with blood or other potentially infectious materials that may result from an activity related to education or employment.

Other Potentially Infectious Materials: all body fluids, tissues, or cultures from living or dead human sources, other than blood (e.g. semen, vaginal secretions, cerebrospinal fluid, synovial fluid, pleural fluid, peritoneal fluid, amniotic fluid, concentrated viruses, aerosolized particles, saliva etc.)

Personal Protective Equipment (PPE): specialized clothing or equipment worn by an employee for protection against exposure to bloodborne pathogens and other body fluids/substances. General work clothes (e.g. uniforms, pants, shirts, or blouses) not intended to function as protection against a hazard are not considered to be personal protective equipment.

Regulated Waste: any liquid or semi-liquid blood or other potentially infectious materials; contaminated items that would release blood or other potentially infectious materials in a liquid or semi-liquid state if compressed; items that are caked with dried blood or other potentially infectious materials and are capable of releasing these materials during handling; contaminated sharps; and pathological and microbiological wastes containing blood or other potentially infectious materials.

Student: an individual currently enrolled in dental school at the University of Utah School of Dentistry.

Work Practice Controls: practices that reduce the likelihood of exposure by altering the manner in which a task is performed, such as prohibiting recapping, removing or bending of needles (unless required by a specific medical procedure).

Universal Precautions: a method of infection control in which all human blood and other potentially infectious materials are treated as if known to be infectious for HIV and HBV. It does not apply to feces, nasal secretions, sputum, sweat, tears, urine or vomitus unless they contain visible blood.

Policy

The School of Dentistry supports a comprehensive exposure control plan for infectious, environmental and bloodborne pathogens, as required by OSHA, which delineates who is at risk, the methods for preventing and reducing exposures, the steps to take in the event of an exposure, and procedures for training and record-keeping.

Education and Training
The Office of the Associate Dean for Clinical Affairs and Patient Care will coordinate HIPAA certification training and training in risk prevention practices and body substance precautions to ensure compliance with OSHA requirements and federal regulations. Annual training and recertification will be required of all dental students.

**Universal Precautions**

Universal Precautions policies are in place to protect students and patients from unnecessary health risks. All students who may be subjected to blood or body fluids will use Universal Precautions. All students are required to follow appropriate infection control procedures, including body substance precautions, where there is a risk of parenteral, mucous membrane, or cutaneous exposure to blood, body fluids, or aerosolized secretions from any patient, irrespective of the perceived risk of exposure. Students will wear appropriate personal protective equipment (e.g., gloves, goggles, mask, and gown) in situations where exposure to blood, body fluids or environmental hazards is possible.

Students with needle sticks or other training-related injuries or illness, environmental or blood born pathogen exposures will follow regulations and protocols established by the federal Occupational Safety and Health Administration (http://www.osha.gov/index.html) and the University of Utah Department of Environmental Health and Safety (http://ehs.utah.edu/).

**Patient Non-Discrimination**

Dental students shall provide competent and compassionate care to all patients, irrespective of their known or suspected HIV, TB or other infection status.

**Dental Students with Bloodborne and/or Airborne Infections**

Dental students infected with bloodborne or other pathogens shall not, solely because of such infection(s), be excluded from participation in dental school life, including educational opportunities and extracurricular activities except as otherwise required by applicable federal, state, or local law, or unless the health of the student presents a direct threat to the health and safety of others. Students infected with airborne pathogens may be excluded from participation in such activities during the infectious stage of their disease.

Dental students who know or who have a reasonable basis for believing that they are infected with bloodborne or airborne pathogens are expected to seek expert medical advice regarding their health circumstances to have a clear understanding of the medical issues presented by these infections. Students are expected to seek advice from their health care provider or the School of Medicine Employee Infection Control office (University Hospital Room AA217). Phone 801-581-2706.

**In the Event of an Occupational Exposure Incident**

Notify your attending dentist immediately.

Seek medical treatment as directed by your attending dentist as soon as possible. If possible, utilize a University provider, such as Employee Health Services (AA217 or 801-581-2227) or the University of Utah.
Emergency Department. If you are rotating in a health care setting outside of the University, utilize the services of the Emergency Department services at your location. Indicate to your health care provider that this incident will be covered by the Worker’s Compensation Fund of Utah (WCFU).

Obtain a copy of the Employers First Report of Injury or Illness form from your health care provider, the Emergency Department or the University of Utah Human Resources website (http://www.hr.utah.edu/forms/lib/E1.pdf). Fill in the “Employee” portion of the form using your name as it appears on your School of Dentistry ID badge. Have your or attending dentist complete the “Occurrence” portion of the form. The Emergency Department or your care provider should complete the “Treatment” portion of the form. Within 24 hours, submit the completed form to the Workmen’s Compensation Fund of Utah www.wcfgroup.com (1-800-446-2667 or 1-385-351-8010) and the University of Utah Absence Management Team (located at 420 Wakara Way Suite 105 Salt Lake City, UT 84108, phone 801-581-2169, fax 801-581-5571).

If the work related injury or illness is potentially infectious, you must follow up with Employee Infection Control within one business day. (University Hospital Room AA217). Phone 801-581-2706. If you are rotating in a health care setting outside of the University, utilize the Employee Health services at your location.

If the work related injury or illness is not infections, but involves overnight hospitalization, broken bones, loss of limb, or a fatality, you or your attending physician must contact Environmental Health and Safety (EHS) immediately of the accident (University of Utah Bldg. 605, 125 South Fort Douglas Blvd. Salt Lake City, Utah 84113, phone 801-581-6590, after hours use University Police Dispatch: 801-585-2677. You will need to request the dispatch operator notify EHS of an industrial accident requiring investigation).

Inform your attending dentist of the outcome of your treatment(s). You must submit any physician note releasing you from work to your attending dentist and the Office of Student Life.

Notify the Absence Management Team in Human Resources about any changes or updates in your mailing address, treatments, and contact information.

Be aware that additional medical services may need pre-authorization. Check with the Absence Management Team. Be sure to tell professionals providing these services that you are insured by the Workmen’s Compensation Fund of Utah WCFU.

In the course of testing required by occupational exposure incident protocols, Occupational Health must report communicable infectious diseases (including HIV/AIDS, tuberculosis, viral hepatitis) to the State Health Department.

Confidentiality and Testing

The School of Dentistry shall respect the confidentiality of individuals with bloodborne or airborne pathogens to the extent permitted by state and federal law. Dental students will not be tested for HIV, or other bloodborne or airborne pathogens without their knowledge or consent, except in circumstances when testing may be required by occupational exposure protocols. In cases of non-occupational exposure,
confidential testing is available through the Salt Lake County Health Department, the University of Utah Student Health Service, or your primary care physician.

Research Environment Exposure Control

All research and laboratory directors, principal investigators and laboratory workers shall recognize their responsibility for preventing transmission of bloodborne and other pathogens when handling human blood and other potentially infectious materials in the laboratory. Researchers must comply with the University of Utah Biosafety Manual (http://ehs.utah.edu/research-safety/biosafety/tools-and-resources/biosafety-manual) and the Bloodborne Pathogen Exposure Control Plan (http://ehs.utah.edu/research-safety/biosafety/bloodborne-pathogens-and-non-human-primate-cells/laboratory-exposure-control-plan), available from the Environmental Health and Safety Department (http://ehs.utah.edu). Environmental hazards are present in the research setting and all research and laboratory directors, principle investigators, and laboratory workers must be familiar with and follow the established guidelines of the Chemical Safety (http://ehs.utah.edu/research-safety/chemical-safety), also available from the Environmental Health and Safety Department (http://ehs.utah.edu).

University of Utah Office of Equal Opportunity Reporting

Dental students who believe they have been the victim of discrimination because of actual or perceived infection with HIV, viral hepatitis, tuberculosis or other communicable pathogen should contact the Office of Equal Opportunity/Affirmative Action (801-581-8365, 135 Park Building, 201 South Presidents Circle, SLC, UT 84112).

2.3. HIPAA / Bloodborne Pathogen / OSHA / Compliance Training (p.43)

The Health Insurance Portability and Accountability Act (HIPAA) Privacy Rule provides federal protections for personal health information and gives patients an array of rights with respect to that information. At the same time, the Privacy Rule is balanced so that it permits the disclosure of personal health information needed for patient care and other important purposes. A major goal of the Privacy Rule is to assure that individuals’ health information is properly protected while allowing the flow of health information needed to provide and promote high quality health care and to protect the public’s health and well-being. The Rule strikes a balance that permits important uses of information, while protecting the privacy of people who seek care and healing.

Dental students must be trained and certified and must be in compliance with current policies in order to participate in patient care activities. The Learning Management System (https://hrit.utah.edu/1ms) a University-wide e-learning studio provides online HIPAA, Bloodborne pathogen, OSHA, and Compliance training modules and competency testing on learned material.

Matriculating students must complete required HIPAA / Bloodborne Pathogen / OSHA / Compliance online training through the Learning Management System (https://hrit.utah.edu/1ms) prior to Orientation week.

HIPAA training and certification must be renewed annually.
The Office of the Associate Dean for Clinical Affairs and Patient Care will notify students of required HIPAA training modules and deadlines for completion of annual training/recertification. Dental students will be responsible for notifying the Office of Associate Dean for Clinical Affairs and Patient Care when they have completed HIPAA training and are HIPAA certified.

A HIPAA violation by a dental student is considered a breach of professional responsibility. As such, all violations will be referred to the Associate Dean for Student Life for resolution. 

http://www.regulations.utah.edu/academics/6-400.html
3. **DECONTAMINATION/HANDLING OF INSTRUMENTS AND EQUIPMENT**

**Policy:** Decontamination/Handling of Instruments and Equipment  
**Purpose:**

A. To provide standardized procedures for the cleaning, decontamination, and handling of instruments and equipment from the point-of-use to the decontamination area.  
B. To protect and preserve the integrity and usage life of instrumentation and equipment.

**Definitions:**

A. **Bioburden:** The number and types of viable microorganisms with which an item is contaminated; also known as bioload or microbial load.  
B. **Cleaning:** Removal, usually with detergent and water, of adherent visible soil (e.g., blood, protein substances, and other debris) from the surfaces, crevices, serrations, joints, and lumens of instruments, devices, and equipment by a manual or mechanical process that prepares the items for safe handling and/or further decontamination.  
C. **Contaminated:** State of having been actually or potentially in contact with microorganisms that might be capable of producing disease or infection.  
D. **Decontamination:** Any physical or chemical process that serves to reduce the number of microorganisms on any inanimate object to render that object safe for subsequent handling. The process by which contaminants are removed, either by hand cleaning or mechanical means, using specific solutions capable of rendering the blood and debris harmless and removing them from the surface of water.  
E. **Disinfection:** Destruction of pathogenic and other microorganisms by thermal or chemical means.  
F. **Personal Protective Equipment (PPE):** Specialized clothing or equipment worn by an employee for protection against a hazard (e.g. gloves, eye wear, masks, shields, and gowns).  
G. **Sharps:** Devices having a projecting cutting edge or fine point (i.e. needles, scalpels, pipettes, broken glass, some instrumentation, etc).

**Description:**

University of Utah Health Care hospitals & clinics comply with the guidelines of safe handling and decontamination of medical devices and instrumentation.

**Implementation:**

A. **Instrumentation during the surgical procedure:**  
   1. Kept free from gross soil, as much as possible, by wiping it with sterile water sponge or wet towel. Do not use saline to moisten the sponge.  
   2. Cannulated items will be irrigated with sterile water to remove residue.
B. **Post procedure care and handling of instrumentation:**  
   1. Instruments should be taken apart at the point-of-use whenever possible and arranged in an orderly fashion in their appropriate tray so that all surfaces are exposed to the action of the automatic cleaner. The following activities should be completed:  
      a. Open instrument box locks except instruments with sharp points (e.g. towel clamps).
b. Place scissors, lighter weight instruments, and microsurgical instruments on top of heavier instruments.

c. Place heavy retractors and/or instruments in a separate tray or basin.

d. When possible separate all reusable sharp instruments from the general instrumentation and clearly identify them by placing the items in a separate container (i.e. pitcher) or lay them in the bottom of the tray under the towel roll.

e. Large sharps, such as osteotomes, must be isolated in a separate container or tray.

f. Items that cannot be immersed will be wiped off with sterile water.

g. Restrung instruments, whenever possible, or place neatly on a towel roll, which is returned in the instrument tray.

2. Batteries should be removed from power equipment before sending to Sterile Processing.

3. Enzymatic solution should not be sprayed on power equipment or batteries.

4. Enzymatic solution is recommended for pre-cleaning instrumentation.

5. Cover with a wet towel to prevent drying during transportation to the decontamination area.

C. Case carts should be neatly stacked and prepared for transport.

1. Items should be:

   a. Placed within the case cart rails and loaded to prevent items from falling.

   b. Stacked no more than two trays high to prevent overloading. The bottom shelf will be reserved for lighter items.

   c. Request a second cart from Sterile Processing rather than overloading a cart.

2. Where applicable, carts are transported to the soiled utility room and sent to the decontamination area in Sterile Processing via elevator.

   a. If the elevator is not working in the Main OR, contact Sterile Processing decontamination.

   b. If the elevator in the Main OR/Neuroscience is broken, coordinate transportation of dirty case carts with Sterile Processing. The case cart will need to be covered with a plastic cover.

   c. In the Main OR, used case carts must be transported to the soiled utility area in the Main OR and sent to Sterile Processing decontamination on the elevator.

   d. When transporting a dirty case cart from another area in the hospital, the case cart must be covered.

   e. Case carts or equivalent returning to decontamination are identified with scrub tech’s initials and OR room for the Main OR, HCH OR, and L&D OR.

D. If sending implant not in original container (i.e. loose/free floating) for cleaning, first contact Sterile Processing with instructions.

E. Do not send unused supplies, specimens, fluids, or sharps to Sterile Processing Decontamination. If non compliance occurs (i.e. sharps, fluids, specimens, medications etc.) meaning an inappropriate item is sent with the case cart to SPD, SPD personnel are expected to immediately contact the OR Charge Nurse to rectify the issue. A Patient Safety Net (PSN) will be completed and managers will follow the mishandling of sharps disciplinary recommendations (Refer to Guidelines for Disciplinary Actions--Nursing Services).

F. Decontamination (HIGHLY RESTRICTED AREA)

   1. Wear appropriate PPE. Individuals not in appropriate attire should be asked to leave and appropriate disciplinary action taken.

   2. Door should remain closed.

   3. Maintain a clean and organized working environment; no items should be stored on the floor.

   4. Perform daily maintenance on all equipment:

      a. Clean drains out on the wa hers and sterilizers.

      b. Assure spray arms in washers are free from debris and pointed in the right direction.

      c. Assure sonics are maintained:
CLINIC OPERATIONS REFERENCE GUIDE

i. Drain water.
ii. Rinse out any dirt or debris.
iii. Refill with clean water to the fill line indicated on the machine.
iv. Add the appropriate amount of enzymatic solution to the clean water.
v. Assure all functions of the machine are working properly.

5. All items entering decontamination must be considered dirty and processed properly prior to entering the sterile processing area.

G. Refer to specific manufacturer's cleaning/decontamination instructions for instrumentation.

H. Washer Decontamination:
   1. Items with lumens (i.e. flexible reamers, suctions, etc):
      a. Hand clean with appropriate sized brushes.
      b. Place in the irrigating sonic if appropriate.
   2. Heavily soiled instrumentation or difficult to clean items:
      a. Hand clean with appropriate sized brushes.
      b. Place in the irrigating sonic if appropriate.

I. Cleaning instruments without restrictions should be placed on a manifold and run on the "Instrument Cycle":
   1. Box locks must be open.
   2. Disassemble as much as possible
   3. Organize and do not crowd instrumentation in perforated tray without the blue silicone mat or any towels.
   4. Separate skin hooks and delicate instruments in fine mesh baskets.

J. Manually process items with appropriate detergent and/or enzymatic cleaner:
   1. Hand pieces/power equipment and cords. They may also require lubrication and oil with the excess removed.
   2. Rubber items.
   3. Bipolar cords.
   4. Extremely small plates and screws.
   5. Batteries
   6. Use high pressure air and dry all excess water from the instruments before transporting.
   7. Cover and transport instrument sets to appropriate location until they are placed in substerile area for sterilization.

K. Case Carts:
   1. Clean all case carts/transport carts after each use.
   2. Store case carts/transport carts in decontamination area until carts are decontaminated.

L. Non-functioning SPD elevator, if applicable:
   1. Transport covered contaminated carts using Dirty Holding servic elevator.
   2. Transport covered clean/sterile carts using the Clean Holding service elevator.

M. Things to Be Aware Of:
   1. Never submerse power equipment or attachments in water.
   2. A staff member with a severe skin condition or non-intact skin needs to be medically evaluated to see if they can perform the essential functions of the job. If in question, contact Manager/Designee.
   3. Always adhere to blood and body fluid precautions:
      a. Immediately remove any contaminated clothing.
      b. Wash any exposed skin area immediately with soap and copious amounts of water.
   4. For face or eye exposure use closest eye and face wash provided:
      a. Follow eye and face wash instructions as described by manufacturer.
b. Place exposed area of face or eye over water flow and irrigate with copious amounts of water.

   c. Notify the Coordinator or Manager of the exposure and report the exposure to the Employee Health. After hours report exposure to the Emergency Department.

References:


Owner: Cherisse Marie Davis
Liaison: Kathryn Adamson
Approval Body: Perioperative Executive Committee
Current Review Date: Tue Dec 10 2013
Current Approval Date: Mon Jan 06 2014
Current Revision Date: Tue Dec 10 2013
Origin Date: Mon Jan 01 2001

Please Note:

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4. **SHARPS DISPOSAL POLICY**

**Purpose:**

A. To decrease the risk of sharps injury and the potential for exposure to bloodborne pathogens from a sharps-related injury.

**Definitions:**

A. Sharp: any sharp object capable of causing puncture wounds to employees. Examples include: needles, scalpels, lancets, skin hooks, sharp surgical instruments, scissors, guide wires, lumbar puncture needles, broken glass, broken capillary tubes, glass medicine ampules, blood collection tubes, slides, slide cover slips, pipettes, etc.

B. Sharps disposal container: specifically designated plastic, puncture resistant containers which are color-coded (usually red) and labeled as Biohazard according to OSHA rules.

**Description:**

A. All disposable sharps, both contaminated and not contaminated, will be disposed of into sharps disposal containers.

B. Reusable sharps will be handled, transported and processed in a manner which reduces the potential for sharps injury.

C. Inappropriate sharps disposal which is witnessed, or the origin of which can be determined through investigation, will be grounds for counseling and/or disciplinary action in accordance with University policy.

**Implementation:**

A. **Disposable** sharps, both contaminated and non-contaminated, and disposable sharps safety devices will be placed into a sharps disposal container immediately or as soon as possible after use by the person who used the sharp object.
   1. Assigning a secondary person the task of sharps disposal, such as in operative areas, must be defined in a written area-specific policy.

B. Contaminated **reusable** sharps will be placed in puncture resistant, labeled and/or red, leak proof (on sides and bottom) containers for storage and/or transport.
   1. **Reusable** sharps that are contaminated with blood or other potentially infectious materials will not be stored or processed in a manner that requires employees to reach by hand into the containers where these sharps have been placed.

C. Contaminated needles and other contaminated sharps will not be recapped, or removed prior to disposal except where there is no other feasible alternative manner to perform the necessary procedure. When no alternative is available, such recapping or needle removal must be accomplished through the use of a mechanical device or a one-handed scoop technique.

D. Broken glassware which may be contaminated will not be picked up directly with hands, Mechanical means, such as a brush and dust pan, tongs, or forceps must be used for such clean up.
E. Only sharps disposal containers that have been approved by Infection Prevention and Control will be used.

F. Sharps containers will be easily accessible to personnel and located as close as is feasible to the immediate area where sharps are used or can be reasonably anticipated to be found. Disposal containers must be secured whenever feasible to avoid tipping or spilling of contents.
   1. Supervisors or Managers are responsible to ensure that sharps disposal containers of appropriate size are located in accessible areas and that the containers are secured to prevent accidental spillage or inadvertent access to the contents.
   2. Environmental Services will replace sharps disposal containers.
   3. Area personnel using sharps disposal containers should request the replacement of containers when they become more than two thirds full.
   4. Broken glassware, which may be contaminated, will not be picked up directly with the hands. Mechanical means, such as a brush and dust pan, tongs, or forceps will be used for such clean up.

G. Employees who dispose of sharps inappropriately (witnessed or determined through investigation) will be counseled by their supervisors and subject to corrective and/or disciplinary action in accordance with University policy.

H. Occupational exposures to blood and other potentially infectious materials related to sharps use are compiled and analyzed by Employee Health Clinic. Preventive measures, as indicated, are designed and implemented in conjunction with the Hospital Infection Committee, the Product Evaluation Committee, and area managers/supervisors. Safety devices are evaluated and instituted according to OSHA mandates and federal law.

References:

Owner: Brooke Gardner
Liaison: Launa Jo Byington
Approval Body: Hospital Infection Control Committee
Current Review Date: Tue Jul 31 2012
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I. PURPOSE:
A. To ensure standard infection prevention and control practices throughout the organization.

II. MANUAL:
Infection Prevention and Control

Infection Prevention and Control
University of Utah Health Care
Salt Lake City, Utah
Revised May 2014

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Appendix 1

Precautions Recommended for
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Abbreviations

AIIR Airborne infection isolation room
CAPR Controlled Air Purifying Respirator
CDC Centers for Disease Control and Prevention
ESBL Extended-spectrum beta-lactamase
HAI Health Care Associated Infections
HBV Hepatitis B virus
HCV Hepatitis C virus
HCW Health Care Worker
HEPA High efficiency particulate air [filtration]
HICPAC Health Care Infection Control Practices Advisory Committee
HIV/AIDS Human immunodeficiency virus/Acquired immune deficiency syndrome
HSV Herpes simplex virus
ICU Intensive care unit
MDRO Multi drug resistant organism
MDR-GNB Multidrug-resistant gram-negative bacilli
MRSA Methicillin-resistant Staphylococcus aureus
NIOSH National Institute for Occupational Safety and Health
OSHA Occupational Safety and Health Administration
PAPR Powered Air Purifying Respirator
PIW Potentially Infected Waste
PPE Personal protective equipment
RSV Respiratory syncytial virus
SARS Severe acquired respiratory syndrome
TB Mycobacterium Tuberculosis
TRANSMISSION OF DISEASE

A. INTRODUCTION

Health care-associated infection (HAI) due to transmission of infectious agents is a patient safety issue and its prevention is our priority. Transmission of infectious agents within a health care setting requires three elements:

1. a source (or reservoir) of infectious agents,
2. a susceptible host with a portal of entry receptive to the agent,
3. a mode of transmission for the agent.

B. SOURCE

Infectious agents transmitted during health care derive primarily from human sources but inanimate environmental sources also are implicated in transmission. Human reservoirs include patients, health care personnel, and household members and other visitors. Such source individuals may have active infections, may be in the asymptomatic and/or incubation period of an infectious disease, or may be transiently or chronically colonized with infectious organisms, particularly in the respiratory and gastrointestinal tracts. The endogenous flora of patients (e.g., bacteria residing in the respiratory or gastrointestinal tract) also are the source of HAIs.

C. SUSCEPTIBLE HOST

Susceptibility to disease can vary greatly. There is a spectrum of possible outcomes following exposure to infectious agents. Some people never develop symptomatic disease (e.g., exposure does not cause infection/disease or exposure results in asymptomatic disease) while others may become severely ill or die. Some are prone to becoming transiently or permanently colonized but remain asymptomatic. Still others progress from colonization to symptomatic disease either immediately following exposure or after a period of asymptomatic colonization.

Host factors such as extremes of age and underlying disease (e.g., diabetes), HIV/AIDS, malignancy, and transplants can increase susceptibility to infection as do a variety of medications that alter the normal flora (e.g., antimicrobial agents, gastric acid suppressants, corticosteroids, antirejection drugs, antineoplastic agents, and immunosuppressive drugs). Surgical procedures and radiation therapy impair defenses of the skin and other involved organ systems. Indwelling devices such as urinary catheters, endotracheal tubes, central venous and arterial catheters and synthetic implants facilitate development of HAIs by allowing potential pathogens to bypass local defenses that would ordinarily impede their invasion and by providing surfaces for development of biofilms that may facilitate adherence of microorganisms and protect from antimicrobial activity. Some infections
associated with invasive procedures result from transmission within the health care facility; others arise from the patient’s endogenous flora.

D. MODE of TRANSMISSION

Several classes of pathogens can cause infection, including bacteria, viruses, fungi, parasites, and prions. The modes of transmission vary by type of organism and some infectious agents may be transmitted by more than one route: some are transmitted primarily by direct or indirect contact, (e.g., HSV, RSV, Staphylococcus aureus), others by the droplet, (e.g., influenza virus, B. pertussis) or airborne routes (e.g., TB). Other infectious agents, such as bloodborne viruses (e.g., HBV, HCV and HIV are transmitted rarely in healthcare settings, via percutaneous or mucous membrane exposure. Importantly, not all infectious agents are transmitted from person to person. The three principal routes of transmission are summarized below.

1. Contact Transmission - The most common mode of transmission, contact transmission is divided into two subgroups: direct contact and indirect contact.

   a. **Direct Contact Transmission** occurs when microorganisms are transferred from one infected person to another person without a contaminated intermediate object or person. Contaminated hands of HCWs may directly transmit organisms to patients when they perform patient care, manipulate lines or tubes, or perform other procedures requiring direct patient contact. An opportunity for direct contact transmission can occur when blood or other body fluids from a patient directly enters a HCW body through contact with a mucous membrane or breaks (i.e. cuts, abrasions) in the skin. Direct contact can also occur between two patients, one serving as the source and the other as a susceptible host.

   b. **Indirect Contact Transmission** involves the transfer of an infectious agent through a contaminated intermediate object or person. In the absence of a point-source outbreak, it is difficult to determine how indirect transmission occurs. However, extensive evidence cited in the *Guideline for Hand Hygiene in Health Care Settings* suggests that the contaminated hands of HCW are important contributors to indirect contact transmission. Examples of opportunities for indirect contact transmission include:

      i) Hands of HCW may transmit pathogens after touching an infected or colonized body site on one patient or a contaminated inanimate object, if HH is not performed before touching another patient.

      ii) Patient care devices (e.g., electronic thermometers, glucose monitoring devices) may transmit pathogens if devices contaminated with blood or body fluids are shared between patients without cleaning and disinfecting between patients. iii) Shared toys may become a vehicle for transmitting respiratory viruses (e.g., respiratory syncytial virus or pathogenic bacteria (e.g., Pseudomonas aeruginosa) among pediatric patients.
iv) Instruments that are inadequately cleaned between patients before disinfection or sterilization (e.g., endoscopes or surgical instruments) or that have manufacturing defects that interfere with the effectiveness of reprocessing may transmit bacterial and viral pathogens.

v) Clothing, uniforms, laboratory coats, or isolation gowns used as PPE, may become contaminated with pathogens after care of a patient colonized or infected with an infectious agent, (e.g., MRSA, VRE, and C. difficile). Although contaminated clothing has not been implicated directly in transmission, the potential exists for soiled garments to transfer infectious agents to successive patients.

2. Droplet Transmission is, technically, a form of contact transmission, and some infectious agents transmitted by the droplet route also may be transmitted by the direct and indirect contact routes. This mode is considered "contact" rather than "airborne" since respiratory droplets are generally greater than 5 μm in size, usually travel no more than 6 feet, and do not remain suspended in the air. No special air handling or ventilation is required to prevent droplet dissemination of these organisms. However, in contrast to contact transmission, respiratory droplets carrying infectious pathogens transmit infection when they travel directly from the respiratory tract of the infectious individual to susceptible mucosal surfaces of the recipient, generally over short distances, necessitating facial protection. Respiratory droplets are generated when an infected person coughs, sneezes, or talks or during procedures such as suctioning, endotracheal intubation, cough induction by chest physiotherapy and cardiopulmonary resuscitation. Studies have shown that the nasal mucosa, conjunctivae and less frequently the mouth, are susceptible portals of entry for respiratory viruses.

3. Airborne Transmission occurs by dissemination of either airborne droplet nuclei or small particles in the respirable size range containing infectious agents that remain infective over time and distance (e.g., spores of Aspergillus spp, and TB). Microorganisms carried in this manner may be dispersed over long distances by air currents and may be inhaled by susceptible individuals who have not had faceto-face contact with (or been in the same room with) the infectious individual. Preventing the spread of pathogens that are transmitted by the airborne route requires the use of special air handling and ventilation systems (e.g., AIIRs) to contain and then safely remove the infectious agent. Infectious agents to which this applies are TB, rubeola virus (measles), and varicella-zoster virus (chickenpox).

E. EPIDEMIOLOGICALLY IMPORTANT ORGANISMS

Any infectious agents transmitted in health care settings may, under defined conditions, become targeted for control because they are epidemiologically important. Characteristics of epidemiologically important organisms include:

1. A propensity for transmission within health care facilities based on published reports (e.g. C. difficile, norovirus, RSV)
A. **HAND HYGIENE (HH)**

Hand hygiene has been cited frequently as the single most important practice to reduce the transmission of infectious agents in health care settings and is an essential element of Standard Precautions. HH consists of: (1) soap, water, and friction for a minimum of 15 seconds; or, (2) the appropriate use of alcohol-based hand sanitizers (containing ≥60% alcohol). In the absence of visible soiling of hands, approved alcohol-based products for hand disinfection are preferred over antimicrobial or plain soap and water because of their superior microbiocidal activity, reduced drying of the skin, and convenience. Improved HH practices have been associated with a sustained
B. PERSONAL PROTECTIVE EQUIPMENT (PPE)

OSHA requires the use of personal protective equipment (PPE) to reduce HCW exposure to hazards when engineering and administrative controls are not feasible or effective in reducing these exposures to acceptable levels. PPE is any type of face mask, eye protection, glove, or gown that acts as a barrier between blood and other potentially infectious materials and the skin, mouth, nose, or eyes. When used properly, PPE can help prevent the spread of infection.

1. **Gloves** are used to prevent contamination of HCW hands when
   a. anticipating direct contact with blood or body fluids, mucous membranes, non-intact skin and other potentially infectious material;
   b. having direct contact with patients who are colonized or infected with pathogens transmitted by the contact route e.g., VRE, MRSA, RSV; or
   c. handling or touching visibly or potentially contaminated patient care equipment and environmental surfaces.

When gloves are worn in combination with other PPE, they are put on last. Gloves that fit snugly around the wrist are preferred for use with an isolation gown because they will cover the gown cuff and provide a more reliable continuous barrier for the arms, wrists, and hands.

Wearing gloves does NOT replace the need for HH. HH following glove removal further ensures that the hands will not carry potentially infectious material that might have penetrated through unrecognized tears or that could contaminate the hands during glove removal. Disposable single-use gloves appropriate for the task should be worn. Care must be taken to avoid contaminating the environment with gloved hands, which could actually lead to the transmission of infectious organisms. Gloves must be changed and HH performed when 1) gloves are soiled and 2) whenever an indication for HH applies while the HCW is wearing gloves during care of the patient. Used gloves must be discarded into a trash receptacle upon removal.

2. **Face Protection** consists of mask and eye protection with side shields (personal eyeglasses and contact lenses are NOT considered adequate eye protection), mask with eye shield, or a full face shield. Use of face protection during procedures and patient care activities that are likely to generate splashes or sprays of blood, body fluids, respiratory secretions and excretions protect the mucous membranes of the eyes, nose and mouth of HCWs. Select masks, goggles, face shields, and combinations of each according to the need anticipated by the task performed. Masks are a single use item that must be worn only once and discarded into a trash receptacle. Masks are not to be lowered around the neck and then reused. Reusable eye
CLINIC OPERATIONS REFERENCE GUIDE

protection must be thoroughly cleaned, disinfected and dried when soiled with moist body substances, and in between patients, and in between users.

3. **Isolation Gowns** are used to protect the HCW’s arms and exposed body areas and prevent contamination of clothing with blood, body fluids, and other potentially infectious material. Clinical and laboratory coats or jackets worn over personal clothing for comfort and/or purposes of identity are not considered PPE. Isolation gowns are for single use and are to be removed and discarded before leaving the patient care area to prevent possible contamination of the environment outside the patient’s room. Isolation gowns should be removed in a manner that prevents contamination of clothing or skin. The outer, “contaminated”, side of the gown is turned inward and rolled into a bundle, and then discarded into a trash receptacle. Personal clothing visibly soiled with body substances must be laundered in University of Utah Health Care Linen Services rather than taken home to be laundered.

4. **N95 Respirators, PAPR, or CAPR** must be worn for care of patients having known or suspected infectious laryngeal and pulmonary tuberculosis (TB) and, for patients with influenza undergoing aerosolizing procedures. (See University of Utah Hospitals & Clinics Respiratory Protection Program for Tuberculosis for more information; for influenza, see Droplet Precautions below). Employees must complete a medical evaluation and be cleared to wear a N95 respirator or PAPR/CAPR prior to using these items.

C. SHARPS (including NEEDLES AND SYRINGES)

Sharps must be handled with caution at all times. To prevent needle stick injuries, used needles must not be recapped, purposely bent, removed from syringes, or broken. Sharps must be immediately placed into a designated puncture-resistant sharps disposal container at the point of use by the person who used the sharp. Use and activate sharps safety devices where available. Sharps with activated safety devices must also be placed into the designated sharps disposal containers by the person who used the sharp. Sharps disposal containers must be replaced promptly when approximately 2/3rds full. (See University of Utah Hospitals & Clinics Bloodborne Pathogens Exposure Control Policy for more information).

D. DISPOSABLE RESUSCITATION MASKS

All HCWs must be educated in the use of disposable resuscitation masks to be used in place of mouth-to-mouth resuscitation during CPR. These masks are available in each patient care area.

E. PATIENT PLACEMENT/PRIVATE ROOMS

1. **Inpatient Care Areas** - To prevent direct or indirect contact transmission, a single-patient (private) room must be assigned when:

   a. the patient has poor hygienic habits, or cannot maintain good respiratory or excretory hygiene
      (such as occurs with infants, children, and patients with altered mental status);
b. the patient contaminates the general room environment with body substances; and/or
c. the patient shares contaminated items with others.

A single-patient negative pressure room is required for patients diagnosed with or suspected to have TB, chickenpox, measles, and disseminated herpes zoster (shingles) or localized shingles in an immunosuppressed patient until disseminated disease is ruled-out. A single-patient room is required for patients diagnosed with or suspected to have influenza and multi-drug resistant organisms (MDROs). When single-patient rooms are in short supply, cohorting patients (rooming patients together) confirmed to be infected or colonized with the same disease/organism/antibiotic resistance pattern may be an acceptable alternative after discussion with Infection Prevention and Control.

2. Ambulatory Care Areas - HCWs working in outpatient settings should triage patients on arrival for the presence of respiratory symptoms such as cough or increased respiratory secretion, diarrhea, skin rash, or known/suspected transmissible disease (e.g. measles, pertussis, chickenpox, TB). Ambulatory care areas should implement source containment measures (e.g., asking coughing patients to wear a surgical mask or cover their coughs with tissues) and should place potentially infectious patients in an exam room immediately to limit exposure in common waiting areas. Immediate placement in a negative pressure room is required for patients with known or suspected TB, chickenpox, measles or disseminated herpes zoster (shingles). If a negative pressure room is unavailable the patient may be placed in a private room with a HEPA filter.

F. PATIENT GENERATED WASTE (Potentially Infectious and General)

All patient-generated waste must be separated into potentially infectious waste (PIW) and general waste. As defined by OSHA, PIW includes 1) items contaminated with blood/body fluids that when compressed, drops of blood/body fluid would drip from the item; 2) items caked with blood or body fluids so thick it could peel off when dry; and 3) suctioned body fluids that are not solidified. PIW must be discarded into a red, biohazard-labeled, waste receptacle and general waste must be discarded into a grey garbage can. Used items may be bagged if necessary to avoid soiling the environment prior to disposal. Off-site ambulatory settings and other entities may be required to segregate "regulated" PIW; check with the offsite area-specific manager to determine how this waste should be handled.

G. DISPOSABLE PATIENT CARE EQUIPMENT

Disposable patient care equipment, unless otherwise specified, is intended only for one-time use and must be discarded as patient generated waste (see guidelines above).

H. REUSABLE PATIENT CARE ITEMS

Whenever possible, implement patient-dedicated use of reusable patient care equipment such as stethoscopes, electronic thermometers, blood pressure cuffs, etc. for those who require transmission based precautions. When equipment is used for multiple patients, such equipment
must be cleaned and disinfected with an approved hospital disinfectant before use on another patient. Cleaning is done to remove any visible soil or body substances and must precede disinfection. Reprocessable items must be rinsed of visible soil or body substances, placed in a plastic bag, labeled with contents, and sent for processing.

I. LINEN

Soiled textiles, including bedding, towels, and patient clothing may be contaminated with pathogenic microorganisms. However, the risk of disease transmission is negligible if they are handled, transported, and laundered in a safe manner. Key principles for handling soiled laundry are 1) not shaking the items or handling them in any way that may aerosolize infectious agents; 2) avoiding contact of one’s body and personal clothing with the soiled items being handled; and 3) containing soiled items in a leak-resistant bag. All soiled linen is considered to be potentially infectious and must be placed into a leak-resistant bag before transport. Soiled linen must be covered and contained before and during transport. When laundering occurs outside of a health care facility, the clean items must be packaged or completely covered and placed in an enclosed space during transport to prevent contamination.

J. DISHES, GLASSES, CUPS AND EATING UTENSILS

Disposable dishes are not indicated for any patient diagnosed with or suspected to have any infectious disease. The combination of hot water and detergents used in hospital dishwashers is sufficient to decontaminate dishes, glasses, cups, and eating utensils. Reusable dishes or trays visibly soiled with moist body substances must be rinsed in the patient’s room before they are returned to Nutrition Care Services. Disposable dishes may be appropriate if a patient visibly and heavily contaminates the dishes or tray with moist body substances, for example, blood or stool. Disposable dishes may be used for incarcerated patients and for patients who are at risk for suicide.

K. LABORATORY SPECIMENS

All laboratory specimens are considered to be potential biohazards. Specimens must be securely contained to prevent leakage during transport. If the outside of the container is leaking or soiled with body substances, it must be placed into a leak-resistant bag for transport. OHSA requires that secondary specimen containers be labeled with biohazard labels. Hard to obtain specimens (e.g. CSF fluid, biopsy specimen) must never be transported through the hospital’s pneumatic tube system.

L. BOOKS, MAGAZINES AND TOYS

Books, magazines and washable toys must be disinfected with a hospital-approved low-level disinfectant on a routine basis. Washable items that are visibly soiled with moist body substances must be thoroughly cleaned with soap and water or a disinfectant wipe. Non-washable items visibly
soiled with moist body substances must be sent home with the patient/family or discarded into a plastic lined, biohazard-labeled trash receptacle (See University of Utah Hospitals & Clinics Cleaning of Toys policy for further information).

M. TRANSPORT OF PATIENTS

Limit transport of patients requiring transmission based precautions to essential purposes, such as diagnostic and therapeutic procedures that cannot be performed in the patient’s room. When transport is necessary, use appropriate barriers on the patient (e.g., mask when positive for TB, or use of impervious dressings to cover the affected area(s) when infectious skin lesions or drainage are present), consistent with the route and risk of transmission; notify HCWs in the receiving area of the impending arrival of the patient and of the precautions necessary to prevent transmission; and for patients being transported outside the facility, inform the receiving facility and the transport personnel in advance about the type of precautions required.

For patients in Contact Plus Precautions any equipment that leaves the room, including the bed, pumps, IV poles, etc must be wiped down with an appropriate disinfectant (e.g., Sani-cloth or Bleach wipe). At least one Sani-cloth/Bleach wipe must be used per area (e.g. head of bed, side rail, each piece of equipment, etc.). If possible, bed linens should be changed prior to transport, at the very least a clean cover must be placed over the bed linens and side rails prior to exiting the room. The patient must don a clean gown and perform hand hygiene before exiting room. The patient must also be masked (surgical or ear-loop mask), if respiratory secretions contain a multi-drug resistant organisms (MDRO) and the patient is unable to control secretions.

Patient transport staff should not wear masks or gloves while pushing the wheelchair, gurney, or bed of any patient as they must remain ‘clean’ in order to push elevator buttons, open doors, etc. Gloves may be carried with the transporter in case they are needed for contact with body substances or non-intact skin. If the patient requires hands on care during transport a member of the clinical staff must accompany them and should wear PPE appropriate for contact with the patient.

N. VISITORS

Visitor screening is especially important during community outbreaks of infectious diseases and for high risk patient units. Child visitors should visit only his or her own sibling or parent. Screening of visiting children before they are allowed into clinical areas is necessary to prevent the introduction of childhood illnesses and common respiratory infections. Household members and other visitors should be instructed in hand hygiene. Instruction in use of other PPE (e.g. gloves/gowns/facemasks) is indicated on a case-by-case basis. Visitors may be limited or restricted under certain circumstances (e.g. influenza, TB, code bio, etc), as needed. Individuals who are ill or appear ill
should NOT visit patients and will be asked to leave.

O. CLEANING of PATIENT ENVIRONMENT

Environmental cleaning requires standardized, thorough cleaning and disinfection of patient rooms, patient care equipment and environmental surfaces (e.g. bedrails, bedside tables, doorknobs, faucet handles, carts, commodes, pumps, IV stands, etc) to ensure that organisms and/or spores which can survive in the inanimate environment for prolonged periods of time are removed. Curtains are to be changed, at a minimum, whenever soiled (at all locations) and in all isolation precaution rooms between patients (with the exception of HCH where all patient rooms are cleaned with Steriplex after patient discharge).

When used for cleaning of isolation precaution rooms cleaning cloths, wipes, mops or mixed chemicals must never be re-used for other patient rooms or other cleaning. For example, the bucket must be emptied, and cleaning cloths and gloves changed as per Environmental Services protocol. All surfaces must be wiped down with an approved hospital disinfectant. Bleach-containing products are to be used to clean all environmental surfaces in rooms housing patients with diagnosed C. difficile or norovirus infection. For selected organisms of epidemiological significances or during outbreaks, enhanced cleaning may be required under the direction of Infection Prevention and Control. (See Environmental Services cleaning policies, Standard Cleaning Guidelines of Inpatient Nursing Units and Standard Cleaning Guidelines of Outpatient Clinics for more information).

ISOLATION PRECAUTIONS

A. INTRODUCTION

Isolation precaution systems are designed to prevent the spread of microorganisms among patients, personnel, household members and other visitors. The CDC recommends the use of “Standard Precautions” with all patients to prevent exposure to potentially infected blood and other body fluids. Under Standard Precautions, barrier techniques are used for specific patient interactions rather than for specific diagnoses, in other words, it is process-driven rather than diagnosis-driven. Standard precautions require the use of specific barrier precautions for ALL patients regardless of diagnosed or suspected infection or colonization. Standard Precautions protect the patient, personnel, and visitors from unrecognized or asymptomatic cases, as well as recognized or symptomatic cases. Infection Prevention and Control has the final authority to decide on the placement or removal of any type of isolation precautions and may modify recommendations for outbreaks, unusual cases, and for unusual or dangerous pathogens.

B. STANDARD PRECAUTIONS

1. Standard Precautions are practiced in the care of every patient.
2. Gloves must be worn when it can be reasonably anticipated that contact with blood, body fluids, secretions and excretions, mucous membranes, non-intact skin, or potentially contaminated intact skin (eg, incontinent or colonized patient) could occur.
3. Face protection (masks, goggles, face shields and combinations of each), appropriate to the task performed, must be worn to protect the mucous membranes of the eyes, nose and mouth during procedures and patient-care activities that are likely to generate splashes or sprays of blood, body fluids, secretions and excretions.

4. Gowns, appropriate to the task (e.g., fluid-resistant) must be worn to protect skin and prevent soiling or contamination of clothing during procedures and patient-care activities when contact with blood, body fluids, excretions or secretions are anticipated.

5. A single-patient (private) room is required if the patient is unable to contain his/her body fluids/substances, excretions or secretions and soils or contaminates the general room environment.

CONTACT PRECAUTIONS (ORANGE SIGN) are intended to prevent transmission of infectious agents, including epidemiologically important microorganisms, which are spread by direct or indirect contact with the patient or the patient’s environment. Contact Precautions also apply where the presence of excessive wound drainage, fecal incontinence, or other discharges from the body suggest an increased potential for extensive environmental contamination and risk of transmission.

1. Contact Precautions are in addition to Standard Precautions.
2. An orange Contact Precautions sign indicating required precautions for entry is posted on the door of the patient’s room. Signs are available at the nurse’s station or can be obtained from the Infection Prevention and Control office at 801-581-2706.
3. A single-patient room is preferred for patients who require Contact Precautions. When a singlepatient room is not available, consultation with Infection Prevention and Control is needed to assess the various risks associated with other patient placement options (e.g., cohorting, keeping the patient with an existing roommate).
4. HCWs caring for patients on Contact Precautions must wear gloves, and a gown for all interactions that may involve contact with the patient or potentially contaminated areas in the patient’s environment.
5. Donning PPE upon room entry and discarding before exiting the patient room is done to contain pathogens, especially those that have been implicated in transmission through environmental contamination.

CONTACT PLUS PRECAUTIONS (YELLOW SIGN) are maximum precautions used for patients infected or colonized with organisms determined by Infection Prevention and Control to be of heightened epidemiologic significance generally defined as those organisms that are resistant to most antibiotics or hardy in the environment (e.g., C. difficile, norovirus, carbapenem resistant Acinetobacter, extensively drug resistant P. aeruginosa strains). C. difficile and norovirus require that an additional brown hand wash sign be posted. Contact Plus Precautions may also be initiated in “situations of epidemiological significance" such as recognized clusters or outbreaks of "marker" organisms, which are determined to be at a significantly higher incidence in a given patient care unit or area. Such clusters/outbreaks are usually due to decreased compliance with Standard Precautions, HH and/or Contact Precautions within a unit/area. The transmission cycle can usually be interrupted by a return to consistent use of Standard Precautions, HH and/or Contact Precautions.
6. Contact Plus Precautions are in addition to Standard Precautions.
7. A yellow Contact Plus Precautions sign indicating required precautions for entry is posted on the door of the patient’s room. Signs are available at the nurse’s station or can be obtained from the Infection Prevention and Control office at 801-581-2706.
8. Place patient in a single-patient (private) room.
9. Remove unneeded or excess equipment and supplies from patient room.
10. Gloves and gowns must be donned before room entry and worn for all patient/environment contact and must be changed as needed during the care of the patient. PPE is to be discarded prior to leaving the room.
11. Other PPE, such as face protection, is worn as indicated under Standard Precaution or upon recommendation from Infection Prevention and Control.
12. Dedicated patient care equipment is preferred (e.g. dedicated stethoscope, blood pressure cuff, tape, scissors). Reusable equipment must be wiped with an appropriate disinfectant (e.g., Sanicloth or Clorox wipe) prior to leaving the room or area and, cleaned, disinfected, or sterilized (depending upon the item) prior to use on another patient.
13. Transport the patient according to the recommendations on page 7.
14. Additional recommendations may be issued by Infection Prevention and Control, as needed.
15. If the patient is transferred or discharged, inform the receiving unit or facility of any necessary precautions and PPE required, as indicated.
16. Contact Infection Prevention and Control for consultation as needed.

AIRBORNE PRECAUTIONS (BLUE SIGN) and AFB PRECAUTIONS (GREEN SIGN) prevent transmission of infectious agents that remain infectious over long distances when suspended in the air, such as chickenpox (varicella-zoster), measles (rubeola) and TB. To eliminate airborne disease transmission the preferred patient placement is in an airborne infection isolation room (AIIR). An AIIR, also called a negative pressure room, is a single-patient room that is equipped with special air handling and ventilation capacity that meet the American Institute of Architects/ Facility Guidelines Institute (AIA/FGI) standards for AIIRs (i.e., monitored negative pressure relative to the surrounding area, 12 air exchanges per hour for new construction and renovation and 6 air exchanges per hour for existing facilities, air exhausted directly to the outside or recirculated through HEPA filtration before return). Negative pressure rooms are located on most patient care units. Contact the nurse manager, Facilities and Engineering or Infection Prevention and Control if necessary to determine the location of negative pressure rooms on inpatient units.

17. Place patient in a single-patient (private) AIIR (negative air pressure) room. Nursing staff must verify that the room is on negative pressure; contact Facilities and Engineering as needed. The door of the room must remain closed at all times to maintain negative pressure.

18. Airborne Precautions are in addition to Standard Precautions and apply to patients diagnosed with or suspected to have chickenpox, measles, disseminated herpes zoster (shingles) or localized shingles in an immunosuppressed patient until disseminated disease is ruled-out.
a. A blue Airborne Precautions sign indicating required precautions for entry is posted on the door of the patient’s room. Signs are available at the nurse’s station or can be obtained from the Infection Prevention and Control office at 801-581-2706.

b. Only immune (e.g., have been immunized/had the disease) personnel, family members, and other visitors should enter the patient’s room to perform patient care. Immune personnel caring for patients must wear PPE as indicated.

19. AFB Precautions are in addition to Standard Precautions and apply to patients diagnosed with or suspected to have laryngeal or pulmonary TB.
   a. Patients are restricted to designated TB-accepting patient care units included in the University of Utah Health Care TB Respiratory Protection Program.
   b. A green AFB Precautions sign indicating required precautions for entry is posted on the door of the patient’s room. Signs are available at the nurse’s station or can be obtained from the Infection Prevention and Control office at 801-581-2706.
   c. A NIOSH-approved respirator (N95 or PAPR/CAPR) must be donned prior to room entry.
   d. For specific TB prevention and control issues, see additional TB-related University of Utah Hospitals & Clinics Policies & Procedures for more information.

D. DROPLET PRECAUTIONS (Red and White Sign) are intended to prevent transmission of pathogens spread through close respiratory or mucous membrane contact with respiratory secretions. Because these pathogens do not remain infectious over long distances in a health care facility, special air handling and ventilation are not required to prevent droplet transmission. Infectious agents for which Droplet Precautions are indicated are pertussis, influenza virus, adenovirus, rhinovirus, N. meningitides, and group A streptococcus (for the first 24 hours of antimicrobial therapy).

1. Droplet Precautions are in addition to Standard Precautions.

2. A red and white Droplet Precautions sign indicating required precautions for entry is posted on the door of the patient’s room. Signs are available at the nurse’s station or can be obtained from the Infection Prevention and Control office at 801-581-2706.

3. A single-patient room is preferred. When a single-patient room is not available, consultation with Infection Prevention and Control is needed to assess the various risks associated with other patient placement options (e.g., cohorting, keeping the patient with an existing roommate).

4. HCWs caring for patients on Droplet Precautions must wear gloves, and a gown for all interactions that may involve contact with the patient or potentially contaminated areas in the patient’s environment. Donning PPE upon room entry and discarding before exiting the patient room is done to contain pathogens, especially those that have been implicated in transmission through environmental contamination.

5. HCWs must wear an ear-loop mask (a respirator is not necessary) for close contact with infectious patient; the mask is generally donned upon room entry.

6. Patients on Droplet Precautions who must be transported outside of the room should wear a mask if tolerated and follow Respiratory Hygiene/Cough Etiquette.

7. For aerosolizing procedures, in a patient with confirmed or suspected INFLUENZA, HCW must wear the N95 respirator they have been fit-tested to and eye protection or a PAPR/CAPR, a gown and gloves before entering patient room and for the duration of the performance of the aerosolizing procedure.
G. CODE BIO

CODE BIO is a special precautions designation issued by the Emergency Management Program in collaboration with Infection Prevention and Control. CODE BIO is initiated by Emergency Management when a patient presents with a potential emerging pathogen that has the potential for facility transmission (e.g. MERS-CoV, SARS or avian influenza) and for diseases that are considered to be agents of bioterrorism, such as smallpox, anthrax, pneumonic plague, and viral hemorrhagic fevers. The type and level of PPE use and patient placement will be based upon how the disease or agent is known or suspected to be transmitted. See University of Utah Health Care Emergency Management Response Plan and Emergency Operations Plan for more information.

H. RESPIRATORY HYGIENE/COUGH ETIQUETTE

Respiratory Hygiene/Cough Etiquette is intended to be incorporated into infection control practices as a component of Standard Precautions. The strategy is targeted at patients and accompanying family members and friends with undiagnosed transmissible respiratory infections, and applies to any person with signs of illness including cough, congestion, rhinorrhea, or increased production of respiratory secretions when entering a health care facility. The elements of Respiratory Hygiene/Cough Etiquette include:

1. Education of health care facility staff, patients, and visitors.
2. Posted signs, in language(s) appropriate to the population served, with instructions to patients and accompanying family members or friends.
3. Source control measures (e.g., covering the mouth/nose with a tissue when coughing and prompt disposal of used tissues, use of a mask on the coughing person when tolerated and appropriate).
4. HH after contact with respiratory secretions.
5. Spatial separation, ideally >3 feet, of persons with respiratory infections in common waiting areas. Covering sneezes and coughs and placing masks on coughing patients are proven means of source containment that prevent infected persons from dispersing respiratory secretions into the air. HCWs are advised to observe Droplet Precautions (i.e., wear a mask) and HH when examining and caring for patients with signs and symptoms of a respiratory infection. HCW who have a respiratory infection are advised to avoid direct patient contact, especially with high risk patients. If this is not possible, then a mask should be worn while providing patient care.

I. AMBULATORY CARE SETTINGS

1. Standard Precautions are practiced in the care of all patients.
2. Practice Respiratory Hygiene/Cough Etiquette (see above)
   a. Offer symptomatic patients an ear-loop mask and/or tissues.
3. Triage patients with known or suspected airborne or droplet transmitted diseases out of the waiting room as soon as possible. Ideally, triage should occur when the patient calls for an
appointment. In addition, registration and check-in personnel must be alert to signs and symptoms of these diseases. a. If TB, chickenpox, measles, or disseminated shingles (herpes zoster) or localized shingles in an immunosuppressed patient until disseminated disease is ruled out is suspected, mask patient and place in a negative pressure examination room. If negative pressure room not available, place HEPA filter (available from Facilities and Engineering) in room as soon as possible. Door is to remain closed at all times to maintain negative pressure.
b. If influenza is suspected, mask patient and place in an examination room with the door closed. c. Restrict travel in and out of the room.
d. Keep patient masked for duration of visit.
e. Notify all other receiving areas, e.g. laboratory, radiology, procedure areas, etc, if special precautions (e.g. immune personnel) and/or personal protective equipment are indicated.

4. Reprocessable patient care equipment and/or surfaces that have been soiled with body substances must be cleaned and disinfected, or sterilized (depending upon the item) prior to use on another patient or admitting another patient to the examination room.

5. Surfaces of non-patient care equipment, such as computers, keyboards, printers, etc., within the exam room that could have been contaminated by the patient or HCW must be cleaned with an approved hospital disinfectant between patients.

APPROVAL BODY: Hospital Infection Committee; Medical Board

APPROVAL DATE: October 2009 (HIC); 2010 (Medical Board)

POLICY OWNER: Infection Prevention and Control

HISTORICAL INFORMATION

ORIGIN DATE: 1987


**INFECTION PREVENTION & CONTROL PLAN**

*Infection Prevention and Control Department & Health Care Infection Prevention and Control Committee*

*University of Utah Health Care - Hospitals & Clinics*

*July 2014*

Executive Summary

The Hospital Infection Prevention and Control Department and the Health Care Infection Prevention and Control Committee have been assigned the responsibility for infection surveillance, prevention, and control activities within University of Utah Health Care.

University of Utah Health Care is comprised of a 456 bed tertiary care teaching/referral hospital housed in several buildings, a 100 bed neuropsychiatric facility, a 100 bed Huntsman Cancer Hospital, several specialty centers such as the Orthopaedic Center (which houses a 9 bed surgical center), Moran Eye Center, Clinical Neurosciences Center, the Utah Diabetes Center, and in addition to multiple on site clinics there are eleven community clinics. There are approximately 8,400 employees. The Infection Prevention and Control Department and Health Care Infection Prevention and Control Committee manage, coordinate, and evaluate infection surveillance, prevention, and control activities for patients, employees, and volunteers, and consult on infection control for the Health Sciences Center. The Infection Prevention and Control Department is responsible for the day-to-day functioning of the infection control program within the hospitals and clinics, whereas the Health Care Infection Prevention and Control Committee provides a forum for data reporting, discussion, decision-making, and approval concerning the program. The Utah Department of Health (UDOH), Centers for Disease Control and Prevention (CDC), and/or external consultants may be requested to assist in investigations as deemed necessary by the Chair of the Committee and/or Infection Prevention and Control leaders.

Leadership

The leadership of University of Utah Health Care supports the vision, mission, and values of the organization and the Infection Prevention and Control Department and the Health Care Infection Prevention and Control Committee. The Infection Prevention and Control Department and the Health Care Infection Prevention and Control Committee support the mission, vision, and values of the organization.

The mission statement for the Infection Prevention and Control Department is "to provide the organization and the community with epidemiological expertise in infection prevention and control that is founded on current scientific knowledge and is consistent with current regulatory standards; and to reduce the risk of health care associated infections and the potential risk of infectious disease exposures to our employees, patients and visitors."

Geographic Area and Population Served

The University of Utah Hospitals and Clinics is situated on the eastside of the Salt Lake valley. The total 2013 population of Salt Lake County was 1,079,721 and the total 2013 population of Utah was 2,900,872. As of 2013, the Utah population was comprised of 91.8% whites. Part of the community population served consists of homeless persons, immigrants, and an HIV positive population. University of Utah Health Care also serves five states surrounding Utah for specialty services such as transplant, burn, stroke, and cardiovascular services; and
The structure for the Health Care Infection Prevention and Control Committee & the Infection Prevention & Control Department is as follows:

A. The Health Care Infection Prevention and Control Committee is a multidisciplinary committee reporting to the Medical Board. The Chair of the committee has voting rights on the Medical Board. In addition to the Infection Prevention and Control Department staff members the committee includes representatives from nursing leadership, risk management, quality and patient safety, environmental/linen services, surgical services, and pharmacy. Representatives from areas not listed above are invited to attend meetings or present items as deemed necessary. Team leaders of sub-committee process improvement teams are asked to update the committee as needed. The Committee meets quarterly. Huntsman Cancer Hospital meets separately every other month and this information is fed to the quarterly Health Care Infection Prevention and Control Committee.

B. The Infection Prevention and Control Department is comprised of one cost center; Infection Prevention and Control. The Work Wellness Center is under the direction of Human Resources.

Personnel include:

- One Hospital Epidemiologist, an MD with specialties in Infectious Diseases and Internal Medicine, who functions as the Chair of the Health Care Infection Prevention and Control Committee and Medical Director of the Infection Prevention and Control Department. The Hospital Epidemiologist is a liaison to patient care areas, a liaison to the School of Medicine, a liaison to Informational Technology Systems; and assists in developing Infection Prevention and Control goals.
- One Associate Hospital Epidemiologist, an MD with specialties in Infectious Diseases and Internal Medicine, who assists with the day-to-day program functioning as requested, and liaisons with physicians as needed. The Associate works primarily with the Work Wellness Center and may serve as Alternate Chair of the Health Care Infection Prevention and Control Committee.
- One Manager who is responsible for the Infection Prevention and Control Department and who has specialized education and training in health care epidemiology and infection prevention and control. The Manager may serve as Alternate Chair of the Health Care Infection Prevention and Control Committee.
- One Project Administrator who has specialized education and training in health care epidemiology and infection prevention and control.
- Five Infection Preventionists (IP) with specialized education and training in infection prevention and control (two are CIC certified). These positions total 2.8 full time equivalents (FTE).
- One full time Executive Secretary Position totals 1.0 FTE.
- Liaison infection control personnel are located within the University of Utah Neuropsychiatric Institute (UNI) (0.8 FTE) and Huntsman Cancer Hospital (1.0 FTE).

The Work Wellness Center reports directly to Human Resources and has:

- One Director
- Two Physician Assistants (PA). These positions total 2.0 FTEs
- Two Medical Assistants who assist with the operations under the direction of the PAs. The positions total 2.0 FTE.
Strategic Planning

The principle factor that leads to success is the presence of a functional and comprehensive organization-wide infection prevention and control program to prevent and/or reduce health care associated infection (HAI) risk in patients, employees, students, volunteers, and visitors.

Benchmarking partners, when applicable, include:

- Current CDC National Health Safety Network (NHSN), National Center for Infectious Diseases, Centers for Disease Control and Prevention (CDC), Public Health Service, US Department of Health and Human Services, Atlanta, Georgia;
- Data published in professional literature/peer-reviewed journals;
- Utah mandatory reporting data;
- Data from organizations such as National Surgical Quality Improvement Program (NSQIP) and National Database of Nursing Quality Indicators (NDNQI); and/or
- Historical data from within the organization.

The key opportunities for improvement include (1) strengthening the ability to function effectively and collaboratively within all aspects of the organization, (2) monitoring isolation practices to prevent infections and (3) using microbiological data, HAI surveillance data, employee exposure data, practice observations, and periodic risk assessments to identify and implement prevention strategies.

The social, economic, technical, and political trends that could have a significant impact on performance of Infection Prevention and Control are (1) newly emerging or re-emerging infectious diseases, (2) mandatory reporting of HAI data to the state of Utah and the CDC; (3) compliance with regulatory agency standardized infection prevention and control interventions and (4) the potential risk of bio-weapon use or new disease emergence requiring the need for surge capacity programs.

Focus on Patients, Other Customers, and Markets

Those who benefit from Infection Prevention and Control services include University of Utah Health Care patients, employees, licensed independent practitioners, physicians, visitors, students, volunteers, the general public, and community-based organizations. Areas which provide or support services for Infection Prevention and Control include inpatient services, outpatient services, and support services including Patient Care Services, Health Information, Information Technology Services, Facility Engineering & Maintenance, Emergency Preparedness, Environment of Care, Security, and Radiology. Other providers of support services include ARUP, the Division of Infectious Diseases, and local and state health departments.

Customer satisfaction is determined by individual feedback and internal functioning/efficiency monitors/surveys. Relationships are enhanced by responding to feedback and suggestions when feasible. University of Utah Health Care Infection Prevention and Control is a leader within the Utah Hospital Association and Utah Department of Health (UDOH) regarding public reporting and improvements in infection prevention activities.
Key quality characteristics for measurement of service effectiveness and customer satisfaction are:
(1) a documented decrease in the rate of HAIs; (2) a documented increase in hand hygiene compliance by health care personnel within the surveyed areas. Specific key quality characteristics are chosen based on risk analysis, information from previous facility data, a change in a process or procedure, observations, and/or local or nationally recognized problems or recommendations.

Data is collected based on mandates from the CDC-NHSN and the indicators being surveyed; it may be collected concurrently, continuously, focused, or sentinel event related. If indicated, data is entered into a computer database and analyzed.

Infection Prevention and Control establishes the thresholds for evaluation, based on nationally published data, if available, or internal data that has been tracked over time. Thresholds may be adjusted as deemed necessary and as changes in data indicate. When specific issues are identified, or when the threshold for evaluation is surpassed, further investigation is undertaken and presented to, reviewed, and approved by the Hospital Epidemiologist and Administrative leadership. Prevention strategies and control measures are implemented as indicated. Corrective actions, e.g., prevention strategies and control measures may be taken by the Infection Prevention and Control Department as outlined in the Authority Statement and as warranted by the problem being investigated.

Data is collected and analyzed according to standardized epidemiological surveillance and investigation methods as recommended/required and defined by the CDC, regulatory agencies, health departments, and national professional organizations. Data is used to support process management and performance improvement in the infection prevention and control program.

Staff Focus
Staffing requirements for Infection Prevention and Control are based on a risk assessment of the structure and function of the organization, including (1) the integral teaching function of the facility, (2) number of staffed inpatient beds, (3) number and ratio of ICU beds, (4) number, type, and location of ambulatory services, (5) requirements for mandatory HAI reporting, (6) public health issues identified within the region, and (7) number of complex patients (e.g. bone marrow transplant, organ transplant, oncology).

Additional consulting resources are available, upon request, from the Divisions of Infectious Diseases, Pulmonary, Critical Care, and or Occupational Medicine; Department of Environmental Health and Safety (University of Utah); local and state health departments; CDC; OSHA; Association for Professionals in Infection Control-APIC (national and local chapter); and the Society for Health care Epidemiologists of America-SHEA (national). Consultants not associated with the groups named above may be sought as needed to aid in an investigation.

New employees of Infection Prevention and Control are individually oriented to the program by the employee(s) having expertise in particular process/procedures, which is documented on an internal checklist. New employees attend the weekly departmental meetings held with the Hospital Epidemiologist. All new ICPs will attend APIC training within their first year of hire. Competency of new and existing employees is verified by direct observation/interaction with the IC Manager and Hospital Epidemiologist, and/or by professional certification examinations (CIC), if applicable. Staff development, team building, and training needs are
determined by prospective evaluation based on individual assessment and on local and national requirements, outcomes of surveys, and/or accreditation issues. As part of competencies, employees are also required to complete the CDCNHSN surveillance webinars and APIC online educational classes/webinars.

Employee performance is evaluated annually using the Competency Based Performance Evaluation form and successful achievement of both individual and departmental goals. Team and individual goals that align with the departmental and organizational goals are developed with each employee.

Process Management
Key processes within the program include, but are not limited to, the following:

**Health Care Infection Prevention and Control Committee:**
- Approves systems for detection of HAI in patients, employees, and volunteers and employs these systems to identify infection related problems.
- Reviews and approves infection surveillance data from both patients and employees.
- Approves the implementation and evaluation of control measures and prevention strategies once outbreaks and/or other infection-related problems are identified.
- Reviews and approves infection prevention and control policies and procedures.
- Reviews and approves Work Wellness Center policies and procedures.
- Reviews microbiological data and organism resistance trends for specific pathogens and disseminates such information to those who need to know on a timely basis.
- Makes recommendations concerning antibiotic usage when indicated.

**Infection Prevention and Control Department:**
- Evaluates and updates infection prevention and control practices throughout the organization.
- Provides infection prevention and control education, consultation, and expertise for employees, physicians, students, and volunteers, as indicated, including information on bloodborne pathogens, specific isolation practices, personal protective equipment, hand hygiene, and other topics as indicated by ongoing risk assessments and/or as mandated by regulatory agencies.
- Provides infection control risk assessments (ICRA) expertise and oversight for construction projects that have the potential to impact patients and/or employees. Educates construction workers in coordination with the construction project manager on infection prevention and control practices which reduce the risk of infection to them, patients, visitors, and health care workers.
- Develops and implements systems for detection, e.g., HAI surveillance and monitoring of hand hygiene compliance.
- Conducts data collection and trend analysis for specific health care associated pathogens and/or HAI. Formulates, implements, and evaluates programs to decrease or eliminate infection risks.
- Investigates infection clusters and outbreaks and intervenes as necessary to decrease further transmission of infection; evaluates and modifies these prevention strategies as indicated.
- As needed, designs and conducts studies that are applicable to infection surveillance, and/or infection prevention and control issues.
- Coordinates with regional health care facilities in HAI surveillance, notification, prevention and control issues; provides outreach education as indicated.
- Collaborates with local, state, and federal health agencies concerning infection surveillance, and/or infection prevention and control in patients and employees.
• Evaluates and provides feedback on local and state guidelines and rules concerning infection surveillance and/or infection prevention and control; including major input into Utah's mandatory infection reporting requirements.

• Sentinel events related to HAIs, when recognized, are referred to Risk Management and Quality and Patient Safety for analysis using standard methods such as Root Cause Analysis (RCA) or Failure Mode and Effect Analysis (FMEA); Infection Prevention and Control participates in the RCA/FMEA process as needed.

Organizational Performance Results and Evaluation of the Program
The Infection Prevention and Control program outcomes and results are evaluated by comparing the program’s data to established goals, results of benchmark data, and recommended national and/or local standards. Results are interpreted and actions are initiated as needed, such as changes in policy and procedure, recommendations for standardization and/or change of care or service delivery, ensuring consistency in practice, and internal and/or external staff development and training.

Results are communicated to the organization through the Health Care Infection Prevention and Control Committee, Quality and Patient Safety Director, Chief Nursing Officer, Nursing Directors, Hospital Epidemiologist, and the Medical Board. Data is posted monthly on the intranet called Intercomm. In addition, reports are made to other pertinent committees such as Critical Care Committee, Nursing Executive Committee and the Medical Directors Meeting. Members of these committees are responsible for disseminating this information to their respective clinical or administrative areas. Pertinent findings, changes in practice, policy, or procedures are communicated to the appropriate units/departments and administrators. Issues and concerns are brought forward to Administration.

INFECTION PREVENTION AND CONTROL
Infection Prevention and Control Program FY 2015 Objectives with Goals:

**Objective 1:** Decrease the occurrence of HAIs associated with procedures, medical equipment, devices and supplies.

**GOAL#1:** Achieve SIRs at or below 1.0 within the mandatory CMS NHSN HAI surveillance reporting requirements for:

a. Central Line Associated Blood Stream Infections (CLABSI) in critical care units – SIR at or less than 0.50 (29% improvement from goal of 0.7)
b. Catheter Associated Urinary Tract Infections (CAUTI) in critical care units- SIR at or less than 1.0 (17% improvement from FY2014 goal of 1.2)
c. Surgical Site Infections (SSI) related to Colon surgery- SIR at or less than 1.0 (28% improvement from FY2014)
d. SSI related to Abdominal Hysterectomy- SIR at or less than 1.0 (30% improvement from FY2014)
e. MRSA bacteremia- maintain SIR less than 1.0
f. *Clostridium difficile* infections (CDI) maintain SIR of <1.0.

**Objective 2:** Support the hospital Hand Hygiene program and continue to encourage active unit participation with improvement in hand hygiene compliance.

**GOALS:** See Hand Hygiene plan.

**Highest priorities:** Hand hygiene, mandatory reporting to the CDC-NHSN, reduction of hospital onset MDROs, participation in process improvement teams to reduce HAIs (e.g. CLABSI, CAUTI, SSI, VAE), and compliance with regulatory agencies.

**Surveillance, Prevention, and Control activities for FY2015 will include:**

- Hand hygiene monitoring/observations/compliance program implemented throughout the organization with feedback of compliance data to managers and leaders; ongoing evaluation, and program modification as indicated, to improve compliance.
- Mandatory surveillance and reporting of MRSA Lab ID cases to CDC-NHSN.
- Perform ongoing tracking of epidemiologically significant organisms, such as MRSA and VRE (Vancomycin resistant Enterococcus) and implement control measures when indicated.
- Mandatory surveillance and reporting of C. *difficile* Lab ID cases to CDC-NHSN.
- Track and trend C. *difficile* on all inpatient care units; reinforce practices, products, and methods to reduce transmission of enteric organisms from patient with diarrhea.
- Mandatory surveillance and reporting of CLABSI in all ICUs to CDC-NHSN; non-mandated surveillance of Huntsman Cancer Hospital inpatient units; and implement improvement processes as necessary.
- Ventilator Associated Events (VAE) surveillance in selected ICUs. Report surveillance to appropriate persons including leadership.
- Mandatory surveillance and reporting of Catheter Associated Urinary Tract Infection (CAUTI) in adult ICU’s and Inpatient Medical Rehabilitation to CDC-NHSN; and implement improvement processes as necessary.
- January 2015 convert non-mandated surveillance of CAUTI on acute care units to mandatory surveillance and reporting to CDC-NHSN.
- Mandatory surveillance and reporting of COLO and HYST SSI to CDC-NHSN; and implement improvement processes as necessary.
• Non-mandated SSI surveillance (e.g. CAGB, TKA, THA, C-sections) via CDC-NHSN algorithm; report results to appropriate personnel; evaluate trends and investigate further as needed; and implement improvement processes as necessary.
• Monitor and control potential infection control risks related to construction through weekly rounding; routine review of patients with clinical cultures positive for Aspergillus; routine environmental particulate sampling and/or viable sampling in key areas affected by major construction projects.
• Perform routine culturing of potable water for Legionella growth; implement, reinforce, and evaluate established prevention strategies, when and as indicated. Continue to identify patients with Legionella and determine if health care or community associated.
• Continue post-phaco Endophthalmitis surveillance in collaboration with Moran Eye Center QI program; assist Moran QI program with data analysis as requested.
• Perform ongoing Tuberculosis (TB) patient identification.
• Work Wellness to investigate all employee TB test conversions as indicated and provide appropriate follow-up care.
• Review alerts, autopsies, and routine surveillance data to identify and report sentinel events related to HAI; report such events to Risk Management and Quality and Patient Safety; and assist in RCA/FMEA as requested.
• Coordinate biannual environmental air sampling on the BMT unit for Aspergillus and other filamentous fungi with Environmental Health and Safety.
• Monitor, control, and approve or reject reprocessing of single use devices through a multidisciplinary subcommittee run by Surgical Processing Department as needed.
• Participate in Products Evaluation Committee and provide infection prevention and control recommendations as needed.
• Collaborate with the Emergency Preparedness Program on the surge capacity plan for infectious diseases, and Code Bio plan for emerging infectious diseases.
• Identify outbreak scenarios and lead the work to control outbreaks.
• Collaborate with ARUP Laboratories when new lab testing related to infectious diseases is available. May include assisting with physician education. Assist with new lab testing algorithms as necessary.

Note: CDC-NHSN or internal standardized reporting criteria is used for HAI determination and benchmarking.

REFERENCES:

7. **EMPLOYEE HEALTH REQUIREMENTS**

Policy: Employee Health Requirements

**Purpose:**

A. To reduce or eliminate transmission of certain diseases from Health Care Workers to patients; patients to Health Care Workers; and Health Care Workers to Health Care Workers.

B. To ensure compliance with state and federal recommendations/regulations.

**Definitions:**

**Description:**

A. All requirements delineated in "REQUIREMENTS AND VERIFICATION" below must be complete within 15 days of hire date.
   a. Additional vaccines required in a series (e.g. MMR, Chicken Pox, Hep B) must be complete within 15 days of their due date.

B. Employee Health will notify Supervisors/Managers via e-mail when HCW do not comply with these requirements.
   a. Individuals who are not compliant with these requirements may be subject to removal from the work schedule, and/or discipline up to and including suspension of clinical privileges and/or termination.
   b. Disciplinary action for non-compliance will be determined by the governing body appropriate to the Health Care Worker's position and job title.

**REQUIREMENTS AND VERIFICATION:**

A. **Two step TB Skin Testing (TST):** Must provide documentation of one negative TST completed within 12 months of hire date AND one negative TST completed within 2 months of hire date that was evaluated by a qualified reader and documented in millimeters (MM).
   a. If prior TST positive, must provide documentation of a negative chest x-ray completed no more than 12 months prior to hire date.

B. **Measles Immunization / Immunity:** HCW born in 1957 or later must provide documentation of two MMR immunizations (or two measles immunizations) OR documentation of a measles titer that proves immunity OR documentation from a health care provider of confirmed measles disease.
   a. Although birth before 1957 is generally considered acceptable evidence of measles immunity, a measles immunity, a measles titer will be required from HCW born before 1957 if no record is on file.
   b. i. In the case of a measles outbreak, those born before 1957 with record of low immunity will be required to receive 2 dose MMR vaccinations.
   c. If a patient has known/suspected measles only immune HCW can enter the patient’'s room or perform patient care, according to the Hospital Epidemiology Body Substance Precautions Manual, regardless of the reason personnel are not immune.

C. **Mumps Immunization / Immunity:** HCW born in 1957 or later must provide documentation of two MMR immunizations (or two mumps immunizations) OR documentation of a mumps titer that proves immunity OR documentation from a health care provider of confirmed mumps disease.
   a. Although birth before 1957 is generally considered acceptable evidence of mumps immunity, a mumps titer will be required from HCW born before 1957 if no record is on file.
In the case of mumps outbreak, those born before 1957 with record of low immunity will be required to receive 2 dose MMR vaccinations.

D. **Rubella Immunization / Immunity:** HCW born in 1957 or later must provide documentation of one MMR immunization (or one rubella immunization) OR documentation of a rubella titer that proves immunity OR documentation from a health care provider of confirmed rubella disease.
   - Although birth before 1957 is generally considered acceptable evidence of rubella immunity, a rubella titer will be required from HCW born before 1957 if no record is on file.

A. i. In the case of rubella outbreak, those born before 1957 with record of low immunity will be required to receive 1 dose MMR vaccinations.

E. **Chicken Pox (Varicella) Immunization / Immunity:** Must provide documentation of two chickenpox (varicella) immunizations OR documentation of a varicella titer that proves immunity OR documentation from a heath care provider (who performed evaluation at time of disease) of confirmed chickenpox disease or herpes zoster disease.
   - If a patient has known/suspected chickenpox only immune HCW can enter the patient’s room or perform patient care, according to the Hospital Epidemiology Body Substance Precautions Manual, regardless of the reason personnel are not immune.

F. **Hepatitis B Immunization / Immunity:** Employees who may come in contact with blood or body substances, soiled equipment, or specimens from patients must provide documentation of a Hepatitis B titer that proves immunity OR a completed Hepatitis B immunization declination form.
   - HCW will be tested for immunity on hire.
   a. Testing for Hepatitis B antibody will be done to document immunity 1-2 months after dose #3, if Hepatitis B series was not previously completed.
   b. Booster dose(s) of Hepatitis B vaccine and repeat antibody testing will be provided as needed.

G. **Tetanus-Diphtheria-Pertussis Immunization:** Must provide documentation of a tetanus-diphtheria-pertussis (Tdap) immunization within the past ten years.
   - All HCW (excluding volunteers), regardless of age, will receive a single dose of Tdap if they have not previously received Tdap, regardless of time since their last dose of tetanus and diphtheria toxoids (Td) vaccine.
   a. A Td booster is recommended every ten years.

H. **Influenza Immunization:** Must ANNUALLY provide documentation of a current influenza immunization OR an approved current influenza exemption for an accepted valid reason.
   - Those with approved exemptions will be accommodated by wearing a surgical mask during the flu season (October - May) in all patient care areas. Allowable exemptions are outlined in "Exemptions" below.
   a. Those who request an exemption must sign an agreement to wear a surgical mask covering the nose and mouth every time they are in a patient care area during the influenza season.
      i. Managers/Supervisors will sign this agreement and will be responsible for monitoring masking compliance.
      ii. Failure to wear a surgical mask in the appropriate places and at the proper times may result in discipline as described in "POLICY" above.

EXEMPTIONS:

A. Susceptible HCW who have a permanent medical condition in which the administration of an immunization is contraindicated must provide a written statement from a health care provider documenting the presence of a permanent medical exemption. The HCW’s medical diagnosis is not required on such documentation.

B. Susceptible HCW who have a temporary contraindication to receiving an immunization, such as pregnancy, must receive the immunization within 15 days of when the immunization administration is no longer medically contraindicated, or within 15 days of return to work if they have been on leave.

C. Susceptible HCW may request a religious exemption for beliefs that are in conflict with immunization.
DOCUMENTATION:

A. Those who are unable to provide documentation to meet requirements A-H in "REQUIREMENTS AND VERIFICATION" above will have tests and immunizations provided to them by the Work Wellness Center at no cost to the employee.

B. Documentation of HCW health requirements is maintained by Work Wellness in separate confidential and secured files. These records can only be released with permission from the employee.

Implementation:

Owner: Brooke Gardner
Liaison: Launa Jo Byington
Approval Body: Hospital Infection Control Committee Medical Board
Current Review Date: Thu Nov 14 2013
Current Approval Date: Thu Jan 17 2013
Current Revision Date: Thu Jan 17 2013
Origin Date: Sat Sep 11 1993

Please Note: This printed copy is not a controlled document and is only to be used as a reference. Refer to the most up to date version on Pulse at: https://Pulse.utah.edu

Print Date: Fri Dec 26 2014
8. HAND HYGIENE POLICY

Purpose:

A. To outline expectations for hand hygiene during patient care activities.
B. Hand hygiene before and after patient contact and after contact with moist body substances and/or contaminated/potentially contaminated equipment/surfaces is an important strategy for preventing healthcare-associated infections. Effective hand hygiene removes transient microorganisms, dirt, and organic material from the hands, and decreases the risk of cross contamination to and from patients, patient care equipment, and the environment.

Definitions:

A. **Hand Hygiene**: Refers to either a hand wash or use of a hand sanitizer.
B. **Hand Sanitizer** (aka: alcohol-based hand rub, hand gel): Refers to a product containing 60% or more alcohol, by content, designed for use by healthcare workers. Due to the alcohol content, hand sanitizer is flammable and is irritating to eyes and mucous membranes when wet. The Centers for Disease Control and Prevention does not sanction the use of hand sanitizers with less than 60% alcohol, or, those that contain alternative antiseptics to alcohol.

Description:

A. Hand hygiene must be performed **before**: (1) contact with a patient, the patient's environment, equipment, medication, and/or food, (2) performing invasive procedures, (3) performing clean/aseptic procedures, and/or (4) donning gloves.
B. Hand hygiene must be performed **after**: (1) direct contact with the patient, (2) contact with body substances, non-intact skin, and/or wound dressings; (3) contact with inanimate objects in the immediate patient vicinity, including patient care equipment; and/or (4) removing gloves and/or other personal protective equipment.
C. A hand wash must be performed after glove removal when caring for patients having diarrhea.
D. Gloves must be changed and hand hygiene must be performed if moving from a contaminated body site to a clean body site during the care of a patient.
E. A hand wash must be performed whenever hands are visibly soiled or contaminated.
F. A hand wash must be performed before eating.
G. A hand wash must be performed after using the restroom.
H. All cafeteria line employees who will be handling food must first perform hand hygiene and wear protective gloves.
   1. Hands may never come in contact with any raw or cooked food products.
   2. Gloves must be changed and hand hygiene performed if going from a contaminated/dirty activity (e.g. handling cash) to a clean activity (e.g. preparing food).
I. Fingernails must be "natural," and will be kept clean, short/trimmed, in accordance with the Professional Image (Dress Code) policy.
   1. Nails should not extend past the fingertips.
   2. Overlays are not allowed
J. Nail polish will not be worn in the new born ICU area.
K. Gloves are never a substitute for hand hygiene.

Implementation:

A. Hand Wash.
1. A hand wash must be performed whenever hands are visibly soiled or contaminated, before eating, and after using the restroom. A hand wash may be performed instead of using hand sanitizer when hands are visibly clean.

2. The procedure for washing hands is as follows:
   a. Wet hands with warm or tepid water (hot water increases hand irritation).
   b. Apply an amount of hand soap that is adequate to cover all hand surfaces.
   c. Rub hands together scrubbing all surfaces of hands (palms, back of hands, fingers, fingertips, between fingers, around thumbs, and around/under fingernails); rub all surfaces of hands with hand soap for at least 15 seconds, adding small amounts of water as needed.
   d. Rinse hands to remove all soap; continue to rub hands while rinsing to facilitate removal of soap (retained soap increases hand irritation).
   e. Pat hands dry using disposable paper towels (rubbing hands with towel increases hand irritation).
   f. Use a disposable paper towel to turn off the faucets.

3. Either plain or antimicrobial soap may be used for a hand wash. Antimicrobial soap may increase hand irritation of some individuals.

B. Hand Sanitizer.

1. Hand sanitizer may be used whenever hands are visibly clean.
   1. Exception: A hand wash must be performed upon exiting the room of a patient with diarrhea.

2. The procedure for using hand sanitizer is as follows:
   1. Apply an amount of product to the palm of one hand that is adequate to cover all surfaces of hands.
   2. Rub hand sanitizer onto all surfaces of hands (palms, backs of hands, fingers, fingertips, between fingers, around thumbs, and around/under fingernails).
   3. Do not touch eyes or mucous membranes while the hand sanitizer is wet.
   4. Do not get near fire or spark generating equipment while hand sanitizer is wet.
   5. Continue to rub hand sanitizer onto all surfaces of hands until hands are dry (this should take ~15 seconds).
   6. Do NOT use a towel to speed drying of the hand sanitizer (this can decrease sanitizer efficacy and increase hand irritation).
   7. Use of hand sanitizer immediately following a hand wash may increase hand irritation.

8. Hand sanitizer can be used repeatedly without rinsing from hands. In some individuals repeated use may cause a sticky residue build-up; hands should be rinsed or washed as needed to remove such residue.

References:


Owner: Cathy Gray
Liaison: Lorie Lynn Gillette
Approval Body: Hospital Infection Control Committee NEC
Current Review Date: Sun May 18 2014
9. **BLOODBORNE PATHOGENS EXPOSURE CONTROL POLICY**

**Policy: Bloodborne Pathogens Exposure Control**

**Purpose:**
A. To provide a comprehensive plan to eliminate and/or reduce occupational exposures to bloodborne pathogens an compliance with federal regulations.

**Definitions:**
A. **Biohazard Label:** a fluorescent orange label with the biohazard symbol
B. **Blood:** human blood, blood products or blood components
C. **Bloodborne Pathogens:** microorganisms present in human blood that can cause disease in humans, which include Virus (HBV), Hepatitis C Virus (HCV), and Human Immunodeficiency Virus (HIV).
D. **Body Substance Precautions (BSP):** isolation precautions that consider all blood, body fluids visibly contaminated body fluids, body substances, and unfixed tissues, organs or cultures from living or dead human sources as potentially infectious materials such as patient care rooms, treatment rooms, exam rooms, operating rooms, laboratories, dirty utility rooms, speci areas, etc.
E. **Clinical Work Area:** any area where exposure/potential exposure to blood or other potentially infectious materials such as patient care rooms, treatment rooms, exam rooms, operating rooms, laboratories, dirty utility rooms, speci areas, etc.
F. **Contaminated:** presence or the reasonably anticipated presence of blood or other potentially infectious materials surface.
G. **Decontamination:** the use of physical or chemical means to remove, inactivate, or destroy bloodborne pathogens item to the point where the surface or item is rendered safe for handling, use, or disposal.
H. **Engineering Controls:** controls that isolate or remove bloodborne pathogen hazards from the work place such as devices, blades or needles that retract after use, needleless devices, sharps disposal containers, etc.
I. **Exposure Determination:** based on the definition of occupational exposure without regard to personal protective equipment.
J. **Exposure Incident:** a specific incident of eye, mouth, other mucous membrane, non-intact skin, or parenteral cont or other potentially infectious materials.
K. **Occupational Exposure:** reasonably anticipated skin, eye, mucous membrane, or parenteral contact with blood or potentially infectious materials that may result from the performance of an employee's duties.
L. **Other Potentially Infectious Materials:** according to the principles of Body Substance Precautions, this is all body or cultures from living or dead human sources, other than blood.
M. **Personal Protective Equipment (PPE):** specialized clothing or equipment worn by an employee for protection aga to bloodborne pathogens and other body fluids/substances.
N. **Work Practice Controls:** practices that reduce the likelihood of exposure by altering the manner in which a task is such as prohibiting recapping, removing or bending of needles (unless required by a specific medical procedure).
**Description:**

A. The University of Utah Health Care system supports a comprehensive exposure control plan for bloodborne pathogen required by OSHA, which delineates who is at risk of occupational exposure to bloodborne pathogens, the method and reducing exposures, the steps to take in the event of an exposure, and procedures for training and recordkeep.

B. Standard Body Precautions will be used by all employees who may be subjected to blood, body fluids, body substa unfixed tissues, organs or cultures from living or dead human sources.

**Implementation:**

A. The Bloodborne Pathogen Exposure Control Plan applies to all Hospitals & Clinic employees who, as a consequenc responsibilities, are at risk of occupational exposure to blood or other potentially infectious materials.

B. A copy of the Bloodborne Pathogen Exposure Control Plan is accessible to all employees in the online University of and Clinics Standards Manual. A copy of the Occupational Safety and Health Administration (OSHA) regulatory text Pathogens (29 CFR 1910.1030) is available from the Work Wellness Center or online at www.osha.gov.

C. Implementation of the Bloodborne Pathogen Exposure Control Plan is coordinated by the HR Work Wellness Cent and Clinics Standards Manual. A copy of the Occupational Safety and Health Administration (OSHA) regulatory text Pathogens (29 CFR 1910.1030) is available from the Work Wellness Center or online at www.osha.gov.

C. Implementation of the Bloodborne Pathogen Exposure Control Plan is coordinated by the HR Work Wellness Cent Hospital Infection Committee.

D. Compliance with the Bloodborne Pathogen Exposure Control Plan is assessed by:

1. Evaluation of quarterly reports from the Employee Health Clinic. Reports reflect data analysis of employee e incidents, trends and subsequent preventive program planning.
2. Evaluation of reports based on routine hazard surveillance inspections of all areas of the hospitals and clinic.

E. The Bloodborne Pathogen Exposure Control Plan is reviewed annually and updated as needed by the Work Wellness Updates to the plan are approved by the Hospital Infection Committee.

F. OSHA-required specifications of the Exposure Control Plan:

1. Exposure determination and job classification.
   a. Job Classification I: All employees have occupational exposure: Personnel who provide direct patient handle specimens, or who handle equipment, linen, or clean an environment that may be soiled with potentially infectious materials. This includes, but is not limited to, all assistants, custodians, messengers, physicians, dentists, plumbers, technicians; technologists, therapists, and specialists who may in the c duties have exposure to body fluids.
   b. Job Classification II: Some employees have occupational exposure: This includes, but is not limited to Coordinator, Laundry Aide, Occupational Therapist,
2. Methods to Eliminate or Limit Exposures to Blood or Other Potentially Infectious Materials.

a. Body Substance Precautions is the isolation precaution method used to limit the possibility of occupational exposure to bloodborne pathogens. See policies and the "Infection Control & Body Substance Precautions Manual" for more data.

b. Engineering and Work Practice Controls are used to eliminate or limit employee exposures. Where oc exposure remains after institution of these controls, personal protective equipment (PPE) must be used.

   i. Engineering Controls are evaluated as safety products come on the market and implemented be effective in limiting or preventing injuries/exposures to employees and safe for patients. Th target for engineering controls is high-risk exposures, e.g. those associated with blood-filled h needles.

   ii. Contaminated needles and other contaminated sharps shall not be bent, recapped or remove employer can demonstrate that no alternative is feasible or that such action is required by a dental procedure.

   iii. The employer shall solicit input from non-managerial employees responsible for direct patient potentially exposed to injuries from contaminated sharps in the identification, evaluation, and effective engineering and work practice controls and shall document the solicitation.

   iv. All procedures involving blood or other potentially infectious materials shall be performed in as to minimize splashing, spraying, spattering, and generation of droplets of these substances

v. Work Practice Controls included in University of Utah Hospitals and Clinics Standards Manual department procedure and standards manuals shall be practiced by employees and enforced within the department.

vi. Policies and procedures are enforced according to University of Utah Policy and Procedure - C Action and Termination Policy for Staff Employees (Policy 5-111).

c. The following items are designated PPE at the Hospitals & Clinics: gloves, protective eye wear with side masks, disposable protective aprons, disposable protective cover gowns and surgical gowns. The University Hospital and Clinics shall ensure that appropriate PPE in the appropriate sizes is readily accessible at is issued to employees. Hospital and Clinics shall ensure that appropriate PPE in the appropriate sizes is readily accessible at is issued to employees.

   i. Disposable shoe covers are not considered PPE but must be worn in instances where gross so anticipated.
ii. General work clothing such as uniforms, scrubs, scrub jackets, warm-up jackets, lab coats, pan blouses are not considered PPE. PPE must be worn when needed over, or instead of, such gen clothing. General work clothing must be removed/changed if contamination occurs. Personal with visible body substances should be laundered free of charge by Linen Services; they should not be sent home to be laundered.

iii. PPE is provided, cleaned, maintained, and replaced at no cost to the employee. PPE is available sizes and readily accessible for use. PPE is removed and replaced if it becomes damaged and effective.

iv. Employee will remove PPE prior to leaving the clinical work area (protective eyewear is example below), and place in an appropriately designated container for decontamination or disposal.

v. Protective eyewear, when visibly contaminated, must be decontaminated as soon as feasible a leaving the clinical work area.

vi. Employees are responsible to use PPE appropriately, and supervisors will enforce appropriate

vii. Situations in which employees are unable to use routinely available equipment/PPE will be ad case-by-case basis.

d. Hand washing facilities and antiseptic hand sanitizer must be readily accessible to employees and the employees must be enforced. Employees must follow the Hand Hygiene Policy.

i. When provision of hand washing facilities is not feasible, such as in transport vehicles, antiseptic sanitizer must be readily available. Whenever hands have been visibly soiled with body substance antiseptic hand sanitizers are used, hands must be washed with soap and running water as so

ii. Employees must wash or sanitize their hands immediately or as soon as feasible, after the rem or other PPE.

iii. Employees must wash hands and any other affected skin with soap and water, or flush with water, immediately, or as soon as feasible, following contact with blood or other potential materials.

e. Clinical work areas, which have the potential for being contaminated with blood or other potentially materials, must be separate from areas in which eating, drinking, smoking, applying cosmetics or lip handling contact lenses occurs. Clinical work areas will be clearly defined for each unit/department.

f. Food and drink will not be kept in refrigerators, freezers, shelves, cabinets, counter tops or bench top or other potentially infectious materials are present.

f. Refrigerators/freezers used for specimen storage will have a Biohazard Label on the door.

h. Specimens of blood or other potentially infectious materials must be placed in a plastic specimen container which prevents leakage during collection, handling, processing, storage, transport, or shipped.
CLINIC OPERATIONS REFERENCE GUIDE

i. Any container that is used for specimen collection/transport within the hospital that is not rec containing a specimen must be labeled with a Biohazard Label.

ii. Specimens of blood or other potentially infectious materials shall be placed in a container which prevents leakage during collection, handling, processing, storage, transport, or shipping.

iii. Specimens/containers which leave the facility must be labeled with a Biohazard Label.

iv. If contamination of the primary specimen container occurs, it must be placed into a second co prevent further leakage and labeled as stated above (h.1).

v. If the specimen could puncture the primary container, it must be placed into a secondary container, puncture resistant and labeled as stated above (h.1).

i. Equipment which may be contaminated with blood or other potentially infectious materials must be to servicing or shipping and must be decontaminated as necessary, unless such decontamination is n contamination is left on such equipment, a readily observable Biohazard Label must be attached to t stating which portions remain contaminated so that appropriate precautions can be taken.

j. All equipment and environmental working surfaces must be routinely cleaned and decontaminated w appropriate hospital approved disinfectant, and immediately cleaned/disinfected upon becoming contaminated as detailed in Environmental Services policy and procedures.

k. Skilled personnel are responsible for the decontamination of work surfaces or equipment with appropriate hospital approved disinfectant, and immediately cleaned/disinfected upon becoming overtly contaminated as detailed in Environmental Services policy and procedures.

l. Waste disposal will be handled as detailed in Environmental Services and University of Utah Hospital Hazardous Materials and Waste Plan. All trash in clinical work areas which can be anticipated to contain trash contaminated with blood or other potential materials will have a Biohazard Label affixed or be color coded. All trash at the main University of Utah Clinics campus will be handled as if potentially infectious. Off-site areas need to separate potentially into a separate labeled or color-coded container (check with the individual area).

m. Used linen is handled as detailed in Nursing, Environmental, and Linen Services policies and procedures at University of Utah Hospitals and Clinics is handled as if potentially infectious.

n. During use, containers for contaminated sharps shall be easily accessible to personnel and located as feasible to the immediate area where sharps are used, maintained upright, changed when 2/3 full, closed immediately prior to removal or replacement to prevent spillage or protrusion of contents during ha transport, or shipping.

o. Biological safety cabinets shall be certified when installed, whenever they are moved and at least annually.

3. Hepatitis B Immunizations
CLINIC OPERATIONS REFERENCE GUIDE

a. All employees will receive training regarding Hepatitis B immunization at the time of initial University Hospitals and Clinics orientation from the Work Wellness Center, or designee. Training includes information on immunization’s efficacy, safety, method of administration, need for post-immunization antibody titer of being vaccinated. The immunization is offered free of charge to the employee.

b. Within ten working days of employment, any employee in Job Classification I or II will complete one
   i. Document previous hepatitis B immunization or immunity as demonstrated by antibody testing
   ii. Begin the immunization series.
   iii. Employees, who decline to accept hepatitis B vaccination offered by the employer, must sign a Vaccination Declination form.

4. Post-exposure Evaluation and Follow-up

a. Any employee, physician, or student who sustains a blood borne exposure or who has contact with potentially infectious materials to non-intact skin, must immediately perform the appropriate first-aid of washing the skin or wound with soap and water or rinsing the affected mucous membrane with w

b. All exposure incidents must be reported immediately to the area supervisor or designee who will send employee to the Work Wellness Center or the Emergency Department (ED) when the Work Wellness closed. Evaluation, treatment, and follow-up are coordinated by Work Wellness Center. Off-site areas their supervisor or designee and the Work Wellness Center for evaluation and management of the ex their work area.

c. A confidential evaluation and follow-up will be completed by a Work Wellness Center CNP or PA. A written opinion as defined by OSHA will be prepared and sent to the employee, physician or student days of the completion of the evaluation indicating any follow-up dates.

d. Employee Health Clinic maintains medical records identified by their name and ID number in a secure records which include data on Hepatitis B immunization or declination, exposure incident evaluation, opinion shall be kept for at least the duration of employment plus 30 years in accordance with 29 CF

e. If the employee, physician or student consents to baseline blood collection, but does not give cons for HIV serologic testing, the sample shall be preserved for at least 90 days. If, within 90 days of the e incident, the employee elects to have the baseline sample tested, such testing shall be done as soon

f. The employer shall establish and maintain a sharps injury log for the recording of employee percussions from contaminated sharps. The information in the sharps injury log shall be recorded and maintained manner as to protect the confidentiality of the injured employee.

5. Training of Employees

a. All employees who are in Job Classification I or II will receive training regarding bloodborne pathogens but not limited to, epidemiology and transmission, recognizing occupational hazards, use and limitations engineered and work
practice controls, hepatitis B vaccination and post-exposure reporting. Training required at the time of initial assignment, when there is a change in assignment requiring new knowledge annually thereafter.

b. Records of training will include the date of the training session, the contents or summary of the training required at the time of initial assignment, when there is a change in assignment requiring new knowledge annually thereafter.

b. Records of training will include the date of the training session, the contents or summary of the training and qualifications of persons conducting the training, and the names and job titles of all persons attend training session.

c. Training records shall be maintained for 3 years after the date on which the training occurred.

References:


10. HAZARDOUS MATERIALS AND WASTE PLAN 2014
UNIVERSITY OF UTAH HOSPITALS AND CLINICS SAFETY MANUAL

HAZARDOUS MATERIALS & WASTE PLAN – 2014
HAZARD COMMUNICATION PROGRAM

Org Wide Chapters – Safety Manual
University of Utah Hospitals and Clinics Standard

This plan is divided into four main sections:

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<tr>
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Hazard Communication

The Hazard Communication section is intended to provide guidance and compliance both with C.M.S and OSHA Hazard Communication (29CFR1910.1200) standards. It is also intended to satisfy current accreditation program auditing requirements.

OSHA recently passed a revised version of their Hazard Communication standard, to make it compatible with the Global Harmonized System (GHS). The revision requires that employers train employees in the new label requirements by December 1, 2013, with most other provisions in effect by June 1, 2015. Changes include the use of a new labeling and pictogram system, and changes in terminology and definitions. For the purposes of this document the term MSDS (material safety data sheet) is used essentially interchangeably with the new phrase SDS (safety data sheet). The former term is to be phased out by June 1, 2015.

Each employee is expected to understand their role in meeting the requirements of this program, so that materials can be used safely. The Hazard Communication Coordinator (HCC) for each unit is responsible the successful operation of the program. The duties of the HCC are outlined under the “written program” section. The four sub-elements of the first main section, hazard communication, are:

<table>
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<tr>
<th>A. Labeling</th>
<th>B. Material Safety Data Sheets (Safety Data Sheets)</th>
<th>C. Training</th>
<th>D. Written Program</th>
</tr>
</thead>
</table>

A. **Labeling:** All chemicals used in the work area must be properly labeled. Labels are to be legible and remain on the container throughout its use. The label must correctly reflect the contents of the container. The workplace labels or other forms of warning must be legible, in English, and prominently displayed on the container, or readily available in the work area throughout each work
shift. Employers having employees who speak other languages may add the information in their language to the material presented, as long as the information is presented in English as well. Secondary containers, also called portable containers by OSHA, must be labeled with the product/chemical name and warning properties, with the following exception. The employer is not required to label portable containers into which hazardous chemicals are transferred from labeled containers, and which are intended only for the immediate use of the employee who performs the transfer. However, it is not acceptable to leave unlabeled containers out of the direct and immediate control of the employee who performed the transfer unless there is an acceptable label on the secondary container. For purposes of that OSHA section, drugs which are dispensed by a pharmacy to a health care provider for direct administration to a patient are exempted from labeling.

The two labels shown below (HMIS and NFPA) may be encountered in some cases and are illustrated as they are part of a ‘legacy’ labeling and marking system which will continue to be in use. However, as presented under the “New Label Requirement” paragraph below, the revised OSHA standard will now require the adoption of the Globally Harmonized System (GHS) for labels.

Looking at our existing systems, both HMIS (square) and NFPA (diamond) labels use four categories three of which are essentially the same: Health Hazard (coded in blue), Fire Hazard (coded in red), and the Reactivity Hazard (coded in yellow or orange). In the case of the HMIS system (on the left), the fourth field is used to provide information on protective equipment. For the NFPA system, the fourth field provides a ‘special’ warning when needed, for example if a material is water reactive, the letter “W” is shown with a line through it.

Both systems use numbers from 1 through 4 for the three categories (health, fire, reactivity) with higher numbers indicating a greater degree of hazard. A ‘4’ indicates severe hazard, a ‘3’ serious hazard, a ‘2’ moderate hazard, and a ‘1’ slight, if any, hazard. Examples of these labels are shown below:
New Label Requirements

The new labeling strategy will require that the chemical manufacturer, importer, or distributor ensure that each container of hazardous chemicals leaving their workplace be labeled, tagged or marked with the following information:

1) Product identifier
2) Signal word (either “Danger” or “Warning” are used to indicated the severity of the hazard)
3) Hazard statement(s) (Standard phrases assigned to a hazard class and category)
4) Pictograms (convey health, physical and environmental hazard assigned to a GHS hazard class and category)
5) Precautionary statements
6) The name, address, and telephone number of the chemical manufacturer, importer, or other responsible party.

There are nine approved pictograms within the new GHS system shown below along with their accompanying meaning. Pictograms must be in the shape of a square set at a point and must include a black hazard symbol on a white background with a red frame sufficiently wide to be clearly visible. A square red frame set at a point without a hazard symbol is not a pictogram and is not permitted on the label.

**An Example label with references to the OSHA standard**

<table>
<thead>
<tr>
<th>GHS Pictograms and Hazard Classes</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image" alt="Pictogram" /></td>
</tr>
<tr>
<td>Oxidizers:</td>
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<tr>
<td>Flammmables:</td>
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<tr>
<td>Flammable Gas</td>
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<tr>
<td>Organic Peroxides</td>
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<tr>
<td>Explosives</td>
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<tr>
<td>Self Reactives</td>
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<tr>
<td>Pyrophories</td>
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<tr>
<td>Self-Heating</td>
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<tr>
<td></td>
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<tr>
<td>Acute toxicity (severe)</td>
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<tr>
<td>Corrosives</td>
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<td>Canses Under Preasure</td>
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<tr>
<td>Carcinogen</td>
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<tr>
<td>Respiratory Sensitizer</td>
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<tr>
<td>Reproductive Toxicity</td>
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<tr>
<td>Target Organ Toxicity</td>
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<tr>
<td>Mutagenicity</td>
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<tr>
<td>Aspiration Toxicity</td>
</tr>
<tr>
<td>Environmental Toxicity</td>
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<tr>
<td>Irritant</td>
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<tr>
<td>Respiratory Toxicity</td>
</tr>
<tr>
<td>Irritation</td>
</tr>
</tbody>
</table>
Rules for label wording

There are several rules which the new system follows. In particular:

i. **Use of a backslash:** When a backslash or diagonal mark ( \ ) appears in the precautionary statement text, it indicates that a choice has to be made between the separated phrases. In such cases, the chemical manufacturer, importer, or responsible party can choose the most appropriate phrase(s). For example, "Wear protective gloves/protective clothing/eye protection/face protection" could read "wear eye protection".

ii. **Use of multiple periods:** When three full stops (…) appear in the precautionary statement text, they indicate that all applicable conditions are not listed. For example, in "Use explosion-proof electrical/ventilating/lighting/…/equipment", the use of "..." indicates that other equipment may need to be specified. In such cases, the chemical manufacturer, importer, or responsible party can choose the other conditions to be specified.

iii. **Use of italics:** When text in italics is used in a precautionary statement, this indicates specific conditions applying to the use or allocation of the precautionary statement. For example, "Use explosion-proof electrical/ventilating/lighting/…/equipment" is only required for flammable solids "if dust clouds can occur". Text in italics is intended to be an explanatory, conditional note and is not intended to appear on the label.

iv. **Use of square brackets:** Where square brackets ([ ]) appear around text in a precautionary statement, this indicates that the text in square brackets is not appropriate in every case and should be used only in certain circumstances. Conditions for use explaining when the text should be used are provided.

If you find an unlabeled or improperly labeled container, bring it to the attention of your supervisor so that it can be corrected. NOTE: The presence of the HMIS or NFPA labels is optional. The presence of an OSHA/GHS label is not optional. Labels on ‘secondary containers,’ when labels are needed (that is when out of the control of the individual transferring to the secondary container), are required to have only the identifying name and hazard warning. Label names need to match the name on the MSDS/SDS.

B. **Safety Data Sheets:** One of the changes with the new regulation is a change in terminology from "Material safety data sheets (MSDS)" to "Safety data sheets (SDS)". Safety data sheets are provided by the manufacturer and information about the nature of a substance. Safety data sheets are required to include at least the following section numbers and headings, in the order listed.

1. Identification
2. Hazard(s) identification
3. Composition/information on ingredients
4. First-aid measures
5. Fire-fighting measures
6. Accidental release measures
7. Handling and storage
CLINIC OPERATIONS REFERENCE GUIDE

8. Exposure controls/personal protection
9. Physical and chemical properties
10. Stability and reactivity
11. Toxicological information
12. Ecological information
13. Disposal considerations
14. Transport information
15. Regulatory information
16. Other information including date of preparation or last revision

This section uses the terms MSDS and SDS in a similar fashion, although ultimately SDS will replace the MSDS. Safety data sheets are required for hazardous materials and hazardous drugs (other than solids which are not crushed or dispersed) that are in use or in storage. Sheets are to be stored in a clearly identified binder, typically a yellow binder currently labeled “Material Safety Data Sheets”. A SDS should be obtained anytime a hazardous chemical or hazardous drug is requisitioned. An index of SDS shall serve as the inventory of hazardous chemicals, be kept in the front of each binder, and updated as necessary. SDS should be logically arranged, typically alphabetically, so that all affected employees can rapidly access the information. The currently labeled MSDS binder shall be stored centrally and made readily available to all affected employees day or night. Refer to the appropriate SDS for specific information about the material you are using, including potential health effects, and proper protective measures and equipment to use when working with the chemical.

Take time to look at a MSDS/SDS on a chemical you are using. Ask the hazard communications coordinator (HCC) if you have questions on the sheet. Notify the HCC if you find a chemical without a sheet.

Additional SDS can be obtained from the manufacturer/distributor or found at various locations on the web.
- This site is a ‘list of lists’: http://www.ilpi.com/msds/index.html#Internet
- This site (Vermont SIRI) is a popular site for SDS: http://hazard.com/msds

HAZARDOUS DRUGS
SDS are required for hazardous drugs including concentrated liquids, IV solutions, ointments, and powders, and solids which are handled in a fashion to release the contents (for example in pill crushing). Preparation, administration, and disposal of hazardous medications may expose healthcare workers to these chemicals. Antineoplastic cytotoxic medications, anesthetic agents, antiviral agents and others, have been identified as hazardous. Drug manufacturers are responsible to determine if a drug is hazardous. Hazardous drugs include any drug identified by at least one of the following six criteria: carcinogenicity, teratogenicity or developmental toxicity, reproductive toxicity in humans, organ toxicity at low doses in humans or animals, genotoxicity, or new drugs that mimic existing hazardous drugs in structure or toxicity. Other medications may also have health or physical hazards such as medications that include alcohol which is flammable. SDSs are also required for these medications. Hazardous drugs in solid final form for direct administration to the patient (i.e., tablets, pills, capsules) are exempt from coverage under the OSHA Hazard Communication Standard, thus SDSs are not required.
C. **Training:** Chemical safety and SDS training is conducted for all employees upon hire in New Employee Orientation and annually thereafter by way of the on-line UUHC Learning Management System, (LMS). Training for Hazard Communications Coordinators, (HCC) is conducted annually in the first quarter of each year via LMS and in person when requested. Supervisors, with the assistance of the HCC, are responsible for arranging any necessary training specific to hazardous chemicals used in the area, such as ethylene oxide and glutaraldehyde and waste stream management.

Employees are to understand:

- Provisions of the hazard communication standard.
- Operations in their work areas where hazardous chemicals are present.
- Location and availability of the written hazard communication program, including the required list(s) of hazardous chemicals and SDS, (found in the SDS book).
- Methods and observations that may be used to detect the presence or release of a hazardous chemical in the work area.
- Physical and health hazards of the chemicals in the work area.
- Measures employees can take to protect themselves from these hazards, including information on work practices, emergency procedures, and personal protective equipment.
- Work procedures to follow that ensure protection when cleaning hazardous chemical spills and leaks.
- Details of the written hazard communication program, including an explanation of the labeling system, SDSs, and how employees can get and use the appropriate hazard information on the labels and in the SDSs.

NOTE: In area specific training it is suggested that attention be given to each product, one at a time. If this is not possible, classes of chemicals should be reviewed. Safely using the chemical should be the primary point taught. Trainers should specifically teach employees (a) how the product will affect personal health in any way, through its use or misuse and (b) to not improperly mix chemical products.

Additional training is to be provided when:
- Chemicals with new hazards are introduced into the workplace.
- Process or equipment changes are made that could cause new or increased exposures.
- Procedures and work practices are introduced or changed that could cause new or increased employee exposure.
- Employees are transferred from one work area to another where different hazards may be present.

Do YOU know the hazards, warning properties, health effects, and proper protective equipment for every chemical you work with?

D. **The written program:** The OSHA hazard communication regulations (29CFR1910.1200) require a written program. This document is that program. This program will be annually evaluated for objectives, scope, performance, and effectiveness.
A copy of the OSHA standard can be found at: http://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=STANDARDS&p_id=10099 or in the safety office.

The individual responsible for the successful operation of this program at the clinic or unit level is the designated **Hazard Communication Coordinator**. The name of the hazard communication coordinator should be found at the front of each SDS (MSDS) book and one must be posted in the area for staff to see. The designated departmental **Hazard Communication Coordinator** (HCC) has the following roles and responsibilities:

1. Providing department specific annual HAZMAT in-services, if needed, for all staff members (in addition to LMS training).
2. Writing and maintaining (in conjunction with the department manager) a department-specific standard operating procedure for those materials necessitating special precautions.
3. Ensuring that SDS are current and contained in an easily accessible SDS binder.
4. Ensuring that when new materials are introduced into or taken away from the area, a corresponding SDS is placed into or taken out of the SDS binder. Also, add or remove the product name from the SDS index.
5. Confirming that employees know the location of the SDS binder and how to access the information.
6. Ensuring that a dated, signed chemical inventory verification form is included in the front of the SDS binder, showing that the HCC has verified that all SDS are up to date. The **inventory of hazardous chemicals** is an OSHA requirement. The form is to be dated, signed and placed in the front of the SDS binder annually.
7. Ensuring that adequate and appropriate space and equipment is provided for the safe handling and storage of hazardous materials.
8. Ensuring that all hazardous materials are appropriately labeled with the following information: a) Product name; b) Hazard warning, as appropriate; c) the manufacturer’s name and address. NOTE: For ‘secondary containers’ only the first two items are required. Under the new system additional information will be required listed under “new label requirements” in a previous section.
9. Coordinating with departmental manager to provide the appropriate facilities, equipment, and personal protective equipment necessary to handle hazardous materials.
10. Maintaining departmental training records for hazardous materials in collaboration with department management.
11. Reporting all potentially hazardous spills and/or exposure following procedures listed in Section III.
12. Forwarding all reports relative to spills and/or exposures to the following individuals:
   i. Department Manager
   ii. Hazardous Material Waste Committee Chairs (5-2214 or 1-8805)
   iii. University of Utah Environmental Health and Safety (EHS) Department (7-9297 or 1-6590)
   iv. Human Resources/Workers’ Compensation First Report of Injury-when applicable (1-7447)
13. Sending an exposed employee for medical care as necessary.
14. Investigating and reporting spills/incidents that occur during shifts or times when the HCC is not present.
5 Monitoring and disposing of hazardous materials: Currently systems are in place to both monitor for and address disposal, as necessary, of hazardous materials. Separate monitoring records are maintained for ethylene oxide, glutaraldehyde, formaldehyde, and waste anesthetic gases. Detailed information on waste handling is found in section II.

Waste Handling

Waste materials from the University Hospitals and Clinics are separated into different pathways depending upon their characteristics. These are:

**Sharps** are to be placed in rigid sharps containers. Sharps containers must be easily accessible to employees and located as close to the immediate area where sharps are used as feasibly possible. These containers are to be securely affixed to the wall, counter, or cart surface to avoid tipping. Containers are not to be filled above the ‘full’ line, and are to be closed when full. Duct tape of the equivalent should be used to secure the lid closed. Sharps containers cannot be emptied and re-used. Sharps containers are to be safely disposed of as regulated medical waste. Examples of disposable sharps include: needles, scalpels, lancets, broken glass, capillary tubes, glass medicine ampules, blood collection tubes, slides, slide cover slips, pipettes, etc. Refer to Infection Control/Occupational Health Policies and Reference Number 1-60 for additional requirements. SUMMARY: This container is for sharps, vacutainers and most tablets or capsules.

**Chemotherapy wastes** are to be placed in yellow or white bags or containers labeled as ‘chemotherapy waste’ containers. Please don’t mix chemotherapy wastes with other waste streams. Chemotherapy waste is to be incinerated by an offsite, licensed facility. Chemotherapy waste includes discarded items such as gowns, gloves, IV tubing, empty bags, empty drug vials, needles and syringes, and other items generated while preparing and administering antineoplastic agents. The chemotherapy waste stream is for empty IV bags or containers only. If a dose has been only partially administered, it must be put in the RCRA (black box) waste stream described next. SUMMARY: For empty chemo IV bags, chemo IV tubing, and PPE used for chemo administration (gloves, gowns).
Regulated Medical Waste. The term “Regulated Medical Waste” is generally synonymous with “Infectious Waste” or “Biohazardous”. The State of Utah says an infectious waste is a waste that is capable of producing an infectious disease. There are, however, little or no tests that will prove with absolute certainty that a waste will be infectious due to various factors of disease transmission including presence of a pathogen, virulence, dosage or host susceptibility. "Infectious waste" is defined by Utah statute (Utah Code Annotated Title 19 Section 6 Subsection 102) as: "a solid waste that contains or may reasonably be expected to contain pathogens of sufficient virulence and quantity that exposure to the waste by a susceptible host could result in an infectious disease." We deem a waste Infectious waste when it is suspected to contain or has the potential to contain pathogens in sufficient numbers to cause disease. Any waste containing blood and blood products, excretions, exudates, secretions, suctionings, and other body fluids that will drip when squeezed by hand if compressed with finger pressure should be disposed of as Regulated Medical Waste or Infectious Waste.

RCRA Regulated -- Medications and Pharmaceuticals
A chemical waste that poses substantial or potential threats to public health or the environment could be considered a hazardous waste. In the United States, the treatment, storage and disposal of hazardous waste is regulated under the Resource Conservation and Recovery Act (RCRA). The law gives the Environmental Protection Agency (EPA) authority to ensure compliance of RCRA and levy fines. The EPA has identified a list of chemicals and processes that they regulate. These chemicals are considered to be hazardous waste and a code is assigned to this waste that must be communicated throughout the disposal process. Specifically listed chemicals that are discarded commercial products have “U” codes assigned or “P” codes (acutely hazardous) and have a 3 digit number associated with them: Acetone – U002, Sodium Cyanide – P106. Hazardous Waste from specific sources or processes identified by the EPA as hazardous, are assigned “K” codes and waste from non-specific sources are assigned “F” codes. Chemicals not specifically identified by name or process may still be hazardous if they exhibit characteristics identified by the EPA (“D” codes): Ignitability, Corrosivity, Reactivity and Toxicity. These are detailed in 40 CFR Part 261 subpart C.

A review of the pharmacy’s formulary yielded a list of medications that MUST be collected and then disposed of at a RCRA approved facility and tracked cradle to grave and beyond. These medications should come from the pharmacy with a note on the pharmacy label stating that they should be disposed of in the RCRA box. Due to their potential toxicity, partial chemo doses, regardless of composition are to be disposed of in the RCRA box. The following list of hazardous medications must disposed of in the RCRA box: partial doses of chemo, acetone, aluminum Cl, argatroban concentrated, arsenic trioxide chemo, barium, benzoin compound, betamethasone valerate lotion, chloral hydrate, chlorambucil, chloraseptic spray (phenol), clindamycin topical, cyclophosphamide, daunorubicin, dehydrated alcohol, eye drops with thimerosal (mercury), green soap tincture (high alcohol), insulins (m-cresol), iodine tinc., isopropanol, lindane, lopinavir/ritonavir oral solution,
melphalan, mitomycin, nicotine products (only the package is RCRA waste), paclitaxel, phentermine products, physostigmine products, selenium products, silver sulfadiazine cream, streptozocin, teriparatide, testosterone gel, trichloroacetic acid, trypsin/castor oil, Peruvian balsam spray, vaccines with thimerosal (mercury), and warfarin. Black boxes are dated at the time of pickup only and only need the label to read “RCRA Hazardous Waste.” EHS can assist with the pickup of these boxes (1-6590). For Hazardous Waste other than medications or pharmaceuticals please see “RCRA Regulated Waste -- Non-Pharmaceuticals”

NOTE: Silver nitrate sticks (Arzol) MUST NOT be disposed in this box with alcohols or other organics—use a separate box.

RCRA waste—SILVER NITRATE sticks only. Silver nitrate sticks (Arzol) are strong oxidizers and incompatible with alcohols and many organics, potentially creating a fire hazard. For this reason silver nitrate sticks have to be disposed in their own RCRA box separate from other RCRA waste materials (especially alcohols). Clinics can choose the wisest placement of the silver nitrate disposal boxes in their facilities.

Suremed / Omnicell wastes are to be returned to the Suremed / Omnicell for return to the pharmacy. SUMMARY: For unopened dosage forms, narcotic lollipops, narcotic lozenges, and narcotic patches.

Liquid medication canister. With the exception of liquid chemotherapy wastes, liquid medication wastes should be placed in a canister with Isolyser and solidified before disposal. Solid dosage forms of most narcotics may be liquefied and mixed with Isolyser for disposal in the liquid canister. Partial dose liquid chemotherapy wastes are to go into the RCRA box. In many cases the practitioner may have to “draw up” the remaining portion of a medication and squirt it in the Isolyzer for disposal. Isolizer should be placed in the canister first. The solidified waste can be put in a “regular trash” stream. SUMMARY: For partial dose IV medications, partial dose medications from a vial, botulinum toxin products, liquid narcotic waste. Isolyser canisters must be labeled with name “Isolyser” and any appropriate warning words. SUMMARY: For most liquid medications or for most liquefied oral narcotics, except for liquid chemo or any RCRA liquids.
Sink. Some items can go down the drain, such as electrolytes and dextrose maintenance fluids. SUMMARY: For NS and LR, electrolytes (calcium chloride or gluconate, potassium chloride, sodium chloride, sodium bicarbonate, sodium chloride, etc.), and dextrose maintenance fluids with or without electrolytes.

The above is summarized in a wall chart which the clinics should have. But it is important to recognize that the chart only applies to medications and most medical process waste, it is not intended to be a comprehensive list of all hazardous waste that could be generated by a medical facility.

Radioactive wastes are to be handled only by those personnel appropriately trained through the Nuclear Medicine Department or the Radiological Health Department. See Radiological Hazards section for more information.

RCRA Regulated Waste -- Non-Pharmaceuticals. From time to time a medical facility will generate non-pharmaceutical waste that is also hazardous waste. Constituents of a chemical waste container must be listed on the exterior of the container and be labeled as a hazardous waste. This is to provide clear identification as to the chemical identity of the material. Environmental Health and Safety (EHS) will pick up the chemicals, and handle disposal. A pick up can be scheduled at: http://www.ehs.utah.edu/HazMatForm.html. Packaging instructions can also be reviewed at the EHS website. As defined in the RCRA pharmaceuticals section above, a hazardous chemical waste is any waste that is on the RCRA list of hazardous waste and acutely hazardous waste [40 CFR 261.30-33], is from a regulated process or a waste that meets a RCRA characteristic of ignitability, corrosivity, reactivity, or toxicity as defined in 40 CFR 261.21-24. Chemicals slated for disposal must be properly stored (away from conditions which would allow leakage or damage to containers) prior to pickup. The following waste streams from Non-Pharmaceutical sources may be hazardous and must be handled as a hazardous waste:

Alcohol containing hand sanitizer
- Mercury and mercury-containing items: Thermometers, Sphygmomanometers
- Photographic/X-Ray fixer solutions with Silver recovered from fixer, if not recycled
- X-Ray Film containing silver or other metals, if not recycled
- Ethanol and formaldehyde/Methanol solutions
- Spent, off-spec, or excess laboratory chemicals (solvents, acids, bases, etc.)
- Paints and cleaning products
- Fluorescent light bulbs and other types including high-intensity discharge (HID), neon, mercury vapor, high pressure sodium, and metal halide lamps—if not managed as Universal Waste.
- Batteries, if not managed as Universal Wastes
- Computers/monitors, circuit boards, and other lead-bearing electronics
- Lead aprons and shielding
- Includes all cathode ray tube (CRT) screens □ Compressed gases (generally, any that are ignitable) □ Waste pesticides, fungicides, etc.
Cerrobend—X-ray shielding putty used to protect patients from damage to adjacent healthy tissue during irradiation of tumors and other confined areas. Contains Lead and Cadmium. Discarded material and shavings can be characteristic toxic HW when disposed.

The information found in this section is not intended to be comprehensive or definitive, it is strictly informational. For questions about the disposal of other non-pharmaceutical chemicals, universal waste and hazardous waste please contact UofU EH&S 801 581-6590 or questions@ehs.utah.edu.

Offsite clinics and facilities are responsible for appropriately managing their wastes and are responsible for paying any associated disposal costs. Offsite clinics must store regulated medical waste, including filled sharps containers and closed potentially infectious waste bags, in an area that is designated and clearly labeled with the word biohazard or the universal biohazard symbol, that is properly ventilated, located to minimize exposure to the public, and that is accessible only to authorized personnel. Stored potentially infectious waste shall be kept in closed bags that are placed in rigid secondary containers. All outdoor regulated medical waste storage sheds must be kept locked when unattended. Offsite clinics are responsible for maintaining a three-year record of disposal for all regulated medical wastes.

Potentially Infectious Materials, regardless of clinic location, are to be placed in a plastic lined, receptacle, bearing the universal biohazard label. Potentially infectious material must be clearly identified at all times (point of generation, waste removal by custodians, storage, etc.); this can be accomplished by keeping potentially infectious waste bags in rigid secondary containers that bear a biohazard label or by the use of red hazard waste bags. Potentially infectious waste bags (of sufficient strength to prevent tearing or bursting under normal conditions of use and handling) must be closed prior to removal from secondary receptacles to prevent spillage or protrusion of contents during handling, storage, and transport. If potentially infectious waste bags are found leaking or with outside contamination, it shall be placed in a second bag. Potentially infectious material includes items contaminated with blood or other potentially infectious material and pathological and microbiological wastes containing blood or other potentially infectious material. Liquid or semi liquid blood or other potentially infectious material is to be first solidified and then disposed of in a biohazard waste receptacle. Potentially infectious material is to be safely disposed of as regulated medical waste.

Hand Sanitizer. Hand sanitizer is highlighted as it is a RCRA waste due to the fact that it is flammable, a point sometimes overlooked.

Spill Response

The general spill response is:

- If not a direct hazard, stop any spill from continuing.
- Isolate and secure the area to prevent personnel and patient exposure and spreading of the material.
- Notify all individuals in the area of the spill, neighboring areas and the HCC and/or supervision.
- For chemotherapy spills at the Hospital campus - small spills (<5 ml) may be handled by trained staff, for larger spills contact Environmental Services at 581-2253. Follow spill procedures outlined.
in the UNIVERSITY OF UTAH HOSPITALS AND CLINICS POLICY MANUAL, SAFE HANDLING OF HAZARDOUS DRUGS: OVERVIEW AND GENERAL PROCEDURES POLICY.

➢ For mercury spills at the main hospital campus - contact Environmental Services at 581-2253
➢ For chemical spills contact Environmental Health and Safety for advice and counsel at 5816590. After hours call 585-2677 (5-COPS).

➢ For spills of radioactive material from Nuclear Medicine patients, contact Nuclear Medicine at 12716; for any other radioactive material spill, contact Radiological Health at 1-6141. After hours call 585-2677 (5-COPS).

➢ Remember to use the Body Substance Precautions, as outlined in the Hospital and Clinics blood borne pathogens program when cleaning up blood or other potentially infectious materials!

Contacts: Following is a short list of contacts for selected materials. These are not necessarily responders, but groups with technical information. The general number for Environmental Services at the University hospital is 801 585-2216. The general number for Environmental Services at HCH is 7-4256.

<table>
<thead>
<tr>
<th>Hazardous Material</th>
<th>Where typically found</th>
<th>Additional Resources</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cytotoxic agents (chemotherapy)</td>
<td>Huntsman Cancer Hospital, Bone Marrow Transplant, Home Infusion, Clinic 1 Infusion Center, Huntsman Infusion Center, Inpatient Clinics, Rehab II, Pharmacy</td>
<td>• Environmental Health and Safety (EH&amp;S) 581-6590</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Drug Info Center 587-2073</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Environmental Services (small spills) 581-2253</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Pharmacy IV Center: 581-2244</td>
</tr>
<tr>
<td>Anesthetic gases</td>
<td>Throughout facility Main OR’s and Recovery, Short Stay/Laser, Burn OR, Labor and Delivery, Special Procedures, Huntsman OR’s and Recovery, Orthopedic Center OR’s and Recovery, Madsen OR’s and Recovery’s, Moran OR’s and Recovery</td>
<td>• Environmental Health and Safety (EH&amp;S) 581-6590</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Anesthesiology workroom 5814143</td>
</tr>
<tr>
<td>Radionuclides</td>
<td>Huntsman Cancer Hospital, S South, Bone Marrow Transplant, Clinical sites, Nuclear medicine, Rad. Oncology, Interventional Radiology, Short Stay Nursing</td>
<td>• Nuclear Medicine: 581-2370;</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Radiological Health: 581-6141</td>
</tr>
<tr>
<td>Glutaraldehyde / formaldehyde</td>
<td>Cold Sterilization throughout facility</td>
<td>• Environmental Health and Safety (EH&amp;S) 581-6590</td>
</tr>
<tr>
<td>Ethylene Oxide</td>
<td>Surgical Processing, Orthopedic hospital (planned)</td>
<td>• Environmental Health and Safety (EH&amp;S) 581-6590</td>
</tr>
<tr>
<td>Cleaning solutions</td>
<td>Throughout facility</td>
<td>• E.S. Storeroom: 581-2672</td>
</tr>
<tr>
<td>Medications</td>
<td>Throughout facility</td>
<td>• Drug Info. Center: 581-2073</td>
</tr>
</tbody>
</table>
Radiological Hazards

NOTE: This is not a policy document on handling radioactive materials. A policy document on this issue can be found under the “Use of Radioactive Materials Policy” maintained by the radiological health group.

Purpose
The purpose of this section is to provide Radiation Safety information to personnel who do not routinely work with radiation generating machines or radioactive materials. Personnel who regularly use radiation generating machines or radioactive materials are referred to the Radiation Safety Manual and the University's Radiation Safety policy for specific information concerning the radiological hazards in their area. These documents are available by contacting the Radiological Health Department at 1-6141, or at www.rso.utah.edu.

Introduction
Radiation generating machines and Radioactive Materials must be properly managed and pre-approved for each use. The use of radiation generating machines and radioactive materials is granted to the University by the Utah Division of Radiation Control through regulated licensing and registration.

Oversight of radiation generating machines and Radioactive Materials is the responsibility of the University's Radiation Safety Committee and the Radiation Safety Officer (RSO). The RSO also serves as the director of the Radiological Health Department (RHD). The RHD maintains an onsite monitoring and audit program. This is to ensure that all occupational and non-occupational exposures to radiation comply with regulatory limits and that all radiation exposures are kept As Low As Reasonably Achievable (ALARA). Compliance with the ALARA principle not only ensures that the University complies with regulatory standards, but also reduces overall exposure by performing a risk benefit analysis.

Contents:
1 Radiation Emergencies
2 Emergency Contact Information
3 Radiation Warning Signs
4 Radioactive Material Spills
5 General Radiation Protection Practices
6 Frequently Asked Questions concerning Radiation Exposure

1 Radiation Emergencies
During an on-going emergency, warn other individuals to ensure they clear the area. Emergencies involving radiation generating machines or radioactive material must be reported to the Radiological Health Department. During normal business hours, contact the main office at 1-6141. After-hours call SCOPS (5-2677). Additionally, insure the managing department is also contacted.

2 Emergency Contact Information
Radiological Health Department 581-6141
Nuclear Medicine (Radioactive Material from patients) 581-2370
Radiation Oncology (Therapeutic radiation machines / Sealed Sources) 581-2396
Radiology (Diagnostic X-ray machines) 581-2306
Cyclotron/PET 1-800-793-2560
Security 585-2677
Emergency Department 581-2291
3 Radiation Warning Signs “Caution Radioactive Materials”
These signs are posted on doors and passageways leading to areas in which radioactive materials are stored or used. They generally pose no exposure hazard.

"Caution x-ray"
These signs are posted on doorways and passageways leading to areas in which x-ray machines are used. Radiation exposure is only present when equipment is turned on and activated. They generally pose no exposure hazard from normal operation.

"Radiation Area"
This sign is only posted in areas in which the radiation exposure rate exceeds 5 mRem per hour. This sign may be posted in conjunction with other radiation warning signs. Only authorized individuals may enter these areas.

"High Radiation Area"
This sign is only posted in areas in which the radiation exposure rate exceeds 100 mRem hour. This sign may be posted in conjunction with other radiation warning signs. Only authorized individuals may enter these areas.

Labeling
All containers containing radioactive materials are labeled with a radiation trefoil symbol and details about the compound and the quantity of radioactive material. Radiation generating machines are also labeled and include a statement that the equipment will produce radiation when energized. You should not handle material labeled as radioactive.

Examples of signs and labels you may see:

4 Radioactive Material Spills
Radioactive material spills should only be cleaned by appropriately trained radiation workers. If you are in an area where a radioactive materials spill has occurred you should first notify Radiological Health and the managing department. If appropriate, you should stop the spill, prevent it from spreading, and keep it from contaminating individuals, including yourself.

5 General Radiation Protection Practices
Always familiarize yourself with your working environment and learn to recognize radiation warning signs. Follow all radiological safety rules, and notify responsible individuals if you notice things out of the ordinary. Recognize that all radiological activities are thoroughly reviewed and efforts are made to prevent unintentional exposures.

Follow the principles of "less time", "greater distance" and "more shielding". The less time spent around a radiation source, the lower your exposure; the greater the distance between you and a radiation source, the lower your exposure; and more shielding between you and a radiation source, the lower your exposure.
Frequently Asked Questions concerning Radiation Exposure

Could I get cancer from radiation exposure?

Radiation is considered a weak carcinogen; however there is a small statistical chance that an individual exposed to radiation will contract cancer in their lifetime. Specifically, it has been shown that exposure to 1 Rem of radiation increases an individual’s chance of cancer by 0.08%. (This is about the same risk of being in a fatal car crash when driving 40 miles.) In the United States, approximately 40% of the population will contract some form of cancer in their lifetime. Being exposed to 1 Rem of radiation increases the risk from 40% to 40.08%.

How do I know if what I am working around is really safe? How hazardous is it?

Precautions are taken to ensure that workers are not unknowingly exposed to radiation. Before any individual is allowed to enter an area in which radiation exposure is likely, they must be trained about the radiation hazards specific to the area. If you have not received training about an area, please contact the Radiological Health Department.

If I start feeling sick, is it from radiation exposure?

By far, the vast majority of radiation use at the University is very low level. It is highly unlikely that an individual worker would receive a radiation dose high enough to cause symptoms of illness. Exposure rates in uncontrolled areas around the University are at or near background levels. The dose required to cause an individual to begin feeling the effects of Acute Radiation Syndromes are in excess of 70 Rem. Any employees likely to receive a measurable, significant dose are issued a radiation dosimeter for monitoring by the Radiological Health Department.

How will I know when to call someone about something I see that is concerning?

If you ever have a concern or question, or see a situation that makes you uneasy, please make a call.

If I am pregnant; will the radiation harm my baby?

For individuals working in non-radiation areas, the chance of harm to your baby will not increase because of radiation use at the University. If you are a radiation worker and are pregnant, you may contact the Radiological Health Department to receive specific information about actions to take in order to reduce the risk from radiation to your unborn child.

Please feel free to contact the Radiological Health Department for further information or with any other questions: 1-6141.

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11. X-RAY RADIATION PROTECTION MANUAL

X-RAY RADIATION PROTECTION
For Diagnostic X-ray use at the University of Utah Hospitals and Clinics

Revision 2 October 2010

Signed: ____________________ Date: 31 Oct 10
Steve Stevens, MD, Director Radiology

Signed: ____________________ Date: 10/21/2010
Peter Jenkins, MS, CTIP, Medical Physicist

Annual Review Completed: ____________________ by: ____________________

For questions, comments, or requests for revisions in this manual, contact the Diagnostic Radiological Medical Physicist listed in Section 2.1 of this manual.
Summary of Changes for Revision 2A, 6/28/2011:

1. Add updated “Consent for Diagnostic Imaging During Pregnancy” form
2. Remove outdated Attachment D
3. Corrections to Estimated Exposure Levels from Fluoroscopy Table, pg 17
   4. Spelling corrections

Peter Jenkins
6/28/2011

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PURPOSE AND SCOPE

The University of Utah Hospitals and Clinics is committed to an effective radiation protection program to eliminate unnecessary exposure of patients and personnel to ionizing radiation and to reduce all exposures to levels that are as low as reasonably achievable (ALARA). The information presented in this manual pertains to the diagnostic medical use of x-ray equipment used in the University of Utah Hospitals and Clinics.

Ionizing radiation from many different sources is used throughout the University. Each separate use has been addressed separately by the programs responsible for use in their areas. Programs with major responsibility over the use of ionizing radiation sources include Radiological Health, Radiation Oncology, Radiology, Radiopharmacy, as well as individual departments in which ionizing radiation is used on a limited basis.

This manual has been prepared in accordance with Utah Division of Radiation Control Administrative Rule R313-28-31(c) as applicable to the diagnostic use of machine produced radiation.

KEY PERSONNEL

The use of x-ray machines is supervised by key individuals in two different departments, the diagnostic radiological medical physicist in the Department of Radiology and the radiation safety officer in the Department of Radiological Health. Additionally, the University of Utah Radiation Safety Committee has general oversight responsibility for all uses of ionizing radiation by University entities. Below is a summary description of the roles and responsibilities of each.

2.1 Diagnostic radiological Medical Physicist

The diagnostic radiological medical physicist (DRP) prepares, implements, and supervises radiation safety and quality assurance procedures relating to image quality, radiation dose, and radiation protection within the University of Utah Hospitals and Clinics. These responsibilities apply to all areas of non-therapeutic medical use of x-ray radiation (e.g. general radiography, cardiology, orthopedics, etc). The DRP is recognized by the State of Utah as a Qualified Expert (R313-16-215) and a Mammography Imaging Medical Physicist (R313-28-140).

The DRP regularly inspects all diagnostic radiographic equipment in order to demonstrate compliance with applicable regulations and accreditation requirements. Inspections are performed at intervals established by rule (e.g. R313-16-290), accreditation requirements, inhouse determined time intervals, and as needed to ensure compliance with applicable rules (e.g. R-313-28) after significant maintenance or repair or any other event in which beam output or image quality could be affected. Accordingly, the DRP should be contacted after any of the following events:

- New machine purchase/installation
- Transfer of machine from different registrant or different location
- X-ray tube replacement
- Major maintenance to mechanical support system
Repair or replacement of components affecting patient dose
Any significant error, malfunction, or abnormal occurrence
Whenever there are questions regarding function, output, or use that cannot be answered by operator

The DRP may be called to provide training for employees, as needed in order to comply with applicable rules. Training is provided to hospital and clinic personnel involved in the care of patients receiving x-ray. Area specific training is provided by each area supervisor and includes awareness training for all employees regarding the use of radiation machines in the area. Section 5 of this manual further outlines training guidelines.

Currently, the Diagnostic Radiological Medical Physicist for the University of Utah Hospitals and Clinics is:

Peter Jenkins, MS, CHP
Department of Radiology (801) 585-0235 peter.jenkin@hsc.utah.edu

2.1.1 Dose calculations

In addition, the DRP may also be called upon to perform dose calculations for patients receiving radiation exposure due to diagnostic procedures. Generally, there are four scenarios in which dose calculations are performed: 1) Dose to patients, 2) Dose to the fetus, 3) Dose to the public, and 4) Dose to the worker. Calculations will be performed using best estimates based on current science and practices within the hospitals and clinics; or, when available, actual data from specific exam will be used. Dose calculations will be based on Standard Man references for average organ and body sizes, unless actual patient data would significantly alter calculation results. All results will include a calculation of effective dose equivalent based on ICRP 60 methodologies; ICRP 26 methodology will be used if specifically requested or for dose calculations that will be used to demonstrate compliance with State of Utah dose limits.

Dose to patients

Dose to the patients is calculated for patients undergoing diagnostic procedures involving exposure to ionizing radiation from radioactive materials or radiation generating machines.

Most often, these calculations are performed in support of applications to the Institutional Review Board for individuals undergoing procedures outside normal standard of care practice as part of a research proposal. Calculations may also be performed at the request of a physician on behalf of a patient who has received diagnostic imaging. Calculations results will be provided to individual requesting dose calculation: the requesting physician in the case of actual patient exposure or the principle investigator (or designee) in the case of research proposals.

Dose to the fetus

Exposure of pregnant patients and workers is discussed in section 6. Fetal dose calculations are performed upon request of the patient’s physician. Results will be provided to the patient’s physician and not directly to the patient. Based upon the results of the fetal dose calculation or the circumstances
prompting the request for calculation, a detailed report may be prepared by the DRP to assist the patient’s physician in understanding the basis for the results and likely effects.

_Dose to the public_

Compliance with public dose limits is mainly demonstrated through calculations performed for shielding recommendations and as radiation use in areas change. These calculations are performed as needed and results are maintained in the office of the DRP. Because of the many different areas of radiation use, each area supervisor should notify the DRP of any changes in radiation use (to include workload) or location so that a formal determination of effect of public dose can be completed.

Additionally, the DRP will be involved with shielding design as part of new construction or remodeling of any area in which ionizing radiation will be used.

_Dose to the worker_

Typically, worker exposure is best determined through the use of dosimetry. However, in situations where dosimetry is unavailable (because of lost/damage dosimeter or unmonitored employees), calculations will be performed to assess occupational exposure. Additionally, calculations may be performed to assist in facility planning and work-flow issues.

2.2 Radiological Health Department

The use of radioactive materials is governed by regulation and the issuance of radioactive materials licenses through the Utah Division of Radiation Control (DRC). Radioactive materials licenses outline specific requirements of the program and limit the scope of use in certain areas. The Radiological Health Department (RHD), directed by the Radiation Safety Officer, is primarily responsible for ensuring compliance with radioactive materials regulations and license conditions. Information regarding the use of radioactive materials can be found on the RHD website: http://www.rso.utah.edu.

Radiation generating machines are not governed by the same regulations as radioactive materials; the use of radiation generating machines does not require a radioactive materials license. However, The RHD maintains a list of all radiation generating machines and ensures proper registration with DRC.

The Radiological Health Department provides oversight for overall radiation dose and monitoring services. Radiation dose monitoring is provided to users of x-ray equipment through RHD with close cooperation from the DRP. Section 3.2 further discusses the relationship between RHD and the DRP and radiation monitoring policy.

Currently, the RSO for the University of Utah is:

Karen S. Langley, MS
Radiological Health Department
(801) 581-6141 karen@rso.utah.edu
2.3 Radiation Safety Committee

The Radiation Safety Policy Manual states:

The Radiation Safety Committee (RSC) is the governing body for all aspects of radiation protection within the University, including all affiliated research, clinical, instructional and service units utilizing radiation sources in facilities owned or controlled by the University. The Committee [ensures] that all possession, use and disposition of radiation sources by University personnel complies with pertinent federal and state regulations and with the specific conditions of licenses issued to the University, and that all concomitant radiation exposures are maintained ALARA.

The RSC is composed of individuals who represent the various uses of radiation within the University and are knowledgeable and experienced in the safe use of radiation sources, as well as individuals representing various administrative and service functions. Representatives of the nursing service and of University management are required on the Committee. [...] 

The RSC is empowered and directed to promulgate policies, rules and procedures for the safe use of radiation sources. The RSC is responsible for assuring that only qualified individuals are permitted to use radiation sources or to supervise such use by others. The RSC oversees, reviews, and audits the activities of the Radiation Safety Officer (RSO) and supporting staff, and all users of University radiation sources. The RSC reports to the Vice President for Research. The RSC may, at its discretion, establish subcommittees to perform specific functions on behalf of the entire committee.

3 GENERAL

The following general information applies to all uses of x-ray equipment. These minimum rules and principles should be adhered to by all users of x-ray machines. The rules provided in section 3.1 are the minimum operating rules required by State regulation. Failure to comply with these minimum rules could result in a violation or citation to the University Hospitals and Clinics. It therefore becomes incumbent upon each user of x-ray equipment to be thoroughly familiar with these rules and how they apply in each employee’s specific area.

3.1 Radiation protection rules

The following radiation protection rules apply to all areas where diagnostic x-rays are used. These rules are based strictly on DRC rules (R313-38-31) and must be closely followed to ensure no violation of regulatory requirements. Each modality supervisor will be primarily responsible to ensure that the basic radiation protection rules are available to the staff in his or her area and that each employee has been sufficiently informed.

Each diagnostic modality area (e.g. CT, Specials, Diagnostic, Mammography, etc) will establish and make available:

- written safety procedures specific to the area
- restrictions of operating techniques required for the safe operation of x-ray systems
Except for individuals who cannot be moved out of the room and the patient being examined, only the staff and ancillary personnel or other individuals needed for the medical procedure or training shall be present in the room during the radiographic exposure and shall be positioned as follows:

- individuals other than the patient shall be positioned so that no part of the body will be struck by the useful beam unless protected by not less than 0.5 mm lead equivalent material;
- the x-ray operator, other staff, ancillary personnel and other individuals needed for the medical procedure shall be protected from primary beam scatter by protective aprons or barriers unless it can be shown that by virtue of distances employed, exposure levels are reduced to the levels such that occupational dose limits are not exceeded (limits specified in R313-15-201); and
- patients who are not being examined and cannot be removed from the room shall be protected from the primary beam scatter by whole body protective barriers of not less than 0.25 mm lead equivalent material or shall be so positioned that the nearest portion of the body is at least two meters from both the tube head and nearest edge of the image receptor.

For patients who have not passed reproductive age, gonad shielding of not less than 0.5 mm lead equivalent material shall be used during radiographic procedures in which the gonads are in the useful beam, except for cases in which this would interfere with the diagnostic procedure.

Individuals shall be exposed to the useful beam for healing arts purposes only when the exposure has been specifically ordered and authorized by a licensed practitioner of the healing arts after a medical consultation.

Deliberate exposures of an individual for training, demonstration or other non-healing arts purposes are prohibited.

When a patient or film must be provided with auxiliary support during a radiation exposure:
  - mechanical holding devices shall be used when the technique permits. The written procedures, developed for each modality area, shall list individual projections where mechanical holding devices can be utilized;
  - written safety procedures shall indicate the requirements for selecting an individual to hold patients or films and the procedure that individual shall follow;
  - the individual holding patients or films during radiographic examinations shall be instructed in personal radiation safety and protected as required above;
  - Individuals shall not be used routinely to hold film or patients;

In those cases where the patient must hold the film, except during intraoral examinations, portions of the body other than the area of clinical interest struck by the useful beam shall be protected by not less than 0.5 mm lead equivalent material; and

Facilities shall have protective aprons and gloves available in sufficient numbers to provide protection to personnel who are involved with x-ray operations and who are otherwise not shielded. (See Section 9 for discussion concerning radiation protection devices)

3.2 General Radiation Protection Principles

Many aspects of radiation safety can be applied for all types of radiation exposure, whether the source of exposure is from radiation generating machines or from radioactive materials. The following information applies to radiation exposure.
3.2.1 Radiation Units

Below is a list of the most commonly encountered radiation units. These terms are given below for convenience because of their frequent use in radiographic sciences:

*Exposure:* The unit of radiation exposure is the Roentgen (R). Radiation exposure is defined as amount of charge generated in a volume of air due to interactions of x- or gamma-ray radiation. Exposure only describes the amount of radiation that one is “exposed” to; it does not describe the amount of energy actually absorbed by an individual (dose). Exposure is most commonly used for relating skin exposure from x-ray exposure, ESE = Entrance Skin Exposure.

*Dose:* Dose is a measure of the amount of energy absorbed in a mass, such as a tissue or body, from exposure to ionizing radiation. The common unit of dose is the rad and the international scientific unit is the grey (Gy). 100 rad = 1 Gy. 1 rad = 100 erg/gm. 1 Gy = 1 J/kg.

*Dose Equivalent:* Although the amount of energy absorbed in a tissue or body can be measured this alone does not describe the risk associated (usually to fatal somatic cancer) with a given exposure. The unit of dose equivalent accounts for the type of radiation which deposited dose as well as the tissue or organ in which the dose was deposited. This allows for some correlation between absorbed dose and risk. The unit of dose equivalent is used for radiological protection purposes and should not be used for discussing organ doses and exposures. 100 rem = 1 Sv. 1 rem = 100 erg/gm. 1 Sv = 1 J/kg. Most common use is in reporting occupational dose.

3.2.2 Radiation Dose Limits

Radiation Dose Limits are given for occupational and non-occupational exposures. Dose limits are set by governmental bodies and are part of the Utah Administrative Code (R31315-201).

<table>
<thead>
<tr>
<th>Dose Limit (per year)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Occupational Dose Limit for Adults:</td>
</tr>
<tr>
<td>5 rem</td>
</tr>
<tr>
<td>Non-occupational Dose Limit (Member of the Public and Non-Radiation Workers):</td>
</tr>
<tr>
<td>0.1 rem</td>
</tr>
<tr>
<td>Pregnant Worker Dose Limit:</td>
</tr>
<tr>
<td>0.5 rem (9 months)</td>
</tr>
</tbody>
</table>

In addition to the above Radiation Dose Limits, the University of Utah Hospitals and Clinics adheres to the principle of ALARA (As Low as Reasonably Achievable). The ALARA principle is an approach to radiation exposure which considers both the amount of exposure as well as the need for exposure; it is a risk-benefit approach to exposure. Simply stated, even though an individual may be exposed at a level less than the dose limit, if there is no need (or benefit) for the exposure, the exposure should be limited.

Accordingly, ALARA limits have been established for occupationally exposed individuals. ALARA limits are established as a guideline to radiation exposure meant to assist with identifying potential poor practices. The following ALARA limits apply for diagnostic use of radiation generating machines:
3.2.3 Radiation Exposure Monitoring

Radiation Exposure Monitoring is managed through a partnership between the Radiological Health Department and the DRP. As discussed above, the Radiological Health Department has ultimate oversight responsibility to ensure that dose limits are not exceeded. In order to accomplish this, RHD distributes radiation monitoring badges to those individuals likely to exceed 10% the annual occupational dose limit. The DRP assists in identifying individuals who should be monitored.

Personnel dosimeter badges are designed to monitor radiation exposures only from external x-ray, gamma ray or other sources of "penetrating" radiation. They are not useful for monitoring exposures from internal sources, for example, which might result from accidental inhalation or ingestion of radioactive material. This is an exposure that is monitored in other ways, for example, by measuring radioactivity in blood or urine samples. Dosimeter badges give no effective information about this problem.

From a strictly legal point of view, Utah Division of Radiation Control regulations require that only those persons for whom there is a reasonable chance of exceeding 10% of the annual occupational exposure limit (500 mrem) or those who operate a fluoroscopic x-ray unit. For personnel unlikely to receive 100 mrem/quarter or operators who have been given specific exemption by the Utah Radiation Control Board, the wearing of dosimetry is not required. Generally, the decision to badge an employee is determined for all employees in an area. However, it is often necessary to determine the need on an individual basis. If you have any questions regarding the policy as it applies to you (or your area) or feel that you would like to start or stop being monitored, contact the DRP.

Personnel dosimeter badges are devices that are worn on the collar (or, if issued, belly or finger) to monitor radiation levels accumulated over a period of time, such as weeks or months. They serve several purposes in a radiation protection program, even when anticipated or usual exposures are small. Their use ensures that unanticipated exposures do not go undetected. They may point out areas where radiation protection measures are inadequate. They serve as a constant reminder to maintain safe working habits. They provide the best legal evidence of actual radiation exposures to workers. Accordingly, any evidence of tampering may be viewed as malicious and will be investigated (see University of Utah Radiation Safety Policy Manual).

Individuals involved in long fluoroscopic procedures may be required to wear two radiation monitoring badges to more accurately measure the individual’s radiation exposure by accounting for the radiation

<table>
<thead>
<tr>
<th>Cardiac Catheterization Laboratory</th>
<th>300 mrem/month</th>
</tr>
</thead>
<tbody>
<tr>
<td>Specials/Interventional Radiology</td>
<td>300 mrem/month</td>
</tr>
<tr>
<td>General Diagnostic Radiological Procedures</td>
<td>100 mrem/month</td>
</tr>
</tbody>
</table>
protection provided by the radiation protection equipment (e.g. aprons, thyroid shields, etc). One badge is worn at the collar, on the outside of any protective device; the other badge is worn at the waist under any protective device. If you are issued two dosimeters, care should be taken to ensure they are worn correctly as any error will result in an incorrect dose assignment and possibly trigger an ALARA or more thorough investigation. Two-badge monitors are labeled with a graphic to assist with reminding the wearer of which badge is worn in what location.

3.2.3.1 RHD Policies Regarding Dosimeter Badges

The University pays all of the basic costs for providing employees with a dosimeter badge, but expects that the wearer will take care of it and handle it properly. For this reason the wearer will be expected to pay the cost of lost or damaged badges.

Late return of badges complicate record keeping. For this reason, Radiological Health has established additional fees for late badges. Again, it is the employee's responsibility to exchange badges on time and to pay any "late badge" fees.

Dosimeter badges form part of the basis for the legal employment record with the University, and thus it is important that the readings be accurate. For this reason, employees should ensure they follow all correct procedures for wearing and handling the badge. "False readings", whether low or high, serve no useful purpose and can only lead to potential problems in the long run.

3.2.4 Exposure Monitoring Opt-out

Employees who are monitored for radiation dose and have been issued a dosimeter for regular monitoring may opt-out of participation in the monitoring program if:

The individual’s dose record demonstrates occupational exposures have remained less than 100 mrem per year

The individual’s work responsibilities are such that exposures are expected to remain less than 100 mrem per year

Individuals who have been issued a radiation dose monitoring device and wish to no longer participate in the monitoring program must request in writing to be removed from the program.

Attachment G, REQUEST FOR WITHDRAWAL FROM EXTERNAL RADIATION

DOSE MONITORING PROGRAM, may be used to assist with written request

All requests for removal from monitoring program will be reviewed by the Diagnostic Medical Physicist. The results of this review will be sent to the Radiological Health Department for final review and decision regarding the request.

The Radiological Health Department, as the administrator of the dose monitoring program, retains the right to approve or disapprove any request.
Any individual who has previously requested and has been removed from the dose monitoring program may request to rejoin the program at any time.

It is the responsibility of any individual who has withdrawn from the dose monitoring program to notify the Diagnostic Medical Physicist or the Radiological Health Department if any changes in workload or responsibilities occur that will affect the individual’s occupational dose.

Individuals who are in a “Student” or “ Resident” status may not withdraw from the dose monitoring program.

Individuals who work primarily with/around fluoroscopic machines may not withdraw from the monitoring program without a complete exposure survey report of the work environment.

3.2.5 Exposure Reduction

The principles of exposure reduction apply for all types of radiation and are simple in nature: Time, Distance, and Shielding. Very simply put, the less time spent around a radiation source, the lower the exposure; the more distance from a radiation source, the lower the exposure; and, the more shielding used (see section 9), the lower the exposure. Each of these elements must be weighed by the employee to ensure that patient care and job performance is not adversely impacted by an employee’s decision. If you have questions regarding exposure levels in your area or have questions on issues concerning allowable exposure and possible ways to minimize your dose, contact the radiological physicist.

4 X-RAY OPERATORS

Generally speaking, the operator of x-ray equipment must be a board certified radiologist, a radiology practitioner, a radiologic technologist, or a radiology practical technician. It has been determined that radiologists and radiology practitioners are able to operate x-ray equipment by nature of their professional credentialing. Other individuals must demonstrate competence through participation in an educational program and by obtaining credentials through the Utah Division of Professional Licensing. All radiology technologists must meet the requirements put forth in Utah Code Section 58, Title 54 as well as specific rules contained in Utah DRC Administrative Code.

Operators of x-ray equipment are defined as either (R313-28):

the individual who makes the radiation exposure or,

the individual responsible for insuring that the appropriate technique factors are set on the xray machine.

---

1 In the State of Utah, a Radiology Practitioner is defined as “any person or individual licensed in this state as a physician and surgeon, osteopathic physician, podiatric physician, chiropractic physician, dentist, dental hygienist, or a physician's assistant, nurse practitioner, or nurse specialist practicing under the supervision of an approved supervising physician and in accordance with an approved protocol and utilization plan.” (Utah Code Title 58 Chapter 54)
equipment.

4.1 Assisting x-ray operators

Often times an x-ray operator may need assistance while operating an x-ray device. For instance, a surgeon may be operating a portable c-arm without the assistance of a radiological technologist. During the procedure, the surgeon may need assistance with manipulation and operation of the equipment. In this situation, the surgeon is considered the x-ray operator, but because his or her “hands are full” and/or is “scrubbed in” may need assistance. In these situations it is acceptable for the operator to request assistance from a non-operator in order to provide the best care for the patient. The operator may request any employee to assist with the operation of the equipment.

Any employee who has been requested to assist with procedures in an area where radiation exposure is possible should receive the minimum applicable awareness training. See section 5 below.

Care should be taken to ensure that each x-ray operator has sufficient training and experience to operate x-ray equipment. This is especially important for the use fluoroscopic equipment. Physicians, surgeon, and other radiology practitioners who do not have sufficient training and experience to operate a piece of equipment should request assistance from a properly trained radiological technologist or radiology practitioner.

5 TRAINING

Training for individuals who work in areas where diagnostic x-ray equipment is used varies by assignment or task. All employees, including x-ray operators, who work in areas where ionizing radiation may be encountered, are required to receive general awareness training from his or her supervisor. Area specific training must at least include operating procedures, emergency procedures, radiation use areas, and any other information regarding issues unique to the use of radiation in their area.

5.1 Training for x-ray operators

There is no specific required training for operators of x-ray equipment, other than area specific training (i.e. department policies, procedures, etc). By nature of an individual’s qualifications to meet the State’s definition of an x-ray operator, the individual has demonstrated adequate knowledge, training, and experience. Accordingly, by maintaining applicable professional certifications, an individual demonstrates continuing qualifications for the operation of x-ray equipment.

5.2 Training for fluoro users

Though not specifically required, all individuals who operate fluoroscopic x-ray equipment are encouraged to complete a course in fluoroscopic radiation safety. Currently, the course is available to all individuals and can be taken online. This course is available upon request.

5.3 Training for employees in radiation use areas

From time to time, an employee’s job responsibilities may require that he or she may be present in an
area where radiation is used and the employee may be unmonitored. Most commonly, nurses may assist during a procedure in which fluoroscopy is being used. Each employee must receive training regarding the levels of exposure, the effects of radiation, and the manner in which to reduce one’s exposure. Most importantly, the employee should be given the opportunity to raise any questions or concerns with a knowledgeable individual regarding exposure policy, individual exposure issues, and worker rights.

5.4 Training for non-radiation workers

The job nature of non-radiation workers is such that routine radiation exposure is not expected; thus, these employees are limited to the non-occupational dose limit of 100 mrem per year. Each of these employees will receive awareness training which will provide information on radiation sources in their work area and any unique conditions that may exist in their work area. Instruction must also be given on when, if at all, the employee may be asked to enter an area where radiation exposure may occur.

6 EXPOSURE DURING PREGNANCY

Exposures during pregnancy are subject to specific guidelines. Differences exist between approaches for exposure to pregnant works and exposure of pregnant patients.

6.1 Exposure of Pregnant Employees

Exposure limits during pregnancy are based on National Council on Radiation Protection – No. 116 requirements, which state that exposure shall not exceed 5 mSv (to the fetus) during the entire gestational period (limited to 0.5 mSv per month).

When a female employee begins work in the Radiology Department in any area where radiation exposure is possible, she is required to sign a statement (Attachment A) indicating she is aware of her choice to either declare or not declare her pregnancy in the event she does conceive at some future date.

The embryo or fetus is subject to greater risk of injury than an adult per unit radiation dose. However, the University cannot be aware of or control the dose without the full cooperation of the pregnant employee. Any employee who believes she may be pregnant and chooses to declare her pregnancy should notify her supervisor. With the cooperation of the employee, the University will take all reasonable actions to evaluate and limit the embryonic-fetal dose as required.

6.1.2 General Guidelines and Recommendations

Once an employee has declared that she is pregnant, a review of the previous six months of exposure records for the employee and others in the same work area will be reviewed. If these records indicate exposure rates of less than 5 mSv per year, the employee can continue in the same work assignments with periodic monitoring for guidance. If the dose is likely to exceed 5 mSv to the fetus, the work assignment should be changed before the exposure estimates reach 5 mSv for the fetus. Any work assignments will be discussed and defined by the employee’s supervisor.

A review of radiation exposure data for Radiology Department personnel indicates that by far the
majority of readings from body badges fall within the required limit of 0.5 mSv per month. This is in accord with the comments of experts who have stated that pregnancy does not automatically require that a female technologist or radiologist be removed from the current work assignments (see Bushong, S.C., "The Development of Radiation Protection in Diagnostic Radiology, CRC Press, P. 41, and J. Nucl. Med. Technol., 14, Dec. 1986, p. 218-224). The same texts also recommend that pregnant employees not be assigned to "high risk" areas, such as fluoroscopy.

Accordingly, the following are general recommendations which should be applied for each pregnant employee, as appropriate:

Pregnant personnel should be assigned limited responsibilities that require them to work in close proximity to radiation sources such as fluoroscopy, to the extent practical. These restrictions should apply regardless of whether or not protective shielding is used.

They should work in protected areas or wear protective clothing whenever radiation sources are present or active.

Pregnant personnel should wear an additional pregnancy dosimeter. The badge should be worn at waist level. When lead aprons are worn, this pregnancy badge should be under the apron. All radiation exposure shall be carefully monitored by the DRP, and results shared with the pregnant employee on a monthly basis.

These recommendations and any supplementary materials, should be read by and fully explained to the pregnant employee by the DRP, to make sure she understands the restrictions and the reasons for them. Her radiation exposure history and past performance as an employee should be evaluated to determine if there are any questions as to reliability in following the guidelines. The declared pregnant worker will be required to fill out a work release and counseling form (Attachment B) indicating that she understands the risks involved and will strictly follow all radiation safety practices together with recommended work restrictions. Supervisors will carefully monitor the pregnant employee’s activities to ensure that the guidelines are being followed.

These recommendations do not apply to secretarial, clerical, or other employees in the department who do not work in areas when routine radiation exposure may occur.

6.1.3 Procedure for Declaration

If the pregnant employee agrees to declare her pregnancy (Attachment A), she has the responsibility to inform her supervisor immediately that she is pregnant, so that precautionary measures can be taken in her work assignment.

The supervisor will request the pregnant employee fill out a Work Release and Counseling Form (Attachment B).

The employee’s supervisor will determine, with the assistance of the DRP, if any changes in work assignment are needed. The supervisor will indicate what work assignment exceptions are necessary and
then sign the form.

The employee will then report to the Diagnostic Radiological Medical Physicist for further counseling in radiation protection and the effect of ionizing radiation on fetal development. The DRP will review the work assignment, recommend any changes to the employee's supervisor, and order an additional pregnancy badge.

The employee will then sign the Counseling portion of the form indicating that she has received instruction in ionizing radiation and the effects on the fetus, and will follow all required safety practices.

The completed form will then be placed in the employee's personnel file. A copy will be sent to Radiological Health and the Hospital Medical Physicist for their files.

6.2 Exposure of Pregnant or Potentially Pregnant Patients

The radiation dose to the fetus from conventional diagnostic procedures when the fetus is not in the X-ray beam is approximately the same as the daily background radiation dose received by the average American (= 10 μGy). The fetal dose from fluoroscopy when the fetus is not in the X-ray beam is typically less than 5 mGy. For examinations of body parts above the diaphragm or below the hips, there is no scientific evidence that the examination will result in any detectable harm to the fetus. Interventional imaging studies involving lengthy fluoroscopy and body CT scans using low pitch values can deliver fetal doses greater than 10 mGy.

Because health risks associated with radiation to the fetus are cumulative, previous exposure to radiation must be considered before new procedures are initiated.

6.2.1 Identifying the Pregnant Patient

The Radiology Department should be notified by the referring physician whenever a patient is known to be pregnant. This information should be stated on the pre-registration forms.

Before every radiographic or fluoroscopic x-ray of the abdomen/pelvis, body CT, or interventional procedure, the receptionist shall require a “Pregnancy Questionnaire” (Attachment C) be completed by all female patients of child-bearing age (age range, 12-50 years) asking whether she is, or may possibly be, pregnant. The radiologist in charge should be notified about any pregnant or possibly pregnant patients referred for imaging. If the patient is too sick to answer questions, the technologist should ask the family or treating physician. If a definitive answer about the patient’s pregnancy status cannot be obtained and the patient’s condition permits, a pregnancy test should be performed.

6.2.2 Pregnant Patient Exposure

For examinations in which the fetus is in the direct x-ray beam, the following is an estimate of fetal dose:

<table>
<thead>
<tr>
<th>Procedure</th>
<th>Estimated Fetal Dose</th>
</tr>
</thead>
<tbody>
<tr>
<td>General Radiographic AP Abdomen</td>
<td>1.5 mGy/view</td>
</tr>
</tbody>
</table>
If the estimated fetal dose is less than 10 mGy, the radiologist should discuss the benefits versus the risks of the procedure with the referring physician. If the examination is judged to be appropriate and necessary, the radiologist should document in the medical record that the imaging study is indicated for the patient management. The radiologist will explain the procedure to the patient and assure her that the risk to the fetus is small. The patient will be required to sign an informed consent (Attachment D). The radiation dose should be kept as low as possible consistent with obtaining the required diagnostic information.

For examinations in which the fetus is in the direct beam and the estimated dose is determined to be more than 10 mGy, the radiologist and the referring physician should discuss other options that could provide the needed information without the use of ionizing radiation. If the imaging procedure is deemed appropriate, the patient should be involved in the decision to proceed with the examination. The patient should be informed by the radiologist of the risks and benefits of the radiological procedure. The patient will be required to sign an informed consent form (Attachment D). The clinician responsible for the care of the patient should document in the medical record that the test is indicated for the management of the patient.

Technical principles to be followed in every pregnant patient:

Limit exposures to those that are absolutely essential for the diagnosis.

Every effort must be made to eliminate repeated exposures resulting from technical errors. Repeated exposures should not be performed without consulting the radiologist in charge.

Precise collimation and pelvic shielding should be used whenever possible.

Fluoroscopy should be limited to short bursts as needed. All fluoroscopy procedures must be timed, and a record of the fluoroscopy time must be kept. Newly installed fluoroscopy units may be equipped with a dose-area product (DAP) meter that will provide dose information. This information should also be recorded. The last image hold and electronic collimation features should be used during fluoroscopy. Use as high pitch as possible on CT scans.

The CTDivol values should be recorded for CT scans.

**7 USE OF FLUOROSCOPY**

The use of fluoroscopy results in higher exposure to patients and staff than conventional radiographic studies. All principles of radiation protection (i.e. time, distance, shielding, etc.) apply equally to the use of fluoroscopy as to other modalities.
CLINIC OPERATIONS REFERENCE GUIDE

The primary source of radiation exposure to attending personnel results from direct and indirect radiation exposure. For fluoroscopic machines, great care is taken to ensure that the primary x-ray beam is contained within the image intensifier. Direct exposure can only occur if hands or other body parts are placed directly in the path of the primary x-ray beam. Indirect exposure primarily occurs as a result of the radiation that is scattered as it interacts with the patient. Indirect exposure may also occur as a result of leakage radiation from the x-ray tube, but this is usually considered negligible when compared to the scatter fraction.

The following tables summarize radiation exposure levels for a typical C-arm fluoroscopic study:

<table>
<thead>
<tr>
<th>Primary Beam</th>
<th>With lead</th>
<th>Without Lead</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hands/arm without lead gloves</td>
<td>30 mR/min</td>
<td>3,000 mR/min</td>
</tr>
<tr>
<td><strong>Secondary Beam</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>At tableside (12-in from patient)</td>
<td>2 to 5 mR/hr</td>
<td>200 mR/hr</td>
</tr>
<tr>
<td>Eye level</td>
<td>0.1 mR/hr</td>
<td>20 to 50 mR/hr</td>
</tr>
<tr>
<td>3 feet from patient</td>
<td>1 mR/hr</td>
<td>20 to 40 mR/hr</td>
</tr>
<tr>
<td>&gt;6 feet from patient</td>
<td>&lt; 1 mR/hr</td>
<td>&lt; 5 mR/hr</td>
</tr>
</tbody>
</table>

The following minimum safety guidelines should always be observed when operating fluoroscopic equipment:

Avoid direct exposures to the primary x-ray beam

When it is necessary to stand at bedside to attend the patient during the x-ray study, always wear a protective apron (0.5-mm lead equivalency) and thyroid shield.

Keep radiation protection principles in mind. For example, at distances of six feet or greater from the patient, indirect exposure due to scatter and leakage radiation are so small that the wearing of lead aprons affords little additional protection.

Tight collimation should be used to the extent practical. Good collimation not only reduces the amount of scatter but also improves image quality.

The x-ray tube should be placed beneath the patient except where oblique or lateral views are required.

7.1 USE OF THE HIGH LEVEL CONTROL

The high level control (HLC), or “Boost”, is used occasionally in surgical or special interventional procedures to provide a clearer image through very thick patients or when imaging through the shoulders or pelvis. The use of the HLC on mobile c-arms can raise the radiation levels by a factor of 10 X the normal fluoroscopic levels. When the HLC button is engaged, the audio fluoroscopic indicator will beep at a more rapid rate. Because, excessive use of the HLC may result in radiation induced skin injuries, operators need
to be cautious to avoid over-utilization of the boost fluoroscopic mode during lengthy procedures.

7.2 Reporting of Long Fluoroscopic Exposures

In 1994, the Center for Devices and Radiological Health of the U.S. Food and Drug Administration (FDA) issued an advisory\(^2\) warning for healthcare facilities of the potential for radiation-induced skin injuries to patients from fluoroscopic procedures. Procedures typically involving extended fluoroscopic time, such as percutaneous transluminal angioplasty (coronary and other vessels), vascular embolization, stent and filter placement, etc. should be given special consideration relative to potentially serious, radiation-induced injuries. It should be noted that the onset of these injuries is usually delayed, so that the physician cannot discern the damage by observing the patient immediately after the treatment.

The absorbed entrance dose required to cause skin injury depends on a number of factors. Typical threshold doses for various effects are given in the table below:

<table>
<thead>
<tr>
<th>Radiation-Induced Skin Injuries</th>
<th>Typical Threshold (Gy)</th>
<th>Time of Onset</th>
</tr>
</thead>
<tbody>
<tr>
<td>Early transient erythema</td>
<td>2</td>
<td>Hours</td>
</tr>
<tr>
<td>Temporary epilation</td>
<td>2</td>
<td>3 weeks</td>
</tr>
<tr>
<td>Main erythema</td>
<td>6</td>
<td>10 days</td>
</tr>
<tr>
<td>Permanent epilation</td>
<td>7</td>
<td>3 weeks</td>
</tr>
<tr>
<td>Dry desquamation</td>
<td>10</td>
<td>4 weeks</td>
</tr>
<tr>
<td>Invasive fibrosis</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td>Dermal atrophy</td>
<td>11</td>
<td>&gt; 14 weeks</td>
</tr>
<tr>
<td>Telangiectasis</td>
<td>12</td>
<td>&gt; 52 weeks</td>
</tr>
<tr>
<td>Moist dequamation</td>
<td>15</td>
<td>4 weeks</td>
</tr>
<tr>
<td>Late erythema</td>
<td>15</td>
<td>6 – 10 weeks</td>
</tr>
<tr>
<td>Dermal necrosis</td>
<td>18</td>
<td>&gt; 10 weeks</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Radiation-Induced Eye Injuries</th>
<th>Time of Onset</th>
</tr>
</thead>
<tbody>
<tr>
<td>Threshold (Gy)</td>
<td></td>
</tr>
<tr>
<td>Lens opacity (detectable)</td>
<td>&gt; 2</td>
</tr>
</tbody>
</table>

\(^2\) U.S. Food and Drug Administration Public Health Advisory: "Avoidance of Serious X-ray Induced Skin Injuries to Patients During Fluoroscopically-Guided Procedures". Rockville, MD. (Sept. 1994).
The absorbed dose rate to the skin from a typical fluoroscopic system is between 0.02 Gy/min and 0.05 Gy/min depending on the anatomical site and size of patient. Thus typical dose rates can result in skin injury after one or more hours of fluoroscopy.

The exposure of patients to high levels of radiation may be cumulative if administered over relatively short periods of time. Thus it is important to review patient histories relative to previous fluoroscopic procedures and the time frames involved before starting a potentially long fluoroscopically-guided procedure.

The following policy shall be followed for all fluoroscopically-guided procedures:

The radiologist/physician shall interview the patient prior to all fluoroscopically-guided procedures to determine their radiation history. I.e. approximate date of last x-ray procedure and type of procedure. If the patient has been potentially exposed to 60 or more minutes of fluoroscopy beam "on" time during the past month, the radiologist should obtain more specific data before proceeding. If the patient has a previous exposure history, alternate beam angles should be considered to avoid exposing the same area as previously exposed, etc.

The total elapsed fluoroscopy "beam on" time shall be monitored by the x-ray technologist, and communicated to the radiologist during the procedure.

The total elapsed fluoroscopic" beam on" time and radiation exposure (data from dose area product or DAP meter) shall be recorded on, or attached to the patient’s record at the end of each procedure.

In cases where the fluoroscopy “beam on” time exceeds 60 minutes, a “Fluoroscopy Form” (Attachment E) shall be filled out and attached permanently to the patient’s medical record. A copy shall be distributed to the DRP for completion of the final dose calculation. A copy of the completed form will be forwarded to the respective departmental Medical QA Committee Chairman or assigned Quality Improvement Specialist for quarterly review.

a. For those cases conducted in the Cardiology CATH/EP labs, the 60 minute threshold for completing Attachment E, Fluoroscopy Form, may be substituted with a DAP reading of 555 Gy-cm².

In cases where the fluoroscopy “beam on” time exceeds 120 minutes, the above procedure will be followed, and a copy of the form (minus patient demographics) will also be forwarded to the University Radiation Safety Committee for review at their quarterly meeting.

In the event the patient is referred to another institution for additional fluoroscopic procedures, the responsible radiologist/physician should attach a note to the patient's chart alerting the next institution of the date and estimated exposure the patient has received and its approximate location.

**USE OF PORTABLE X-RAY EQUIPMENT**
The use of portable x-ray equipment provides a valuable service to various areas within the hospital. In many areas, they are used in areas where other employees or patient may be present. All radiation safety rules as described previously in this document are applicable during the use of portable x-ray equipment. The x-ray operator will take additional care to ensure that:

patients who are not being examined and cannot be removed from the room are protected from the primary beam scatter by whole body protective barriers of not less than 0.25 mm lead equivalent material, and patients are positioned in such a manner that the nearest portion of the body is at least two meters from both the tube head and nearest edge of the image receptor

any individual assisting with holding the patient will use appropriate radiological protection devices (see section 3.1.2)

Dose to personnel exposed to radiation from portable x-rays is considered to be very low and expected not to exceed occupational dose limits. Currently, it is estimated that the use of portable x-rays does not exceed more than about 10 exams per day per area (e.g. ED, SICU, etc). The following exposure estimates are based on a series of common radiographic exams at the average workload of 10 exams per day per area:

<table>
<thead>
<tr>
<th></th>
<th>With lead</th>
<th>Without Lead</th>
</tr>
</thead>
<tbody>
<tr>
<td>Holding/Assisting X-ray operator</td>
<td>0.3 mR/wk</td>
<td>5 mR/wk</td>
</tr>
<tr>
<td>&gt;6 feet from patient (indirect)</td>
<td></td>
<td>&lt; 1 mR/hr</td>
</tr>
</tbody>
</table>

Based on current workload for portable x-rays, even if one person assisted with all of the studies in a single area, their radiation dose would be within acceptable limits for non-radiation workers. Also, the higher radiation dose would be limited to those areas of the body not protected by lead aprons or gloves. Other protected parts of the body, and other persons in the area would receive much smaller radiation doses, will within safe limits.

**RADIOLOGICAL PROTECTIVE DEVICES**

Radiological protective devices refer to any device with the primary purpose of reducing radiation exposure to the user. Most commonly, this refers to aprons, thyroid shields, and gloves; but also included are portable radiation shields, etc. Radiological protective devices are considered medical devices by JCAHO and are to be included in a regular QA program. The following policy and procedure regarding these devices has been determined to be adequate for this purpose.

Many employees have purchased their own apron and thyroid shield. For the purposes of this policy, any device which is stored in a common area is considered accessible to all employees and is thus subject to this policy. Additionally, employees operating x-ray equipment are subject to University Policy and
Procedure. Because compliance with occupational dose limits is dependent upon the use of radiological protective devices, the use of personal devices may be subject to previous approval and inspection.

There is no specific criterion which states that all radiological protective devices must be examined with fluoroscopy to demonstrate their effectiveness. Historically, protective devices were made with lead sheeting. Over time, this sheeting would become cracked and small holes would begin to appear. The only way to identify small cracks and holes was by viewing the apron under fluoroscopy. Modern aprons are made of a composite material that is manufactured to provide the same shielding advantages of lead but incorporate the flexibility and durability of rubberized compounds. This eliminates the majority of the small cracks and pinholes observed in the past.

The following minimum criteria regarding device inventory and inspection will be applied to all areas using radiological protection devices:

Because of the large number of these devices in many different departments, each department is expected to maintain an inventory of all devices in use in the department.

Full inventories of all radiological protection devices must be completed at least annually

During inventory, each device will be examined visually to identify any defects which may reduce the effectiveness of the device

Non-functioning fasters (i.e. belts, Velcro, etc) must be repaired or the device must be considered unusable

Any defect which brings to question the device’s effectiveness is cause for the device to be replaced. Alternatively, the department may request a review of the defect from the Diagnostic Radiological Medical Physicist. The DRP will determine the effectiveness of the device, through the use of fluoro and other means, and make recommendations regarding the device’s use

The following procedure is required for each department:

Leaded aprons, gloves and shields should be marked with an inventory ID number.

The department supervisor shall assign a responsible individual to perform a periodic (at least annually) inventory/condition verification report to keep track of protective aprons and thyroid shields and their condition (Attachment F).

Annual inventory of all radiological protective devices will be maintained by each department. A copy of each inventory will be sent to the Quality Improvement Specialist assigned to the department and the DRP

When not in use Aprons, gloves and Thyroid shields should be hung on apron racks. This helps to locate devices when needed and helps to prevent premature cracks from bends and folds.

Any suspected or questionable damage to protective devices should be replaced or be reported to the
ATTACHMENT A: EMPLOYEE RESPONSIBILITY FOR REPORTING PREGNANCY

(To be completed by all newly hired female employees in the Radiology Department who will be working with ionizing radiation).

I understand that should I become pregnant, I have the option of declaring or not declaring my pregnancy to my supervisor. Should I decide to declare my pregnancy, it is my responsibility to inform my supervisor of my condition immediately, so additional protective measures can be taken in my work assignment if necessary.

Supervisor________________________  Employee________________________

Date________________________
ATTACHMENT B: EMPLOYEE DECLARATION OF PREGNANCY

I, _____________________________________, in accordance with the State of Utah’s regulations, R313-15-208 regarding pregnant radiation workers, am declaring that I am pregnant. I would like to continue my current work assignment in the ____________ Department at the University of Utah Hospitals and Clinics. I believe I became pregnant in ___________. My estimated date of delivery is (month/year) ______________. I understand the radiation dose to my embryo/fetus during my entire pregnancy will not be allowed to exceed 500 mrem (5 mSv). I also understand that meeting this dose limit may require a change in my job responsibilities during pregnancy.

Signed: ___________________________________ Date: ______________________________

Dept. Address: ____________________________________________________________ Phone ______________

"The NRC and State defines a declared pregnant woman as "a woman who has voluntarily informed her employer in writing of her pregnancy and the estimated date of conception." Only the month and year need be provided.

To be completed as necessary:

(Supervisor)

I have reviewed the work assignment of __________________________ and recommend the following changes: ____________________________________________________________

Supervisor: ___________________________ Date: ______________________________

(Medical Physicist)

I have reviewed the above changes in work assignment and the radiation history of the employee, and do not expect that continued employment will result in a fetal dose exceeding the UDRC maximum permissible limit of 5 mSv per gestational period. I concur with the above recommendations.

Medical Physicist: ___________________________ Date: ______________________________

Pregnancy badge ordered: ____________ (Date)

(Employee)

I have received counseling on the effects of ionizing radiation on my unborn child from the Department Medical Physicist, and will follow the above recommendations and continue to practice good radiation safety.

Employee: ___________________________ Date: ______________________________

ATTACHMENT C: PREGNANCY QUESTIONNAIRE FORM
In accordance with the Radiation Protection guidelines* adopted by the University of Utah Hospital, steps must be taken to assure that pregnant female patients are not accidentally exposed to ionizing radiation in the pelvic or abdominal areas of the body.

Therefore, it is necessary to answer the following questions to aid the Radiology Medical Staff prior to diagnostic exams. We appreciate your cooperation.

Do you believe that you are pregnant? (yes or no).

If no, please answer the following:

Please indicate the approximate date of the first day of your last menstrual period.

_________________________________________________________________

Are you currently using any form of contraception? (yes or no). Please specify:

_________________________________________________________________

Signed____________________________________________ Date _______________________

Patient

Witnessed by__________________________________________ Date ____________________

_______________________________________________________________________________
_______________________________________________________________________________

To be filled out by Radiologist:

Radiologist’s recommendations in the event the patient is pregnant:

_____________________________________________________________________________
_____________________________________________________________________________

Signed____________________________________________ Date _______________________

*These guidelines are available to you upon request. We will be pleased to answer your questions or concerns.
ATTACHMENT D: CONSENT FOR DIAGNOSTIC IMAGING DURING PREGNANCY

Attachment D has been replaced with the following University of Utah Health Care Approved form.

The form, “Consent to Perform Diagnostic Imaging during Pregnancy,” should be completed by pregnant or potentially pregnant patients prior to undergoing any diagnostic imaging study. The completed form should be sent to Medical Records for retention.

CONSENT TO PERFORM DIAGNOSTIC IMAGING DURING PREGNANCY

Name ___________________________________________ Date _____________________

MRN ___________________________________________ DOB _____________________

I authorize __________________________, M.D./Health Care Provider, and/or such other University employees and trainees my doctor designates, to perform or participate in the following diagnostic procedures that involve(s) the use of x-rays:

____________________________________________________________________________________

____________________________________________________________________________________

____________________________________________________________________________________

and to arrange for anesthesia, and any other procedures necessary for my and my fetuses (baby) well-being and safety.

Name of Health Care Provider Providing Information: ________________________________

I understand that this procedure involves the use of X-rays that will irradiate my baby. I understand for fetal radiation doses less than 10 mGy, the radiation to the fetus (baby) is associated with minimally increased risk of cancer and congenital abnormalities. As the amount of radiation dose increases above 10 mGy, there may be an increased risk of childhood cancer, congenital abnormality, mental retardation, small head size, and miscarriage.

(To be completed by Radiologist)

The estimated dose to the fetus (baby) is (circle one): less than 10 mGy more than 10 mGy

My health care provider has explained the nature of my medical condition and the nature and purpose of the x-ray procedures he/she is proposing. My health care provider has also explained alternative methods of treatment, the risks of those treatments, and what could happen if I do not receive any treatment.

I have been able to ask questions about the health care procedures and the alternatives to treatment.
My health care provider has answered my questions. I understand the risks involved and I voluntarily assume the risks to me and my fetus (baby) in the hopes of obtaining the desired beneficial results.

I agree that medical and nursing students, and other observers, if allowed by University of Utah Health Care policies, may be present during my procedure to advance medical knowledge.

I agree to the use of closed circuit television, the taking of photographs and motion pictures, drawings and similar graphic material for the purpose of advancing medical knowledge. I understand that my identity will not be revealed unless I agree in a separate document to be identified.

*CONSENT FOR PROCEDURE*

______________________________ (Name of Patient)
______________________________ (Patient’s Signature)
______________________________ (Name and Relationship of Legally Authorized Person)
______________________________ (Signature of Legally Authorized Person)

Dated this _____ day of _____________ 20____. Time: ____________

* * * * *

The following persons are authorized and empowered to consent to any health care not prohibited by law:

- Any parent, whether an adult or a minor, for his or her minor child.
- A married person for his or her spouse who is unable to consent due to the patient’s physical or mental condition.
- Any person temporarily standing in loco parentis, whether formally serving or not, for the minor under his or her care and any guardian for his or her ward.
- Any person 18 years of age or over for his or her parent who is unable to consent due to the patient’s physical or mental condition.
- Any patient 18 years of age or over.
- Any female regardless of age or marital status, when given in connection with her pregnancy or childbirth.
- In the absence of a parent, any adult for his or her minor brother or sister.
- In the absence of a parent, any grandparent for his or her minor grandchild.
- An agent having Durable Power of Attorney for Health Care or otherwise identified as having the power to make medical decisions under Utah law.
ATTACHMENT E: FLUOROSCOPIC EXPOSURE REPORT

Patient Name: ____________________________________

MRN: ___________________ Patient Birth Date: ____________________

Date of Fluoroscopically-guided Procedure: ___________

Type of Fluoroscopically-guided Procedure: ___________________________________________

To be completed by Nurse/Technologist:

Total Fluoro+Cine Time: ___________ min.  Total DAP Reading: _______μGy-m² or Gycm²

Table height: _________ cm

To be completed by Medical Physicist using information from attached DAP data sheet:

Skin Entrance Dose for _____ cm² Field of View: ____________cGy

General assumptions used in Skin Dose determination:

To be filled out by Attending Radiologist:

Reasons for exceeding 60 minutes of Fluoroscopy Beam “on” time:

Attending Radiologist: ____________________ Signed: ____________________

Attach Examination Report with DAP data. Ensure total time, fluoro dose area product, and exposure dose area product has been included.

Deliver to Diagnostic Radiological Medical Physicist for evaluation.
ATTACHMENT F: APRON INVENTORY AND TESTING LOG

Department______________________________________ Year:________________________________

<table>
<thead>
<tr>
<th>Apron ID No.</th>
<th>Date Last Inventoried</th>
<th>Pass/Fail (P or F)?</th>
<th>Removal Date</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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</tbody>
</table>

Inspection Completed by: ____________________________ Date: _______________
# ATTACHMENT G. REQUEST FOR WITHDRAWAL FROM EXTERNAL RADIATION DOSE MONITORING PROGRAM

<table>
<thead>
<tr>
<th>Name:</th>
<th>UNID:</th>
<th>SSN:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Current Job Title:</td>
<td>Contact Phone:</td>
<td></td>
</tr>
<tr>
<td>Department:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Supervisor:</td>
<td>Contact Phone:</td>
<td></td>
</tr>
</tbody>
</table>

What sources of radiation do you use or work around?
- [ ] Radioactive Materials
- [ ] Radiation Generating Machines

Describe any duties you have involving potential exposure to radiation.

Have there been changes to your duties that have affected your radiation exposure
- [ ] Yes (Describe below)
- [ ] No

I hereby request to withdraw from the Radiation Dose Monitoring Program. I understand that my answers above will be reviewed and that if I fall into a category of workers who must participate in the dose monitoring program, I will continue to appropriately wear my issued dosimeter. However, if my request for withdrawal is granted, I understand that it is my responsibility to notify the Radiological Health Department or the Diagnostic Medical Physicist if there is a change in my job responsibilities that will affect my dose.

Signature: ____________________________  Date: ________________

| Radiological Health Department/Diagnostic Medical Physicist Use Only |
| Reviewer: | | Comments: | |
| Recommendation: [ ] Approve Request [ ] Deny Request |
| RSO Signature: | Date: |
12. ASEPTIC/Sterile Technique Policy

Purpose:

To ensure that the principles of aseptic/sterile technique are maintained.

Definitions:

Aseptic/Sterile techniques are practices that restrict microorganisms in the environment and on equipment and supplies and prevent normal body flora from contaminating the surgical wound.

Description:

Surgical procedures must be done in a manner that minimizes or eliminates the patient's exposure to microorganisms to avoid infection.

This is accomplished by using sterile drapes to create a sterile field around the incision site, using sterile instruments for the surgical procedure, and placing the operative team in sterile attire after their hands and arms have been cleansed of surface bacteria aid in avoiding infection.

Implementation:

The AORN recommended practices for maintaining a sterile field is adhered to. Refer to the AORN standard "Recommended Practices for Maintaining a Sterile Field".

Each staff member is responsible to have a thorough knowledge and understanding of the principles of asepsis and to practice these principles as outlined by the AORN standard.

The nurse is also responsible to monitor aseptic technique in the operating room.

References:


Owner: Cherisse Marie Davis
Liaison: Kathryn Adamson
Approval Body: Perioperative Executive Committee
Current Review Date: Tue Apr 30 2013
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