

Pharmacy

The Pharmacy Department is an important area for infection control because its' products are potentially dispensed to all patients. Contamination of medications or other pharmaceuticals whether caused by faulty manufacturing, handling, or storage can have disastrous effects. Therefore, strict adherence to proper infection control procedures by Pharmacy personnel is essential to the prevention of nosocomial infections.

General.

- The Pharmacy Department, by the nature of its mission, must be kept in a continuing state of cleanliness. This section will set forth the minimum standards of cleanliness expected of all involved activities.
- Pharmacy Department personnel must maintain strict standards of personal cleanliness as part of the department's total emphasis on infection control. The wearing of a clean uniform of the day, observance of good personal hygiene, and frequent handwashing during dispensing activities are considered to be minimum requirements toward accomplishing this goal.
- Each member of the Pharmacy staff is assigned an area of responsibility, which he/she is to maintain in a neat, clean, orderly current status. This involves cleaning or dusting the involved area at least weekly.
- At the change of each shift, or at least once daily, for weekend duties, all countertops are to be wiped down with 70% alcohol.
- All trash is to be collected and removed from the involved spaces at least once daily, more frequently when conditions warrant.
- Floors are to be kept clean with sweeping at the change of each shift or once daily, in the case of weekend duties. Floors are to be wet mopped at least daily with an EPA approved hospital disinfectant. Floors are waxed monthly.
- All equipment and utensils utilized during the course of a workday are to be thoroughly cleaned immediately after use. This includes cleaning all tablet counting trays and spatulas necessary and washing them at least once daily with soap and water. The automatic counting machines for tablets and capsules shall be free of accumulation of tablet dust. This machine shall be cleaned with warm water and soap at least daily.
- Personnel working in each area of the Pharmacy Department are expected to recognize and rectify any deficiencies in the above standards resulting from normal operations as a matter of course (i.e., cleaning up breakage or spillage of medications).

Personnel.

- Health maintenance
 - Pharmacy personnel should be free of active infection while on duty. Personnel with a mild respiratory illness should wear a mask when working in medication preparation areas.
 - Personnel with a communicable disease shall report to Occupational Health/Staff Sick Call prior to assuming the watch.
 - Personnel reporting off the binnacle list must be cleared through Occupational Health/Staff Sick Call prior to returning to duty.

- Personal hygiene
 - Cleanliness and good personal hygiene are mandatory.
 - Frequent and thorough hand washing is required for all personnel, especially before entering a work area.
 - Clean, appropriate attire will be worn by all Pharmacy personnel at all times.
- In-service education
 - All pharmacy personnel shall be trained in the principles and practices of aseptic technique.
 - A staff pharmacist designated by the Head, Pharmacy Department shall be appointed to the command Infection Control Committee. He/she will be responsible for coordinating the pharmacy's infection control policy with the command policy.

Inpatient and Outpatient Dispensing Branches.

- Direct handling of pharmaceuticals shall be avoided.
 - Counting trays shall be utilized whenever possible. They should be cleaned frequently with 70% isopropyl alcohol and between uses for uncoated tablets.
 - All automatic-counting devices should be dismantled, washed with a suitable detergent, thoroughly rinsed, and allowed to air dry at least daily.
 - Extemporaneous pharmaceuticals compounding will be performed in clean, well maintained equipment according to U.S.P. mandated standards of good manufacturing procedures.
- All work areas should be maintained in a clean, orderly manner.
 - All work surfaces should be wiped clean with 70% isopropyl alcohol at the beginning of each work shift and more frequently if indicated.
 - Storage shelves should be maintained dust free by continual cleaning in a cyclic pattern throughout all areas of the Pharmacy Department.
 - All floor areas should be mopped with a suitable cleaning solution as needed. All spills shall be attended to promptly.
 - All work areas shall be maintained trash-free and all trash containers should be emptied at the change of each shift or more often if necessary.

Intravenous Admixture Branch.

- Intravenous admixture will be compounded in a certified, well-maintained laminar flow hood using strict aseptic technique.
- Maintenance of sterile laminar air flow.
 - The laminar airflow hood should be running constantly.
 - All exposed inner surfaces of the hood except the HEPA filter must be thoroughly cleaned with 70% isopropyl alcohol using long side to side, non-overlapping strokes starting at the filter and working toward the edge. Cleaning should be done at the start of the workday, once per shift, and more often if necessary. Cleaning shall be documented on each shift.
 - The laminar airflow hood work area should be thoroughly wiped with 70% isopropyl alcohol and allowed to air dry prior to each series of compounding procedures.

- Leaks in the HEPA filter will be prevented by taking care not to break ampules toward the filter or release solution from syringes into the filter and by not touching the HEPA filter with the hands.
 - The laminar airflow hood pre-filters will be changed monthly.
 - The integrity of each laminar airflow hood will be certified at least annually and recertified if hood malfunction is suspected.
 - Monthly environmental testing of laminar airflow hood sterility will be done and the results documented. Corrective maintenance will be instituted whenever indicated.
 - A plan is in place to check the sterility of IV admixtures. This will be implemented should the rate of nosocomial infection due to a particular organism suddenly and dramatically increase.
- Authorized personnel.
 - The intravenous admixture compounding area shall be restricted to personnel certified in aseptic technique.
 - A periodic evaluation of proper aseptic technique shall be performed for each staff member authorized to compound IV admixtures.
- Preparation of intravenous admixtures.
 - Intravenous admixtures will be compounded at least six (6) inches within a laminar airflow hood using strict aseptic technique. Work area: All work in the hood should be performed six (6) inches or more from the front edge of the hood counter. The first six (6) inches of work counter in the hood is the most likely to be contaminated, due to the convection currents from non-sterile room air. The hood area must be free from breezes that may compromise the laminar airflow (i.e., open windows, fans, etc.).
 - No one shall cough, sneeze, or talk into the laminar airflow hood.
 - There will be no smoking, eating, or drinking in the vicinity of the laminar airflow hood.
 - All outer wrappers, packaging and packing for supplies used in intravenous admixture compounding will be removed outside the vicinity of the laminar airflow hood.
 - Before beginning work, the hands shall be thoroughly (at least 15 seconds) washed with an approved antimicrobial hand soap. If at anytime staff leave the laminar airflow hood area (however briefly), hands must be cleaned again in one of two ways: washing with an approved antimicrobial hand soap or using an approved waterless hand sanitizer. Hand washing is considered the most important procedure in preventing nosocomial infections.
 - Gloves: Personnel working under the laminar airflow hood are required to wear clean gloves sprayed with 70% isopropyl alcohol.
 - The placement of intravenous admixtures compounding supplies within the hood work area should be planned to ensure that there is no obstruction of proper laminar airflow.
 - All compounding supplies (syringes, needles, vials, etc.) should be inspected for breaks in sterility. If there is any doubt, discard contaminated material promptly.

- **Movements of personnel:** Personal activity in the IV admixture area should be at a normal or slower pace. Abnormally fast movements of personnel tend to stir up dust particulate, also increase the shedding of particles of the body and clothing. Since movement creates turbulence, movements under the hood should be kept to a minimum and personnel should refrain from scratching, rubbing the face, etc. Coughing, sneezing, and talking in the hood while compounding is also to be avoided. Personnel are required to wear head covers, masks, shoe covers and gowns unless working in an isolation chamber.

- **Rubber stoppers and diaphragms:** All rubber stoppers and latex diaphragms are sprayed with 70% isopropyl alcohol before being punctured with a needle. Patting the rubber stoppers and latex diaphragms with alcohol swabs is not recommended due to the shedding of fibers by the cotton swab. These could then be drawn into the solution upon insertion of the intravenous spike or punctures by a needle.

- **Fluid dispensing systems and needles:** Replace all fluid dispensing systems in the hood at least weekly. Change the needles on such apparatus frequently to avoid coring the stopper or diaphragm. Label both the bottle and the fluid dispensing system with the date and initials of the person making the change.

- **Syringes and needles:** Syringes that are used repeatedly for withdrawing a drug should never have the plastic plunger touched to a non-sterile area (i.e., the hands), as the inside of the barrel will be contaminated when the plunger is thrust into the syringe. In case of doubt, replace the syringe. Only disposable syringes and needles are used routinely to prepare sterile products. Sterile surfaces that are to come in contact with sterile drugs or solutions must never be exposed to non-sterile air or touch a non-sterile surface. The technique used in attaching the needle to the syringe is important to avoid contamination. Working under the hood, the syringe is uncased from its package and set perpendicular to the work surface by utilizing the flat end of the plunger as base. Tear down envelopes must be carefully peeled back to avoid contamination of the syringe tip by contact with the outside of the wrapper. The needle sheath serves as a wrench for both attaching and removing the needle and may be replaced as soon as the syringe is used. Care should be taken to avoid the needle coming in contact with the work surface. Should this happen, the needle should be discarded. Packages containing needles and syringes that are not sealed should be discarded.

- **Storage of items in the hood:** Do not store objects in the back of the hood in any horizontal flow unit. In horizontal units, eddy currents are created that interrupt the laminar airflow and increase the chance of contamination from non-sterile objects in the hood or contamination by room air. Objects that must be stored in the hood should be placed along the right or left side of the work surface. Keep all IV or additive openings directly exposed to the HEPA filter face. In other words, keep the product upstream (airflow wise) from hands, equipment, etc. Place all items in the hood so that a minimum of air turbulence results.

- **Pre-filter:** The pre-filter of the laminar airflow hood is made of polyurethane and fiberglass or washable filter material such as found on air conditioning units. The function of the pre-filter is to remove gross particulate matter from room air prior to

being passed through the HEPA filter into the laminar airflow hood work area. The prefilters should be checked monthly, cleaned, or replaced if deteriorated or damaged. This process must be documented on the appropriate area of the QA checkoff sheet attached to the laminar airflow hood.

- Laminar airflow hood certification: Each of the laminar airflow hoods in the IV admixture areas are certified to meet class 100 federal standards. This certification process subjects the hoods to tests of air velocity, air distribution, HEPA filter integrity and function to verify the work area is free from leaks. The certification process is done on an annual basis. If there is any doubt, discard contaminated material promptly.
- Needles and syringes should be discarded in sharps containers recommended for their disposal by the Infection Control Committee.
- All intravenous admixtures will have a 24-hour expiration date typed on the label (unless product stability requires otherwise).
- Complete solutions should be stored under refrigeration until delivery to the proper patient care area, unless the stability of the product is compromised by refrigeration.
- Any intravenous admixture not used within its expiration date will be returned immediately to the Intravenous admixture branch.

Storage of Pharmaceuticals.

- All pharmaceuticals throughout the hospital should be stored under proper conditions of sanitation, temperature, light, moisture, and ventilation as specified by the manufacturer to ensure stability and antimicrobial integrity.
- The Pharmacy Department shall conduct monthly inspections of all patient care areas to ensure compliance with proper storage requirements for pharmaceuticals. The medication refrigerator temperature must be in the range of 36-48° F, or 2-8° C. Refrigerator temperatures and corrective actions, if indicated, will be maintained in the Temp Track remote monitoring system.

Returned Pharmaceuticals.

- Oral, topical, rectal, and parenteral products dispersed by the Inpatient Pharmacy.
 - Only sealed medication containers for which pharmaceutical integrity can be assured will be returned to pharmacy stock.
- Outpatient medications.
 - Any medications used by a patient prior to admission, that are returned to the Pharmacy, shall be accepted by the pharmacy and disposed of appropriately. No medication handled by a patient shall be returned to pharmacy stock.