POLICY ON SAFE INJECTION AND INFUSION PRACTICES

PURPOSE:

- To establish, document and implement on Safe Injection & Infusion Practices.

SCOPE

- All patient care areas

RESPONSIBILITY-;

- Doctors/ Nurses/Paramedical Staff

POLICY

- To identify the correct patient, correct medicine, correct dose, correct time and correct combinations before giving an injection or infusion.
- To identify and implement one needle, one syringe , only one time rule for all injections and infusions

PROCEDURE:

General Instruction:

- The following recommendations apply to the use of needles, cannulas that replace needles, and, where applicable intravenous delivery systems:
- Use aseptic technique to avoid contamination of sterile injection equipment.
- Do not administer medications from a syringe to multiple patients, even if the needle or cannula on the syringe is changed. Needles, cannula and syringes are sterile, single-

use items; they should not be reused for another patient or for accessing a medication or solution that might be used for a subsequent patient.

- Use fluid infusion and administration sets (i.e., intravenous bags, tubing and connectors) for one patient only and dispose appropriately after use. Consider a syringe or needle/cannula contaminated once it has been used to enter or connect to a patient‟s intravenous infusion bag or administration set.
- Use single-dose vials for parenteral medications whenever possible.
- Do not administer medications from single-dose vials or ampoules to multiple patients or combine leftover contents for later.
- If multi dose vials must be used, both the needle or cannula and syringe used to access the multi dose vial must be sterile.
- Do not keep multi dose vials in the immediate patient treatment area and store in accordance with the manufacturer's recommendations; discard if sterility is compromised or questionable.
- Do not use bags or bottles of intravenous solution as a common source of supply for multiple patients.
- Infection control practices for special lumbar puncture procedures: Wear a surgical mask when placing a catheter or injecting material into the spinal canal or subdural space (i.e., during myelograms, lumbar puncture and spinal or epidural anaesthesia).

Prior to Injection:

- Check the patient's chart for allergic precautions.

- Always inform the patient before the needle prick and reassure him.
- Question patient regarding any history of allergic reactions to medicines, Sea food or contrast media
- Make positive identification correct patient, correct medicine, correct dose, correct time and correct combinations before giving an injection or infusion.
- Always use disposable needles and syringes, ONLY ONCE.
- Make sure to discard syringe/ needle as per Policy, immediately after use.

During Injection/Infusion-;

- Provide the nurse with a clean tourniquet and alcohol swab.
- Have the tape available to hold the needle in place.
- Inform the patient before the pin-prick of the needle and reassure him.
- After injection, check the needle insertion point for leakage or hematoma.
- Observe the patient for adverse reaction symptoms, the most common being headache and nausea. Other common symptoms are:

i. Vomiting
ii. Skin rash
iii. Itching
iv. Numbness
v. Hives
vi. Pain
vii. Burning
viii. Increased salivation
ix. Flushing of the face
x. Fainting
xi. Pallor

xii. Chills
xiii. Shock
xiv. Increased tearing and nasal secretions

- In the event of a more severe reaction, notify the duty doctor/ consultant immediately. Stop giving injection/infusion and appropriate treatment to treat the adverse event.
- Remove the needle and assure no bleeding occurs by using cotton swabs/band-aid before the patient leaves the department.
- In case of infusion, observe the patient every 15 minutes to check for any leakage/reaction.
- Observe the patient at all times until the patient's release.

GUIDELINES FOR VASCULAR CARE–

a. Hand washing

- Wash hands before every attempted intravascular catheter insertion.
- Antimicrobial hand washing soaps are desirable, and are preferred before attempted insertions of central intravenous catheters, catheters requiring cut downs, and arterial catheters.

b. Preparation of skin

- Povidone-iodine (PVP) or 70% alcohol may be used for cleaning the skin. Insertion sites should be scrubbed with a generous amount of antiseptic.
- Beginning at the centre of the insertion site, use a circular motion and move outward.
- Antiseptics should have a contact time of at least 30 seconds prior to catheter insertion.
- Antiseptics should not be wiped off with alcohol prior to catheter insertion.

c. Applying dressings

- Sterile dressings should be applied to cover catheter insertion sites.
- Unsterile adhesive tape should not be placed in direct contact with the catheter-skin interface.

d. Manipulation of intravascular catheter systems

Strict aseptic technique should be maintained when manipulating intravascular catheter systems.

Examples of such manipulations include the following:

- Placing a heparin lock
- Starting and stopping an infusion
- Changing an intravascular catheter site dressing
- Changing an intravascular administration set

e. Flushing IV lines

- Solutions used for flushing IV lines should not contain glucose which can support the growth of microorganisms.
- Do not reuse syringes used for flushing.
- One syringe is used for flushing only one IV line once.

f. Dressing changes.

- Peripheral IV site dressings should not usually require routine changes, since peripheral IV catheters, should be removed within 72 hours.

g. Replacement of Peripheral IV Catheters

- Peripheral IV catheters should be removed 72 hours after insertion, provided no IV-related complications, requiring catheter removal are encountered earlier.
- A new peripheral IV catheter, if required, may be inserted at a new site.

h. Central intravascular catheters (long term catheters)

i. Dressing changes.

Central IV catheter dressings should be changed every 72 hours.

ii. Replacement of central IV catheters

Central IV catheters do not require routine removal and reinsertion. The catheter can be kept for a maximum of 3 months, provided there is no sign of catheter related infection or other complications.

i. Catheter related Infection :

- At the time of catheter removal, the site is examined for the presence of swelling, erythema, lymphangitis, increased tenderness and palpable venous thrombosis.
- Any antimicrobial ointment or blood present on the skin around the catheter is first removed with alcohol.
- The catheter is withdrawn with sterile forceps, the externalized portion being kept directed upward and away from the skin surface.
- (If infection is suspected, after removal, the wound is milked in an attempt to express purulence. For 5.7 cm catheters, the entire length, beginning several millimeters inside the former skin surface catheter interface, is aseptically cut and sent for culture. With longer catheter, (20.3 cm and 60.9 cm in length), two 5-7 cm

segments are cultured a proximal one beginning several millimeters inside the former skin catheter interface and the tip. Catheter segments are transported to the laboratory in a sterile container).

- Three way with extension is used only when multiple simultaneous infusion or Central Venous Pressure monitoring are required

INTRAVASCULAR DEVICE USAGE AND CARE

GENERAL INSTRUCTIONS

Precautions during procedures:

All Lines

- Patients with intravascular devices should be evaluated at least daily for evidence of infectious complications – gentle palpation or direct observation, as appropriate for the type of device.
- If a patient has unexplained fever, or pain or tenderness at an insertion site, or if a patient cannot communicate, then the intravascular site should be inspected visually.

Peripheral Venous Lines

- Antimicrobial ointments are of no proven benefit and should not be applied at the time of dressing changes.
- A sterile gauze dressing should be used and, unless the dressing or the skin surrounding the entry site becomes wet or soiled, may be left in place until the catheter is removed.

- Alternatively, a transparent semi permeable dressing (low or high permeability) may be used since the risk of bacteremia is extremely low with peripheral IV lines.
- CDC 2011 Guidelines state that there is no need to peripheral catheters more frequently than every 72 to 96 hours to reduce the risk of infection and phlebitis in adults, if catheter is inserted under strict aseptic precautions, in emergency condition when assurance to aseptic techniques cannot be assured catheter to be replaced as soon as possible no longer than 48 hours after insertion.

Arterial Lines

- Insufficient data on use of an antimicrobial ointment at the time of dressing changes.
- For adults, peripheral arterial catheters may be left in place for up to 6 days.

Peripheral arterial catheters may be left in place for an even longer duration in pediatric patients. The upper limit for pediatrics is not yet established.

Central Venous Lines (including PICC, central Haemodialysis lines and central pulmonary arterial catheters) and Midline Catheters

- Sterile gauze dressings should be used for lines inserted at subclavian and internal jugular central sites.
- There are currently insufficient data to recommend the optimal choice of dressings for lines placed at other sites, including those for PICC and midline catheters.

- By convention, gauze dressings have been changed every 2 to 3 days, but the optimal duration between dressing changes is unknown. Gauze dressings may be left in place for a longer duration but should be changed whenever they are soiled or wet.
- Central venous lines used for total parenteral nutrition or long-term antimicrobial or antineoplastic chemotherapy and haemodialysis may be left in place as long as they remain functional, unless they appear to be a source of infection.
- A catheter should not be changed over a guide wire it infection is suspected. However, a change over a guide wire may be done in the case of malfunction.
- Pulmonary arterial catheters may be left in place for up to 4 days. If it is essential to continue pulmonary arterial catheter monitoring beyond the fourth day, there are four potential options :
    - Leave the catheter in place, assuming that cumulative risk of infection will continue to multiple at a constant rate.
    - Remove the catheter and place a new catheter at a new site, to gain another 4 days of presumed low risk.
    - Replace the catheter over a guide wire and culture the old catheter. If the old catheter is shown to be infected, remove the new catheter from the infected site; if the old catheter is not infected, remove the new catheter may be left in place.
- Use catheters or catheter cuffs that incorporate antimicrobial compounds.

Standard Precautions shall be adhered to strictly by everyone indulging in such procedures.

Hand washing before and after palpating, inserting, replacing or dressing any intravascular device shall always be adhered to.

Gloves shall always be worn when inserting intravascular device, when changing the dressing on intravascular devices.

It is desirable to use sterile gloves while carrying out such procedures, but in periods: of non-availability, non-sterile gloves shall be used.

CATHETER SITE CARE

Cutaneous antisepsis

Before inserting the I-V Catheter/Cannula, clean the skin site with 2%Chlorhexidine (or) Alcohol 60-70% . Leave for one minute. Clean again with 70% isopropyl alcohol.

After insertion, a sterile gauze or transparent dressing is used to cover the site. Record the time and date of insertion on the case sheet as separate demarcated area for I *N* devices.

Replace the Catheter site dressing when the device is removed or replaced or when the dressing become damp loosened or soiled.

All general instructions to be followed as given before.

Peripheral venous sites:

In adult's upper extremity site shall be preferred expect where there is no access site in upper limb.

It is always advisable to change over a catheter inserted in lower extremity site to an upper extremity site as soon as latter is available.

In paediatric age group, catheters shall be inserted in scalp, hand and foot site in preference to leg, arms or antecubital fossa.

REPLACEMENT:

In adult's short peripheral venous catheters and venous site shall be rotated every 72-96 hours. Do not wait for phlebitis to develop to change the site.

If the catheter has been put in an emergency situation, it shall be replaced as soon as possible to a fresh site within 24 hours.

In paediatric and adult patients, remove peripheral venous catheters whenever the patients develop signs of phlebitis, i.e., warmth, tenderness, erythema, palpable venous chord, at the insertion.

CENTRAL VENOUS OR ARTERIAL CATHETERS

The risks and benefits of placing a device at a recommended site to reduce infectious complications shall be weighed against risk of mechanical complications.

Subclavian site shall be preferred over jugular or femoral.

Total aseptic technique shall be followed at the time of insertion of these catheters. Sterile gowns and sterile gloves are to be used every time.

Mask is to be worn and a large sterile drape for the insertion of central venous or arterial catheters. The site shall be well prepared with 2% Chlorhexidine with alcohol

OBSERVATION FOR CATHETER RELATED INFECTIONS

Catheter insertion site shall be palpated for tenderness daily through the intact dressing. If there is tenderness at the site, it shall be visually examined after removing dressing; fever without obvious source shall point towards an inflamed site.

Local and blood stream infections shall be checked. If there are obvious indications of an infection, blood cultures shall be sent through the site and through a remote peripheral site preferable of the other limb.

Post checking visually, the dressing shall be put afresh.

Routine cultures of devices or tips of devices shall not be performed until and unless infection is suspected as colonization far exceeds infection.

No antimicrobials are needed routinely before insertion or during use of an intravascular indwelling device.

HEALTH CARE WORKERS' EDUCATION AND TRAINING

- All health care workers shall have an ongoing education and training regarding indicators for usage and procedures for the insertion and maintenance of intravascular devices in order to prevent infections to patients as well as themselves.
- Already trained shall be acting as trainers to trainee.
- Experienced nursing staff, Registrars and Consultants shall act as trainers.
  Attempts can be made by Infection Control Committee members to educate through audio visual aids to ensure complete information is assessable to all.