Handout: Common Patient Artifacts in Mobile Imaging

1. Chest Tubes – A chest tube can be inserted for many reasons. It is a non-collapsible, plastic tube inserted into the pleural space and connected to an underwater seal or one-way valve system that maintains a positive pressure. It can re-expand a collapsed lung, drain blood or it exudates. A chest radiograph is commonly ordered immediately following the placement of a chest tube, and often patients with chest tubes have several follow-up exams. The chest tube is visible on the image due to a radiopaque line that ends just before the end of the tube.

2. Endotracheal Tube / Tracheostomies – The placement of these tubes indicates the patient requires mechanical ventilation. The placement of this tube may be permanent or temporary, and the patients will be unable to speak. Mechanical ventilation requires a closed delivery system, so the ET tube is inserted into the trachea orally, nasally or transtracheally. Placement of the ET tube (also called ETT) should be approximately 2-4cm above the carina. The head and neck position during the radiograph can change the appearance of the ET tube on the image, so the head and neck should be kept in a neutral position in the midline of the body.

3. Swan Ganz Lines – A pulmonary artery catheter (or San Ganz Line) may be placed to assess fluid status, or manage drug therapy, among other reasons. The catheter may be placed under fluoro, or a chest radiograph will be ordered immediately following placement. The placement of the catheter may be at the left or right pulmonary artery, which lies at the 6th to 8th intercostals space, medial to the midclavicular line. The catheter should not appear looped, coiled or kinked.

4. Central Venous Catheters – A Central Line (or CVC) may be placed into a major vein of the body (commonly internal jugular, subclavian veins, or occasionally femoral veins). These lines provide an alternative site for injections or for administering large amounts of fluid. For catheters inserted into subclavian veins, the line is visualized on a chest x-ray below the clavicle and can be followed down towards the heart. For catheters inserted into internal

jugular veins, the line is visualized at the neck and can be followed downwards towards the heart. The tip of the line should sit in the SVC.

5. Pacemakers – A pacemaker is a temporary or permanent device used to regulate the beating of a heart that is unable to maintain a normal rate. Patients with a pacemaker will have had open heart surgery to implant the device, and surgical artifacts will often be seen on the sternum. For a temporary pacemaker, the electrodes are placed into the right ventricle or atrium through an accessible vein, with the generator sitting outside the body. For a permanent pacemaker, the electrodes are also in the right ventricle or atrium, with the generator sitting under the skin, just below the clavicle.

6. Electrocardiogram Leads – ECG leads are placed on the chest wall for the test, which monitors heart rate and pattern. The leads are connected to a monitoring unit by wires. The leads are most likely not visible on an x-ray, but the wires are. The wires should be moved off the lung field when taking an x-ray. Never remove or disconnect the wires from the monitoring unit without permission from unit staff.

7. Intravenous Lines – Patients who are receiving IV fluids will have tubing connecting the injection site to the IV fluid. The tubing is visible on an x-ray and should be moved off the lung field.

8. Oxygen Administration Tubing – Patients who are receiving additional oxygen via mask or nasal cannula will have tubing connecting the device to a tank or wall unit. The tubing is visible on an x-ray and should be moved off the lung field.

9. Ventilator Tubing – Patients who are being artificially ventilated will have tubing connecting the ventilator to the ETT. The tubing is visible on an x-ray and should be moved off the lung field.

10. Nasogastric / Orogastric Tube – There are many reasons an NG/OG tube will be in place. The end of the tube should be visualized under the left diaphragm (to sit in the

stomach). There is a radiopaque line on the nasogastric tube that shows up as a white line on the image.

11. **Nasoenteric Tube** – Enteral tubes (or feeding tubes) are used for slow and continuous feeding. They are weighted tubes that are placed through the nose, much like an NG tube. The end of the tube contains a two inch metal piece that should be visualized in the small bowel.

References:

Health and Public Safety. (2007). *MRAD 307 – Trauma Radiography Module 4*. Calgary: Southern Alberta Institute of Technology.