UNIVERSITY OF MALTA
FACULTY OF MEDICINE & SURGERY
PHARMACY DEPARTMENT

STANDARD OPERATING PROCEDURE

INTRADERMAL INJECTION
TRAINING SIMULATOR

Valid for:
2 years from approval

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1. Scope

This Standard Operating Procedure (SOP) applies to the staff and students using the Intradermal Injection Training Simulator in the Pharmacy Practice Resource Unit (PPRU) at the Pharmacy Department, University of Malta.

2. Objective

To describe the procedure for preparation and use of the Intradermal Injection Training Simulator.

3. Definitions

3.1. **Injection pad**: Multilayered soft tissue pad for administration of intradermal injections into the simulator model.

3.2. **Injections**: Sterile solutions, suspensions or emulsions, presented in a suitable aqueous or non-aqueous vehicle intended for parenteral administration into the body tissues.

3.3. **Intradermal injection**: Involves injection of small amounts of fluid into the dermal layer of the skin at an angle of 10-15°. This type of injection is used for diagnostic procedures (e.g., tuberculin testing), allergy tests and local administration of anaesthetics (Appendix SOP/PD/229_01/A1).

3.4. **Parenteral administration**: Administration of a substance by injection, infusion or implantation, through a route that bypasses the gastrointestinal system.

3.5. **Pit**: Depressed area in the forearm model into which the injection pad is placed.

3.6. **Wheal**: Visible localised circular/uniform bulge of water that forms under the disk after a successful intradermal injection into the training simulator.

4. Responsibility
4.1. The members of the Department of Pharmacy (staff and students) are responsible for following this SOP.

4.2. The designated Laboratory Officer or Laboratory Assistant is responsible for ensuring that this SOP is followed.

5. Procedure

5.1. Diagram of Intradermal Injection Training Simulator

- a. Forearm model
- b. Injection pad installed in pit
- c. Extra injection pads
- d. Support Base
- e. Pit
- f. Injection pad case
5.2. Preparation of Simulator and Injection

5.2.1. Wash hands and wear disposable gloves.

5.2.2. Put the forearm model on the support base.

5.2.3. Install an injection pad into the pit; hold the pad by the sidewalls and do not pinch its surface when picking it up from the pit.

5.2.4. Put the soft and curved side of the injection pad upwards and adjust the direction to fit its edge line to the edge of the pit.

5.2.5. Prepare a sterile syringe and a needle using water.

5.3. Performing the Intradermal Injection

5.3.1. Insert the needle at an angle of 10-15° to the surface of the injection pad.

5.3.2. Push the plunger of the syringe so that the entire volume of water is injected. When the injection is successful, a clear wheal will be formed. When the needle tip penetrates too deep, an unclear or no wheal will be formed.

5.3.3. Withdraw the needle at the same angle that it was inserted.

5.3.4. Remove all water from the injection pad swiftly with a syringe after each training session.
5.4. Flow Charts

5.4.1. Preparation of Simulator and Injection

```
Start

Wash hands and use disposable gloves

Put forearm model on support base

Install injection pad into pit

Put soft and curved side of injection pad upwards and adjust its direction to fit its edge line to edge of pit

Prepare needle and syringe using water

End
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5.4.2. Performing the Intradermal Injection

- Start
- Insert needle at an angle of 10-15° to surface of injection pad
- Push plunger of syringe so that entire volume of water is injected
- Formation of clear wheal
  - yes: Training successful
  - no: Repeat training
- Withdraw needle at same angle which it was inserted
- Remove all water from injection pad using a syringe
- End
6. Precautions

6.1. Remove all water from the injection pads after each training session since remaining water may damage the pads.

6.2. Store the simulator in the storage case at room temperature, away from heat, moisture and direct sunlight.

6.3. Do not wipe the simulator with thinner or organic solvent.

6.4. Do not mark the simulator with pen or leave any printed materials in contact with the surface since ink marks on the simulator are not removable.

6.5. Do not pinch the soft surface of the injection pads.

6.6. Use water to perform an injection; do not use actual medical fluid or coloured fluid in the injections since the latter may cause defacement of the injection pad.

6.7. Do not perform an injection at any other site of the simulator other than in the injection pad.

6.8. Do not leave water in injection pads after training as the remaining fluid may cause separation of the material or other damages.

7. References

http://www.brooksidepress.org/Products/Administer_IM_SQ_and_ID_Injections/less on_2_Section_3


8. Appendices

Appendix SOP/PD/229_01/A1 – Diagram of angle of injections

9. Revision History

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Appendix SOP/PD/229_01/A – Diagram of angle of injections