एपेक्स इंस्टीट्यूट ऑफ आयुर्वेदिक मेडिसीन एवं हॉस्पिटल

एपेक्स वेलकेयर ट्रस्ट द्वारा संचालित मल्टी स्पेशियलिटी हेल्थ केयर, आयुर्वेदिक रिसर्च संस्थान

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Date- 23-09-2024

Yogya Clinical Skill Laboratory

1- Experiment No. 2

2- Objective- Pediatric Injection Training .

3- Date & time -25-09-2024 10:00am to 11:00am

4- Faculty – Member- Prof. Dr. Virendra kumar

5- Department –Kaumaryabhritya

6- Expert consultant – Dr.Yashpal Singh

7- Lab technician – Mr. Shahil

8- Lab assistant – Mr. Rajesh Pal

9- Beneficiary Batch- 2020-2021

10- Description of experiment & it SOP- Attached)

Dr. Gouri Chauhan
Coordinator of YCSL

Dr. P.K.Singh
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Apex Hospital of Ayurvedic Medicine & Hospital

NH-35,Samaspur, Chunar, Mirzzapur

Yogya Clinical Skill laboratory

1. Experiment no – 2
2. Objective – Pediatric Injection Training
3. Date and time : 01-10-2024, 11:00am To 12:30pm /25/09/2024 at 11:00Am to 12:30 P.m.
4. Co-ordinator : Dr. Gouri Chauhan
5. Faculty Member – Dr. Virender kumar
6. Department → Kaumarbhritya
7. Expert consultant –Dr. Yashpal singh
8. Nurshing Technician- Mis.Nikita, Mis. Pradeepika Vishwakrma, Mis.Sweta Singh
9. Beneficiary batch – 2020 – 2021
10. Description of experiment & it SOP

Definition –

Injection –Injections are a way to administer liquids to people using a needle and syringe. Injections can be used to deliver a variety of medications, such as insulin, vaccines, and Botox. There are different types of injections, including intramuscular (IM) and subcutaneous (SC) injections.
An injection is the act of administering a liquid, especially a drug, into a person's body using a needle (usually a hypodermic needle) and a syringe. An injection is considered a form of parenteral drug administration; it does not involve absorption in the digestive tract. This allows the medication to be absorbed more rapidly and avoid the first pass effect.

Type of injection –

1-**Intradermal** - Intradermal injections, abbreviated as ID, consist of a substance delivered into the dermis, the layer of skin above the subcutaneous fat layer, but below the epidermis or top layer. An intradermal injection is administered with the needle placed almost flat against the skin, at a 5 to 15 degree angle. Absorption from an intradermal injection takes longer than when the injection is given intravenously, intramuscularly, or subcutaneously. For this reason, few medications are administered intradermally. Intradermal injections are most commonly used for sensitivity tests, including tuberculin skin tests and allergy tests, as well as sensitivity tests to medications a person has never had before. The reactions caused by tests which use intradermal injection are more easily seen due to the location of the injection, and when positive will present as a red or swollen area. Common sites of intradermal injections include the forearm and lower back.

2- Subcutaneous -Subcutaneous injections, abbreviated as SC or sub-Q, consist of injecting a substance via a needle under the skin. Absorption of the medicine from this tissue is slower than in an intramuscular injection. Since the needle does not need to penetrate to the level of the

muscle, a thinner and shorter needle can be used. Subcutaneous injections may be administered in the fatty tissue behind the upper arm, in the abdomen, or in the thigh. Certain medications, including epinephrine, may be used either intramuscularly or subcutaneously. Others, such as insulin, are almost exclusively injected subcutaneously. Live or attenuated vaccines, including the MMR vaccine (measles, mumps, rubella), varicella vaccine (chickenpox), and zoster vaccine (shingles) are also injected subcutaneously.

3- Intramuscular -- Intramuscular injections, abbreviated as IM, deliver a substance deep into a muscle, where they are quickly absorbed by the blood vessels into systemic circulation. Common injection sites include the deltoid, vastus lateralis, and ventrogluteal muscles.

4- Intravenous Injections -Intravenous injections, abbreviated as IV, involve inserting a needle into a vein, allowing a substance to be delivered directly into the bloodstream. An intravenous injection provides the quickest onset of the desired effects because the substance immediately enters the blood, and is quickly circulated to the rest of the body. Because the substance is administered directly into the bloodstream, there is no delay in the onset of effects due to the absorption of the substance into the bloodstream.

5- Intraperitoneal –Intraperitoneal injection or IP injection is the injection of a substance into the peritoneum (body cavity). It is more often applied to non-human animals than to humans. Intraperitoneal injections can be similar to oral administration in that hepatic metabolism could occur in both. In humans, the method is widely used to administer chemotherapy drugs to treat some cancers, particularly ovarian cancer. Although controversial, intraperitoneal use in ovarian cancer has been recommended as a standard of care. Fluids are injected intraperitoneally in infants, also used for peritoneal dialysis.

6- Intraosseous -An intraosseous injection or infusion is the act of administering medication through a needle inserted into the bone marrow of a large bone. This method of administration is only used when it is not possible to maintain access through a less invasive method such as an intravenous line, either due to frequent loss of access due to a collapsed vessel, or due to the difficulty of finding a suitable vein to use in the first place. Intraosseous access is commonly obtained by inserting a needle into the bone marrow of the humerus or tibia, and is generally only considered once multiple attempts at intravenous access have failed, as it is a more invasive method of administration than an IV. With the exception of occasional differences in the accuracy of blood tests when drawn from an intraosseous line, it is considered to be equivalent in efficacy to IV access. It is most commonly used in emergency situations where there is not ample time to repeatedly attempt to obtain IV access, or in younger people for whom obtaining IV access is more difficult.

7-Intracardiac -Intracardiac injections are injections that are given directly into the heart muscles or ventricles. They can be used in emergencies, although they are rarely used in modern practice. The procedure is performed by inserting a long spinal needle into the ventricular chamber. The needle is inserted in the fourth intercostal space between the ribs

8- Intraarticular -a joint injection (intra-articular injection) is a procedure used in the treatment of inflammatory joint conditions, such as rheumatoid arthritis, psoriatic arthritis, gout, tendinitis, bursitis, Carpal Tunnel Syndrome, and occasionally osteoarthritis. A

hypodermic needle is injected into the affected joint where it delivers a dose of any one of many anti-inflammatory agents, the most common of which are corticosteroids. Hyaluronic acid, because of its high viscosity, is sometimes used to replace bursa fluids. The technique may be used to also withdraw excess fluid from the joint.

ultrasound-guided hip joint injection

9- Intracavernous Injections - An intracavernous (or intracavernosal) injection is an injection into the base of the penis. This injection site is often used to administer medications to check for or treat erectile dysfunction in adult men (in, for example, a combined intracavernous injection and stimulation test).

Adverse effects –

1-Pain -The act of piercing the skin with a needle, while necessary for an injection, also may cause localized pain.

2-Infection -Unsafe injections can result in transmission of a wide variety of pathogens, including viruses, bacteria, fungi and parasites . They can also cause non-infectious adverse events such as abscesses and toxic reactions. Reuse of syringes or needles is common in many settings. It exposes patients to pathogens either directly (via contaminated equipment) or indirectly (via contaminated medication vials).The risks of unsafe injection practices have been well documented for the three primary bloodborne pathogens – human immunodeficiency virus (HIV), hepatitis B virus (HBV) and hepatitis C virus (HCV).

A needle tract infection, also called a needlestick infection, is an infection that occurs when pathogens are inadvertently introduced into the tissues of the body during an injection.

Disposal of used needles –

Used needles should be disposed of in specifically designed sharps containers to reduce the risk of accidental needle sticks and exposure to other people.

In addition, a new sharps container should be begun once it is ¾ full. A sharps container which is ¾ filled should be sealed properly to prevent re-opening or accidental opening during transportation.

Aspiration →

The aspiration is the technique of pulling back on the plunger of a syringe prior to the actual injection. If blood flows into the syringe it signals that a blood vessel has been hit.

References –

1-Injection
Wikipedia https://en.wikipedia.org › wiki › Injection
2- World Health Organization (WHO)
https://apps.who.int › handle › 9789241599252_eng
3-ACIP General Best Guidance for Immunization
Mass.gov https://www.mass.gov › doc › download

2 Best practices for injection

This chapter assimilates the best practices for delivering injections in health-care and related facilities. It is based on a range of evidence and expands the scope of the WHO publication *Best infection control practices for intradermal, subcutaneous, and intramuscular needle injection* (*7*). The chapter outlines recommended practices, skin preparation, preparation and administration of injections, and related health procedures.

Best injection practices described are aimed at protecting patients, health workers and the community.

2.1 General safety practices

This section describes the following practices that are recommended to ensure the safety of injections and related practices:

- hand hygiene;
- gloves where appropriate;
- other single-use personal protective equipment;
- skin preparation and disinfection.

2.1.1 Hand hygiene

Hand hygiene is a general term that applies to either handwashing, antiseptic handwash, antiseptic hand rub or surgical hand antisepsis (*25*). It is the best and easiest way to prevent the spread of microorganisms. Hand hygiene should be carried out as indicated below, either with soap and running water (if hands are visibly soiled) or with alcohol rub (if hands appear clean).

Practical guidance on hand hygiene

Perform hand hygiene BEFORE:

- starting an injection session (i.e. preparing injection material and giving injections);
- coming into direct contact with patients for health-care related procedures;
- putting on gloves (first make sure hands are dry).

Perform hand hygiene AFTER:

- an injection session;
- any direct contact with patients;
- removing gloves.

You may need to perform hand hygiene between injections, depending on the setting and whether there was contact with soil, blood or body fluids.

Avoid giving injections if your skin integrity is compromised by local infection or other skin conditions (e.g. weeping dermatitis, skin lesions or cuts), and cover any small cuts.

Indications and precautions for hand hygiene are shown in Table 2.1.

2.1.4 Skin preparation and disinfection

Table 2.3 shows the skin preparation protocols for different types of injection.

Table 2.3 Skin preparation for different types of injection

Type of injection	Skin preparation and disinfection	
	Soap and water	60–70% alcohol (isopropyl alcohol or ethanol)
Intradermal	Yes	No
Subcutaneous	Yes	No
Intramuscular		
• immunization	Yes	No
• therapeutic	Yes[a]	Yes[a]
Venous access	No	Yes

[a] Unresolved issue because there is insufficient evidence on the need to disinfect the skin with alcohol before an intramuscular injection to change the 2003 WHO recommendation (*7*); further studies are warranted.

Practical guidance on skin preparation and disinfection

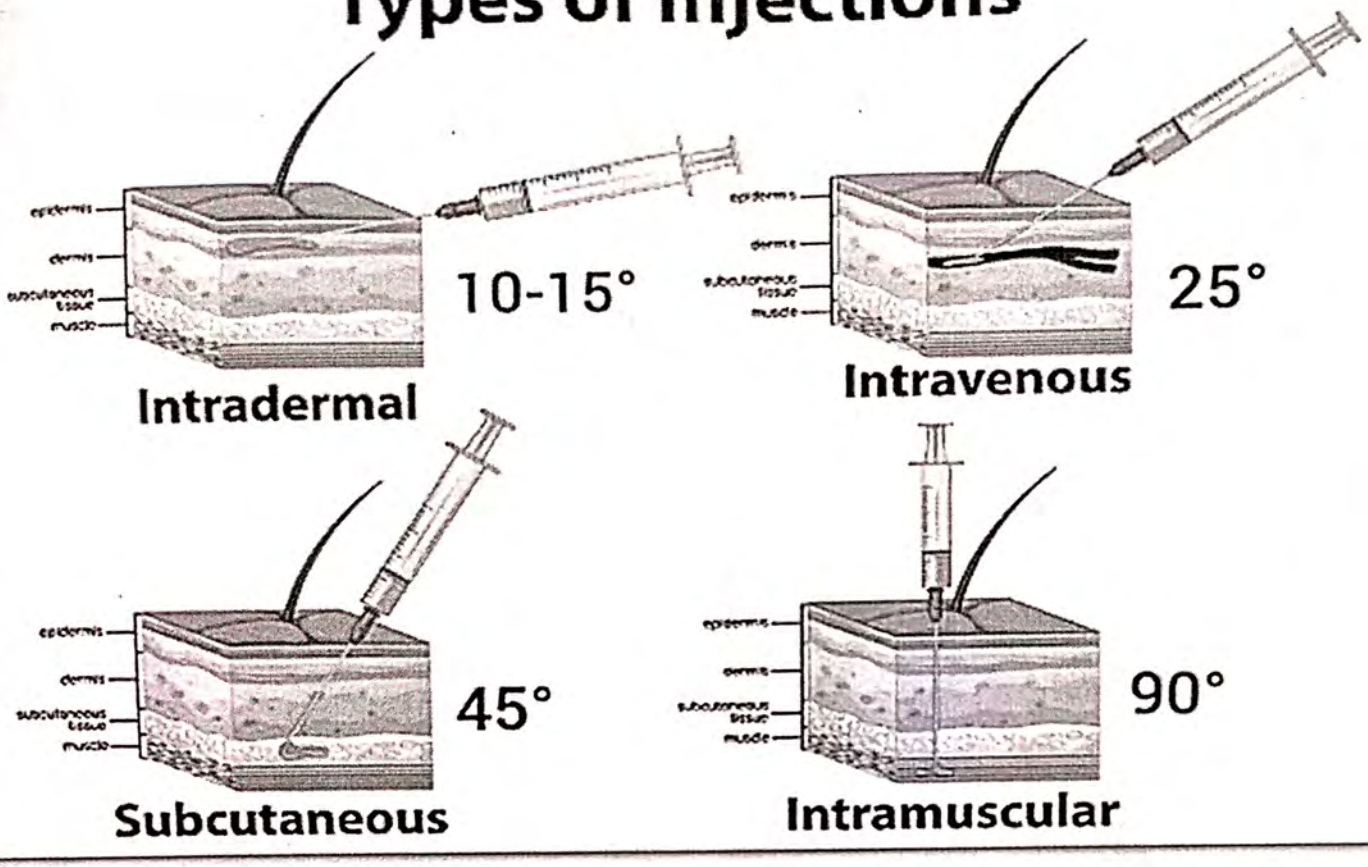
To disinfect skin, use the following steps (*27–29*):

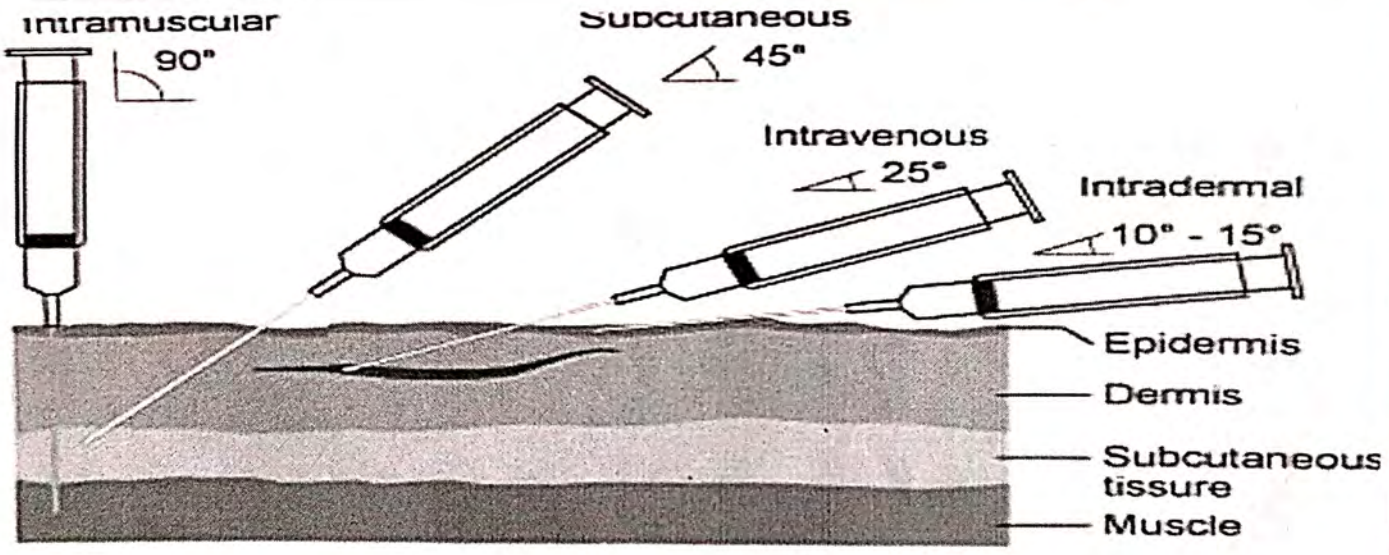
1. Apply a 60–70% alcohol-based solution (isopropyl alcohol or ethanol) on a single-use swab or cotton-wool ball. DO NOT use methanol or methyl-alcohol as these are not safe for human use.
2. Wipe the area from the centre of the injection site working outwards, without going over the same area.
3. Apply the solution for 30 seconds then allow it to dry completely.

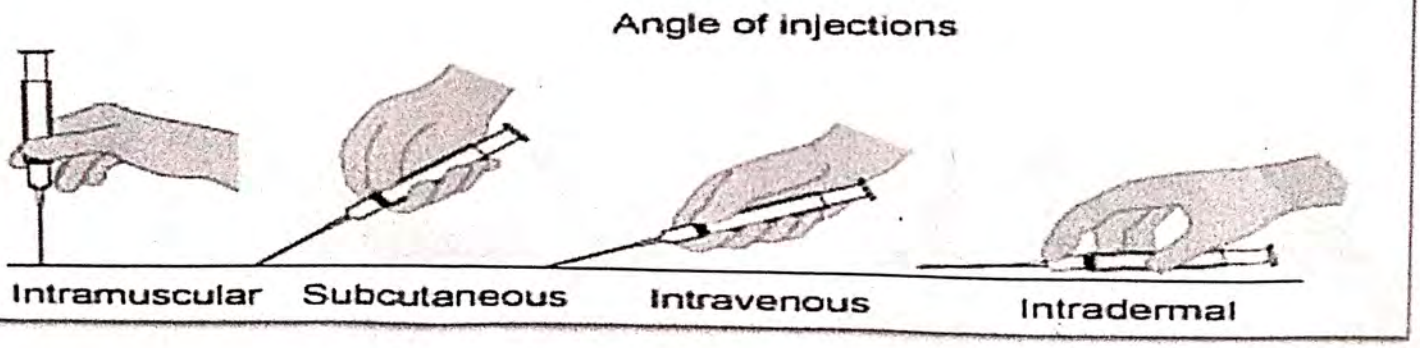
DO NOT pre-soak cotton wool in a container – these become highly contaminated with hand and environmental bacteria.

DO NOT use alcohol skin disinfection for administration of vaccinations.

Types of Injections





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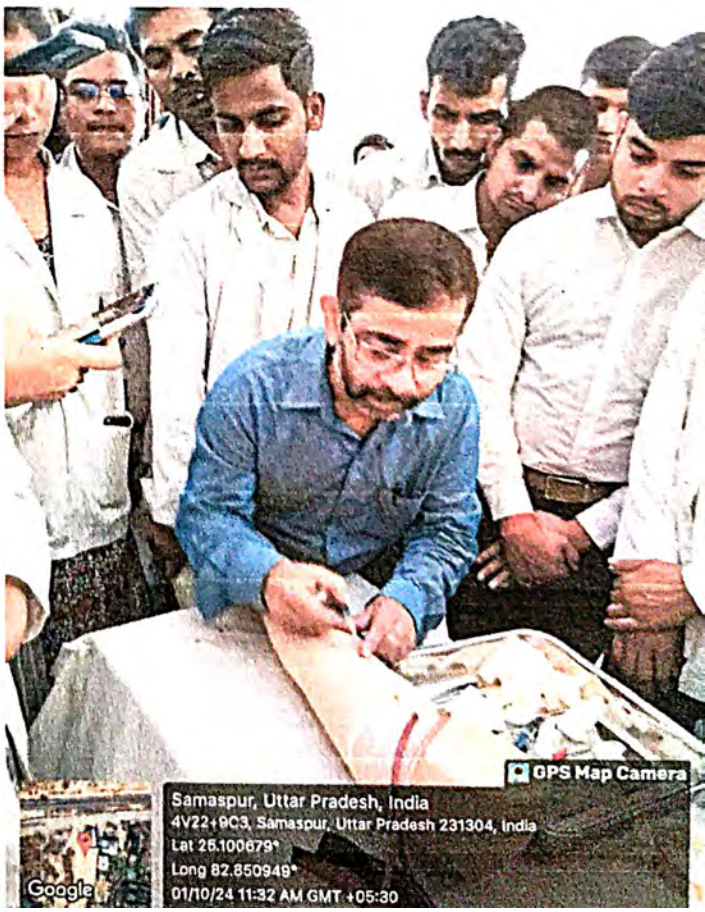
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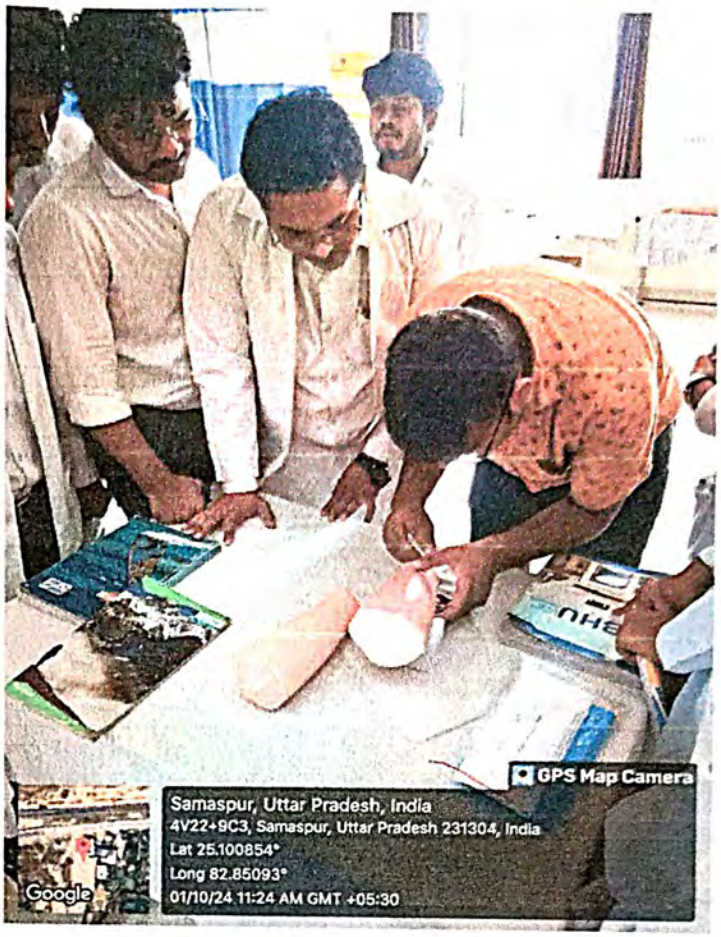

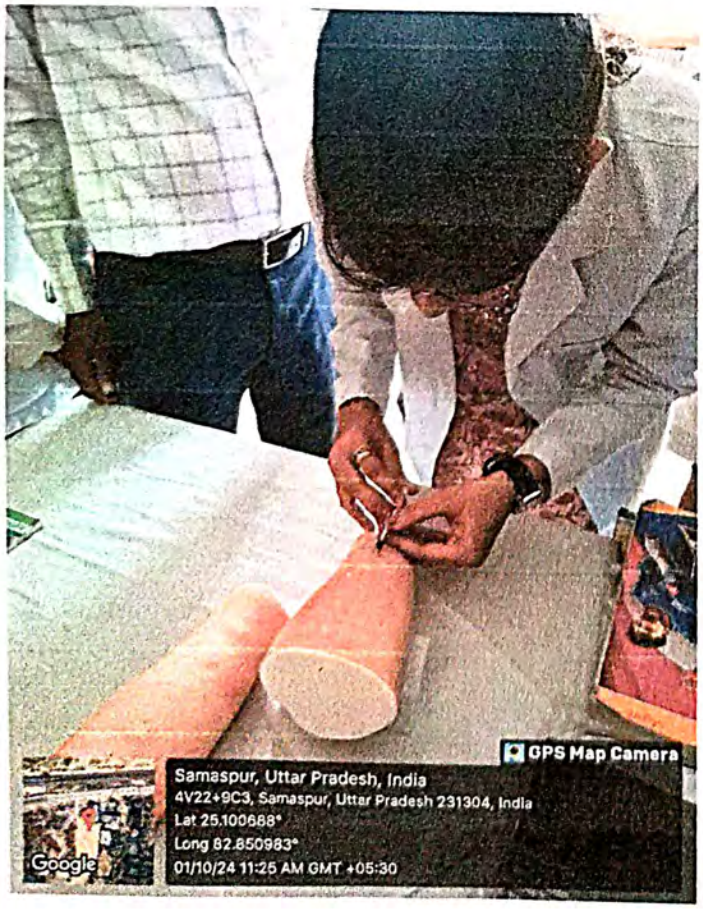

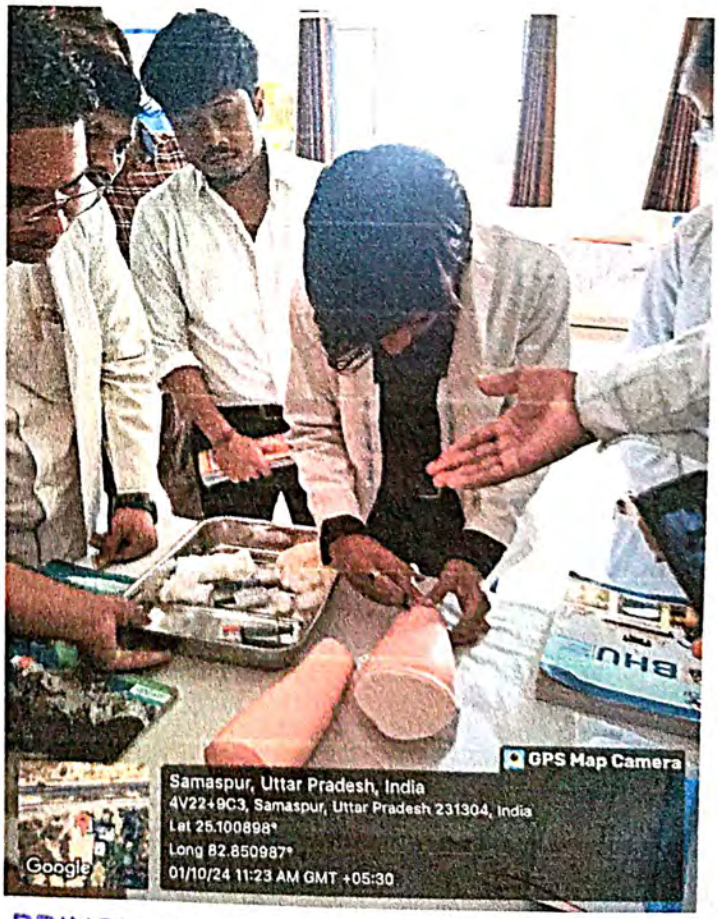

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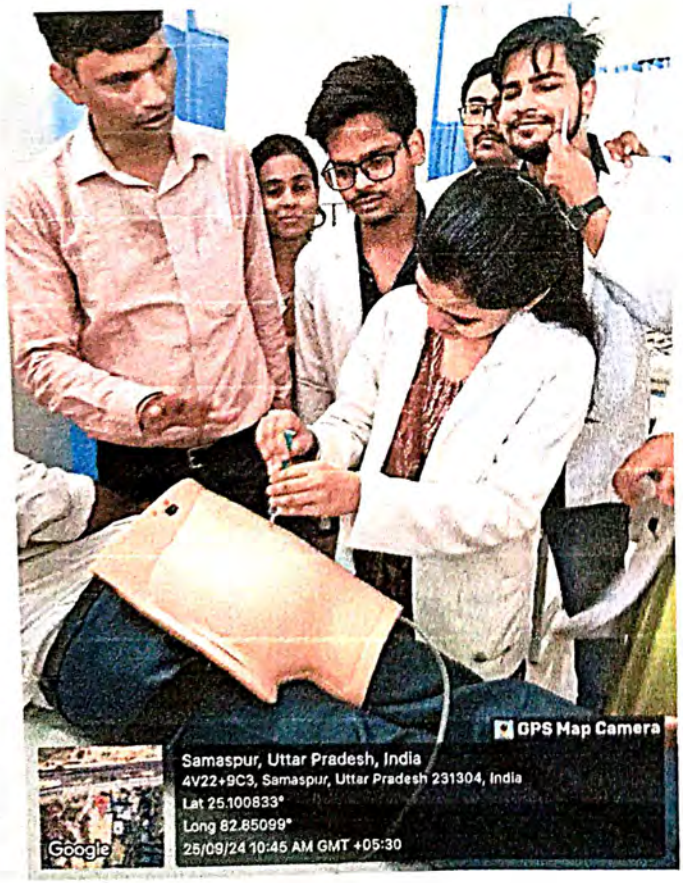

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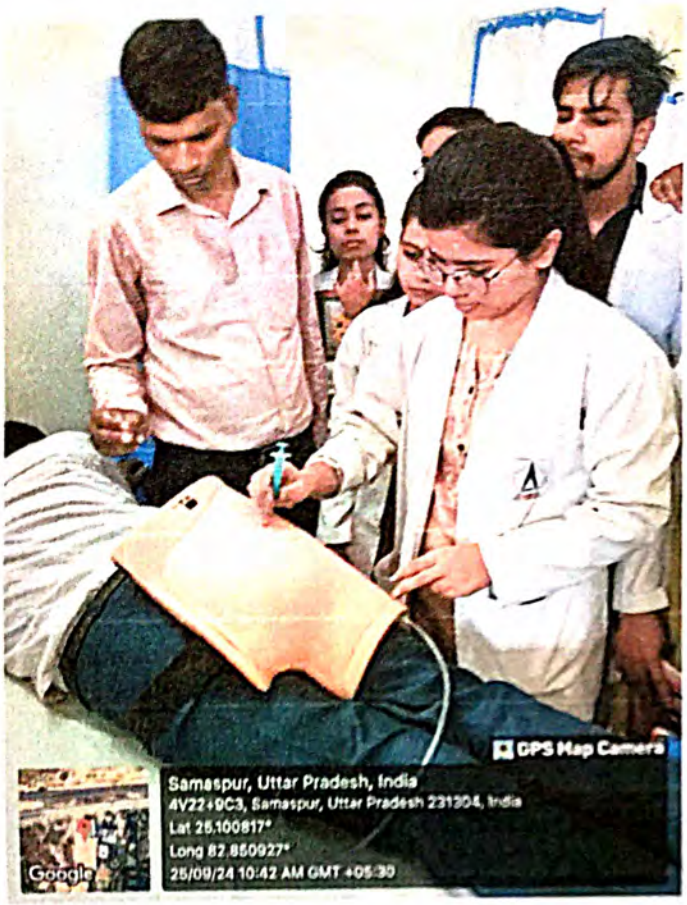

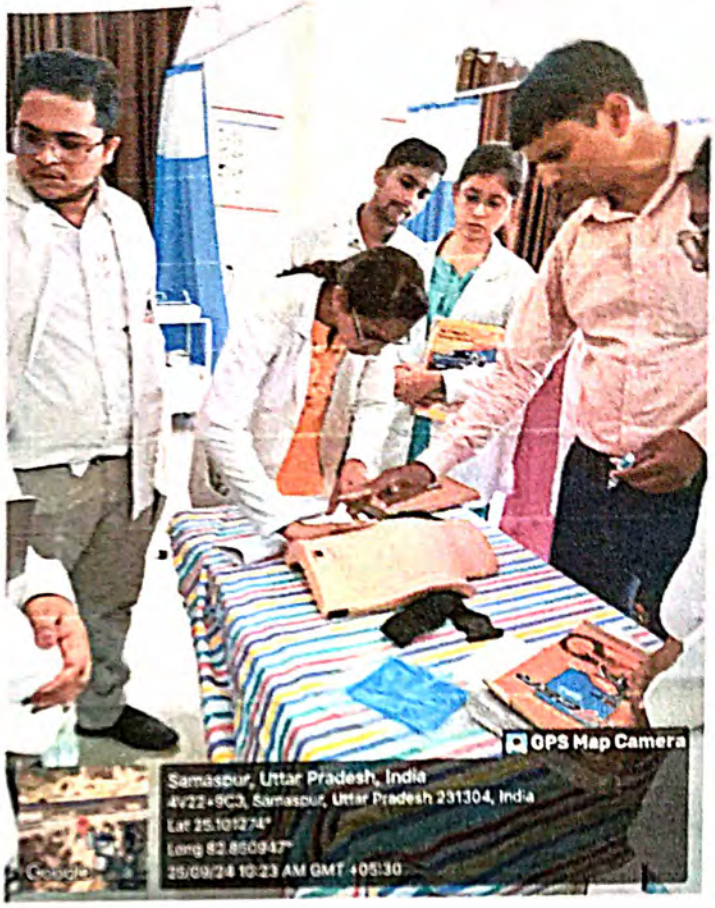

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