TUBERCULIN SKIN TESTING AND AIRBORNE INFECTION ISOLATION ROOMS (AIIR)

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AGENDA

Proper TB screening

- planting and reading TSTs
- example of competency
- results from other facilities

AIIR or negative pressure cells

- regulations
- routine checks
- how to look for tampering

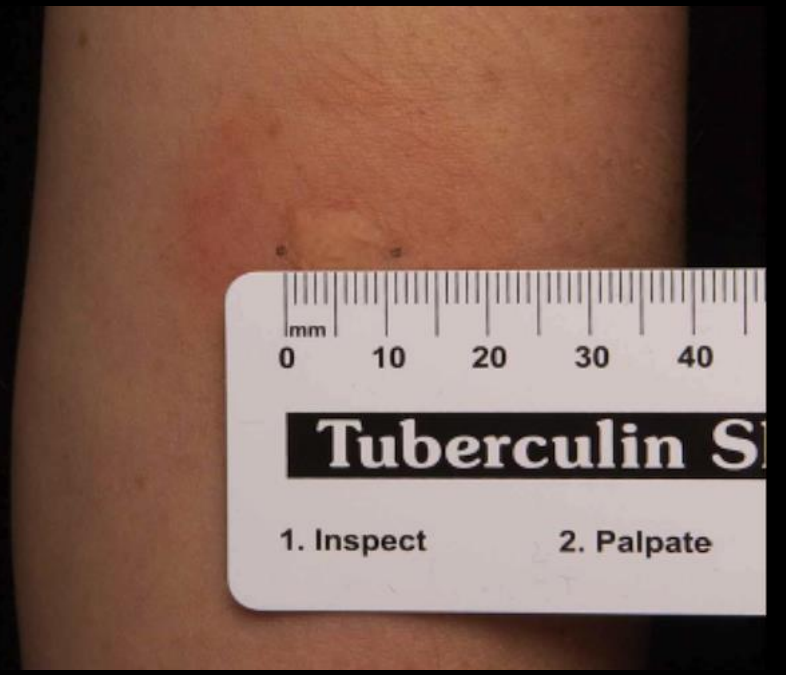
PROPER TB SCREENING

PLANTING A TST

- ✓ Gather supplies
- ✓ Read vial label
- ✓ Inspect vial
- ✓ Verify patient
- ✓ Determine test history
- ✓ Follow standard precautions
- ✓ Choose injection site
- ✓ Wipe top of vial
- ✓ Withdraw 0.1mL (5TU) tuberculin solution
- ✓ Stretch skin taut
- ✓ Insert needle at 5–15-degree angle
- ✓ Inject solution to form 6-10mm wheal
- ✓ Remove needle
- ✓ Dab site if bleeding
- ✓ Safely discard syringe
- ✓ If wheal not present, replant
- ✓ Document in medical record
- ✓ Provide education to inmate

READING A TST

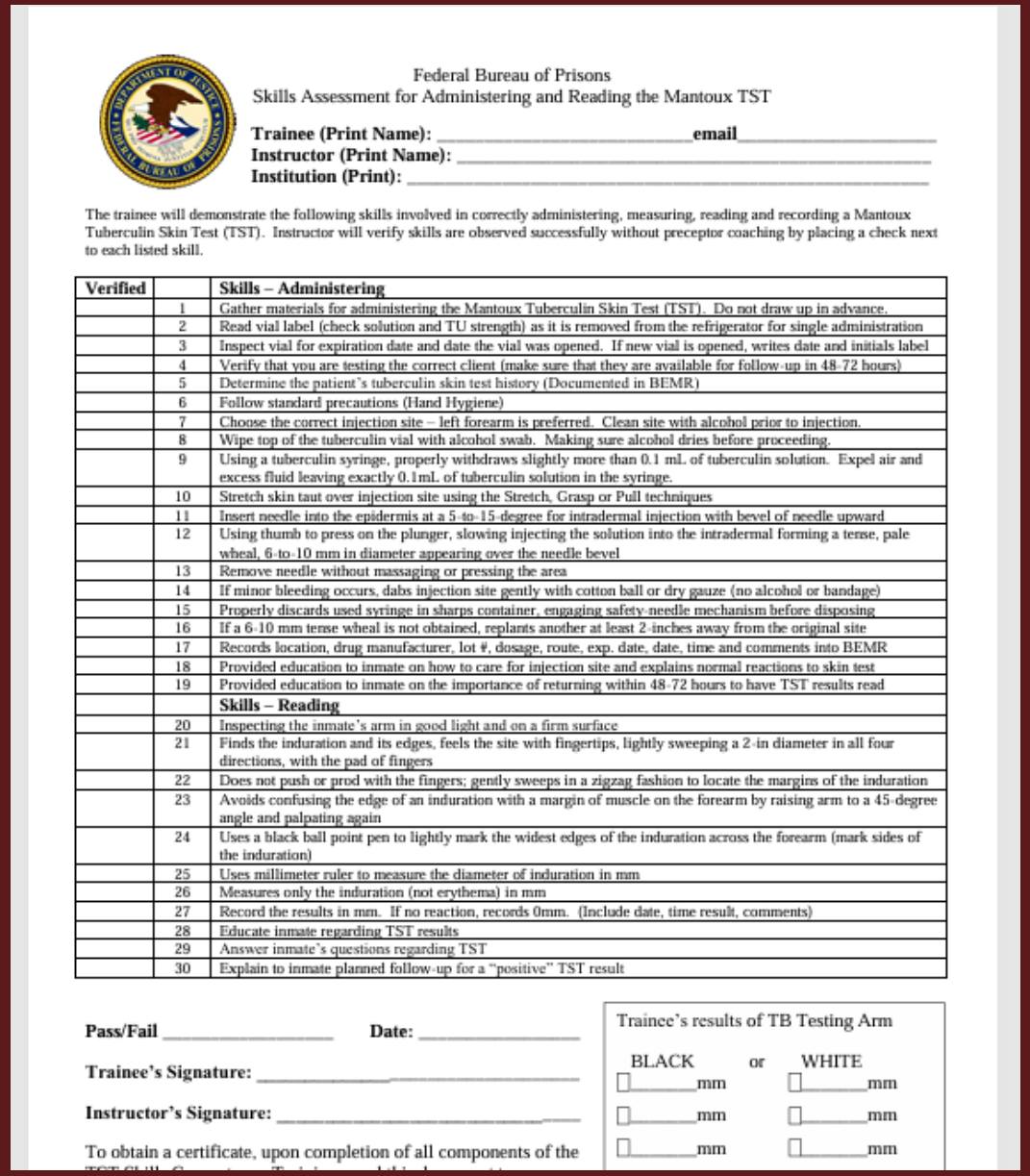
- Inspect arm
- Locate margins of induration
- Raise arm to 45-degree angle
- Use pen to mark edges
- Measure induration in mm
- Do not measure redness
- Record the results
- Educate inmate
- Answer any questions
- Explain follow up if TST positive


mm
0
10
20
30
40
Tuberculin S
1. Inspect
2. Palpate

BOP SKILLS ASSESSMENT

This form is utilized to assess TST administration and reading skills of all new nurses.

Used periodically if problems noted with administration or reading by staff.



Federal Bureau of Prisons

Skills Assessment for Administering and Reading the Mantoux TST

Trainee (Print Name): _____**email**_____

Instructor (Print Name): _____

Institution (Print): _____

The trainee will demonstrate the following skills involved in correctly administering, measuring, reading and recording a Mantoux Tuberculin Skin Test (TST). Instructor will verify skills are observed successfully without preceptor coaching by placing a check next to each listed skill.

Verified		Skills – Administering
	1	Gather materials for administering the Mantoux Tuberculin Skin Test (TST). Do not draw up in advance.
	2	Read vial label (check solution and TU strength) as it is removed from the refrigerator for single administration
	3	Inspect vial for expiration date and date the vial was opened. If new vial is opened, writes date and initials label
	4	Verify that you are testing the correct client (make sure that they are available for follow-up in 48-72 hours)
	5	Determine the patient's tuberculin skin test history (Documented in BEMR)
	6	Follow standard precautions (Hand Hygiene)
	7	Choose the correct injection site – left forearm is preferred. Clean site with alcohol prior to injection.
	8	Wipe top of the tuberculin vial with alcohol swab. Making sure alcohol dries before proceeding.
	9	Using a tuberculin syringe, properly withdraws slightly more than 0.1 mL of tuberculin solution. Expel air and excess fluid leaving exactly 0.1mL of tuberculin solution in the syringe.
	10	Stretch skin taut over injection site using the Stretch, Grasp or Pull techniques
	11	Insert needle into the epidermis at a 5-to-15-degree for intradermal injection with bevel of needle upward
	12	Using thumb to press on the plunger, slowing injecting the solution into the intradermal forming a terse, pale wheal, 6-to-10 mm in diameter appearing over the needle bevel
	13	Remove needle without massaging or pressing the area
	14	If minor bleeding occurs, dabs injection site gently with cotton ball or dry gauze (no alcohol or bandage)
	15	Properly discards used syringe in sharps container, engaging safety-needle mechanism before disposing
	16	If a 6-10 mm terse wheal is not obtained, replants another at least 2-inches away from the original site
	17	Records location, drug manufacturer, lot #, dosage, route, exp. date, date, time and comments into BEMR
	18	Provided education to inmate on how to care for injection site and explains normal reactions to skin test
	19	Provided education to inmate on the importance of returning within 48-72 hours to have TST results read
		Skills – Reading
	20	Inspecting the inmate's arm in good light and on a firm surface
	21	Finds the induration and its edges, feels the site with fingertips, lightly sweeping a 2-in diameter in all four directions, with the pad of fingers
	22	Does not push or prod with the fingers; gently sweeps in a zigzag fashion to locate the margins of the induration
	23	Avoids confusing the edge of an induration with a margin of muscle on the forearm by raising arm to a 45-degree angle and palpating again
	24	Uses a black ball point pen to lightly mark the widest edges of the induration across the forearm (mark sides of the induration)
	25	Uses millimeter ruler to measure the diameter of induration in mm
	26	Measures only the induration (not erythema) in mm
	27	Record the results in mm. If no reaction, records 0mm. (Include date, time result, comments)
	28	Educate inmate regarding TST results
	29	Answer inmate's questions regarding TST
	30	Explain to inmate planned follow-up for a "positive" TST result

Pass/Fail _____ **Date:** _____

Trainee's Signature: _____

Instructor's Signature: _____

To obtain a certificate, upon completion of all components of the

Trainee's results of TB Testing Arm

BLACK	or	WHITE
☐_____mm		☐_____mm
☐_____mm		☐_____mm
☐_____mm		☐_____mm

RESULTS FROM OTHER FACILITIES

Know local policy

accept or replant?

need 48-72 hrs. to read

Conduct symptom screen

document in medical record

CXR

accept or retake?

AIRBORNE INFECTION ISOLATION ROOMS (AIIR)

Negative Pressure Rooms

AIIR REGULATIONS

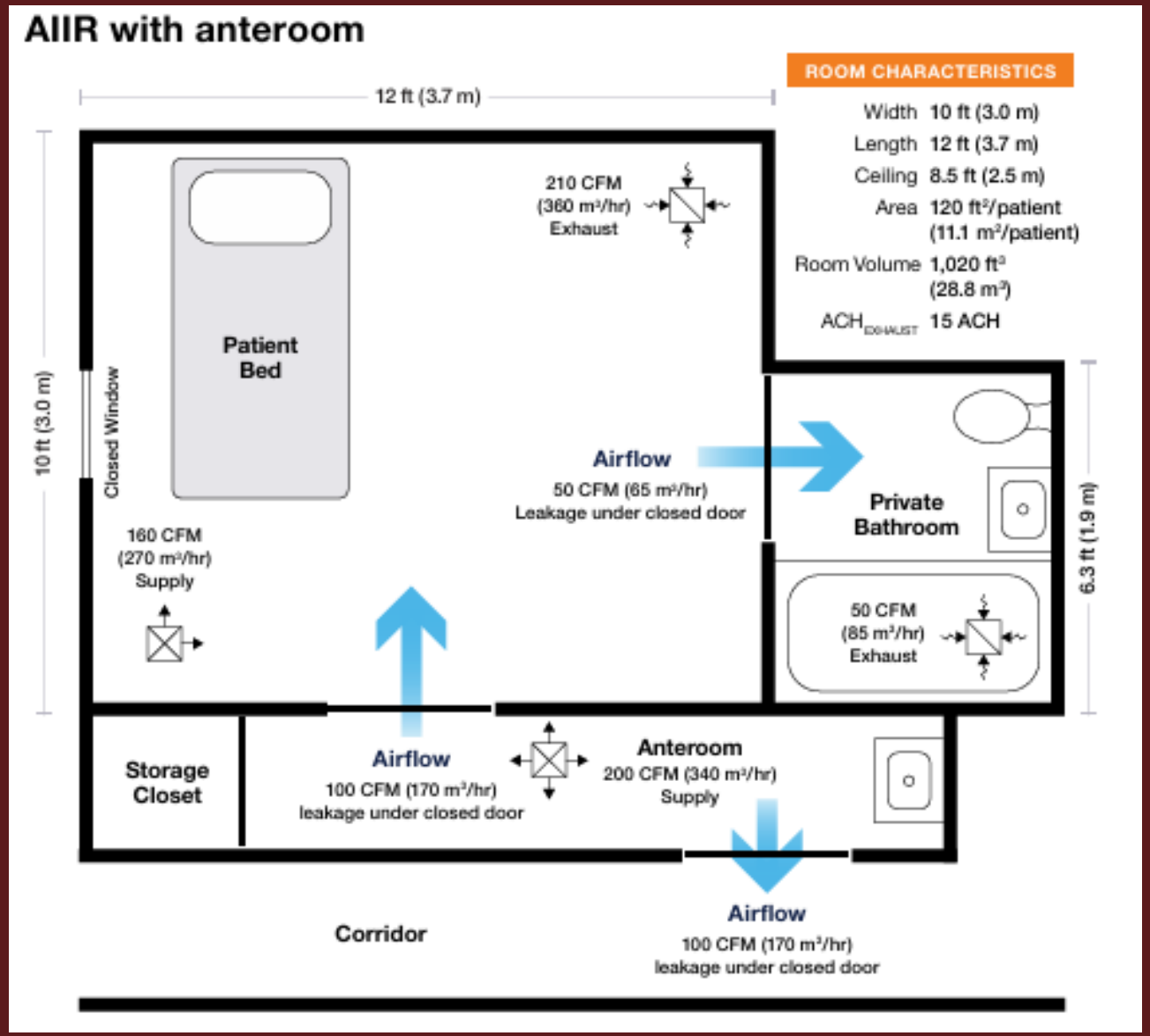
Have a minimum of 12 air changes per hour (ACH) (including 2 ACH supplied from outdoor air) for dilution of TB or other airborne infectious microorganisms.

Have a minimum pressure differential, relative to surrounding areas, of at least 0.01 inches of water gauge (“w.g.) (2.5 Pa) such that air flows into the AIIR for containment of airborne TB or other microorganisms.

Maintain a negative pressure (pressure differential) relative to surrounding spaces. The minimum airflow differential (exhaust vs. supply) should be at least 10% or 100 CFM (>170 m3/h), whichever is greater, for maintaining a negative pressure relative to surrounding spaces.

AIIR WITH ANTEROOM

- Open door = lost pressure differential
- Keep anteroom negative to corridor=pressure maintained
- Can be neutral, positive, or negative pressure to corridor
- Keep anteroom at positive pressure with respect to AIIR



MAINTAINING NEGATIVE PRESSURE

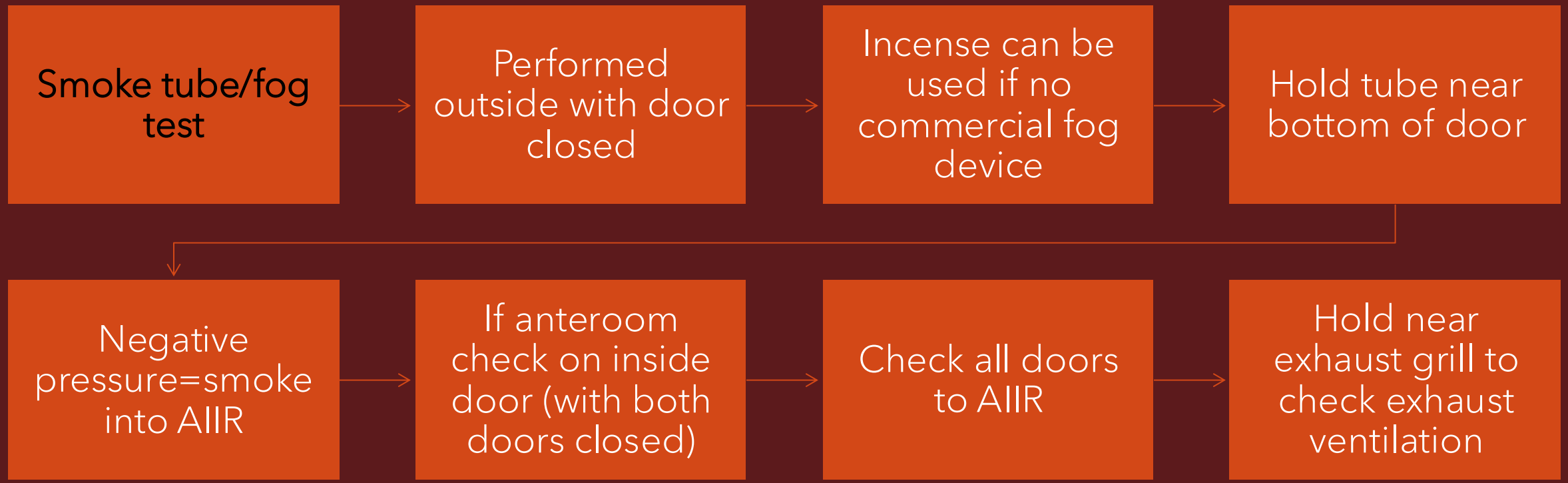
Electronic Pressure Monitors

- Ensure working properly

  alarms, display, etc.
- Check monthly when not in use
- Check daily when in use
- Ensure negative pressure

1. Measure airflow and calculate ACH yearly
   a. *done by certified technician*
2. Maintain belts for exhaust systems

MAINTAINING NEGATIVE PRESSURE

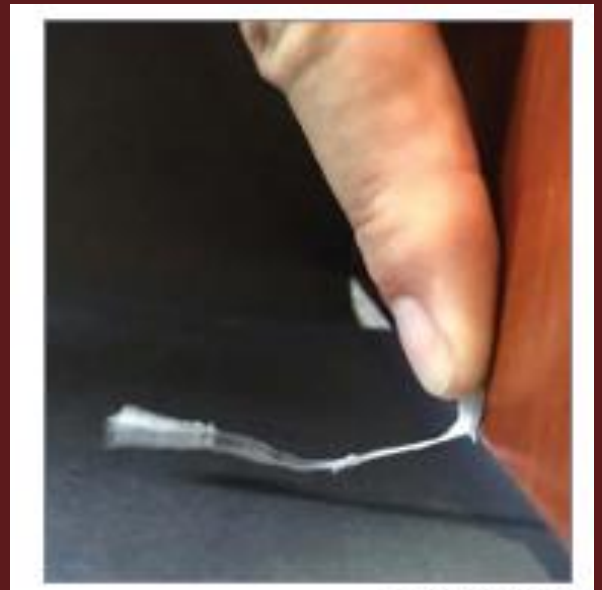


MAINTAINING NEGATIVE PRESSURE

Tissue Test

- Use if smoke is unavailable or irritating to inmate
- Hold thin strip parallel to gap inside room

  Strip moves in direction of air pressure
- Release small piece of tissue at floor/door gap
- Tissue drawn into room if negative pressure



Source: CITC

Source: CITC

MAINTAINING NEGATIVE PRESSURE

Velometer (swing-vane model) measurement

- Close AIIR door
- Place base of door inside room
- Will dictate air flow direction and velocity

*all tests should be repeated 3 times until consistent results

Source: CITC

Attachment 1a: Sample Airborne Infection Isolation Rooms Monthly Monitoring Log (Unoccupied Rooms)

DATE YEAR:	ISOLATION ROOM # 1	ISOLATION ROOM #	ISOLATION ROOM # 2	TESTER
January				
February				
March				
April				
May				
June				
July				
August				
September				
October				
November				
December				

Yes	**Indicates that the tissue is pulled into the room from the hall—meaning that there is negative pressure and the room is functioning correctly**
No	**Indicates tissue is NOT pulled into room from the hall--meaning there is not negative pressure and the room not functioning properly and requires maintenance and should not be used.**
N/A	**Indicates that room is currently occupied and therefore is being tested daily.**

COMMENTS:

_____

_____

_____

Attachment 1b: Sample Airborne Infection Isolation Rooms Daily Monitoring Log (Occupied Rooms)

Date	Room # 1	Name of HS Staff	Date	Room #	Name of HS Staff	Date	Room # 2	Name of HS Staff
Yes	Indicates that the tissue is pulled into the room from the hall—meaning that there is negative pressure and the room is functioning correctly							
No	Indicates tissue is NOT pulled into room from the hall--meaning there is not negative pressure and the room not functioning properly and requires maintenance and should not be used.							

CHECK FOR TAMPERING

- Wet tissue on exhaust vent
- Damage to exhaust vent

  in room or outside
- Towels at door
- Door open to anteroom

REFERENCES

IC_2024_ONLINE.pdf

https://www.currytbcenter.ucsf.edu/products/view/tuberculosis-infection-control-practical-manual-preventing-tb