THE UNIVERSITY OF SYDNEY

NeoCol: Standard Operating Procedure (SOP) for Environmental Swabs v3.0

Purpose:

The purpose of this SOP is to describe the standard procedures involved in collecting environmental swabs according to the NeoCOL study protocol.

Principal:

Environmental swabs will collect a sample of environmental surfaces in the Neonatal Intensive Care Unit to detect the presence of the resistant (ESBL-producing and CRE) bacteria and *Candida* species that may colonise hospital surfaces. The samples for resistant bacteria will be collected from one high touch and two wet areas within the unit. The samples for fungi will be collected from one high touch and one wet area. Any isolated resistant bacteria / fungi will be identified to the species level to see how they relate to those that colonise infants and their mothers. The collection of environmental samples will occur at the same time for all locations and be undertaken weekly at the same time of day (e.g. 0800). Ward cleaning should continue as normal with swabs not to be taken directly after cleaning. Swabs should be collected by the same research assistant to ensure consistency.

Responsibility:

This SOP applies to any clinical staff who are taking environmental swabs from the NICU during the NeoCOL study. It is the responsibility of those users to follow these guidelines when collecting environmental swabs for the study.

Safety Requirements:

Gloves should be worn during swab collection. Standard clinical hand hygiene practices should be followed before, and after sample collection. Handle all specimens with care and treat them as potentially infectious material.

Materials:

- Non-Sterile gloves.
- X5 sterile swab plus container with amies medium
- 0.9% Sodium Chloride (to moisten swab)
- 10cm^2 pre-cut template.
- X5 cryogenic label
- Plastic zip lock bag for specimen transport

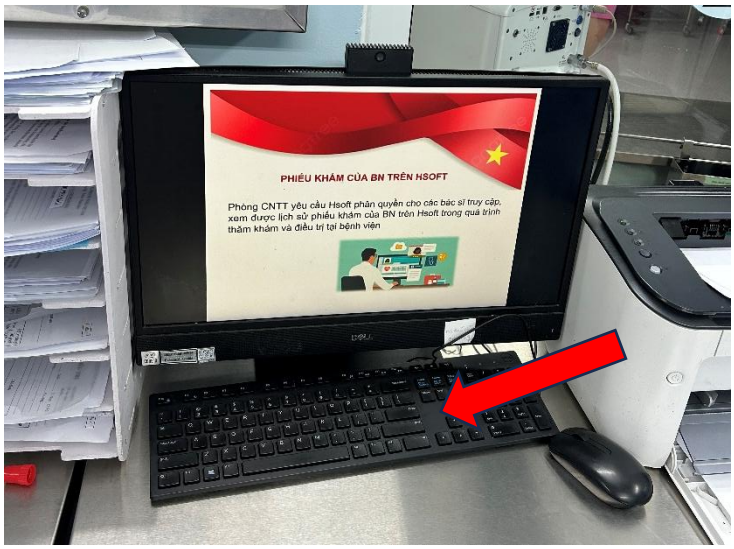
Procedure:

1. Label each of the specimen containers according to the label coding system (see appendix).
2. Perform hand hygiene and put on gloves.
3. Open the sterile swab package and remove the swab, being careful not to touch the top of the swab to yourself or any other surfaces.
4. Moisten the swab with Sodium Chloride solution.
5. Place the 10cm^2 pre-cut template over target surface to swab.
6. Swab the target contact surface from top to bottom and side to side within the target template, rotate the swab a minimum of three times to ensure all sides of the swab made contact with the surface so that maximal surface area is obtained.
7. Place the swab into the respective labelled transport container and place into the plastic ziplock bag.
8. Repeat for each target environmental surface (see Appendix)
9. Transport the swabs to the laboratory within 30 minutes via pneumatic transport system in the NICUfor storage at 4°C pending transport to processing laboratory.
10. Log the sample collection into the NeoCOL Environmental Sample Collection Log.
11. Dispose of any waste as per hospital policies.
12. Samples will then be processes as per SOP 05 MDR / SOP09 Fungal Processing.

Appendix 1: Environmental Swab

Swabbing of the following areas every week for Resistant bacteria:

1. High touch surfaces:
    a. Nurse station keyboard (the same chosen keyboard at nurse station in NICU to be swabbed each time)

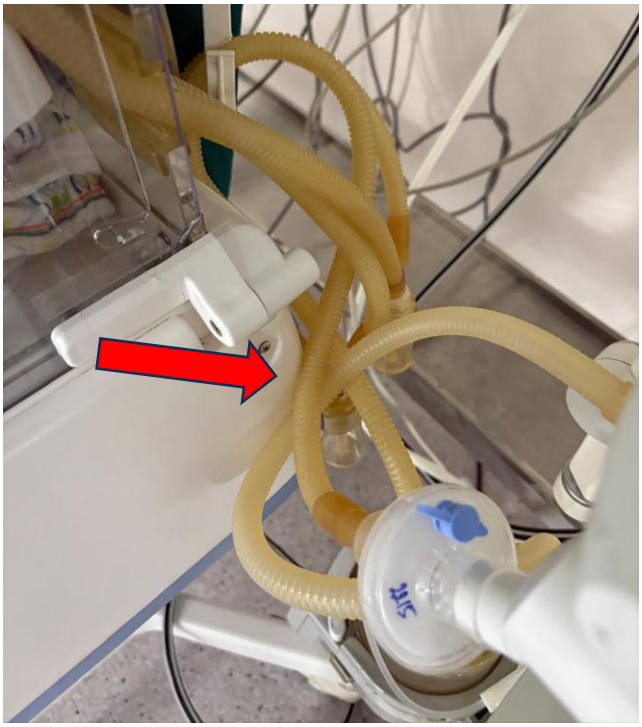


2. Wet surfaces
    a. Water reservoir surface of evaporative humidifier

b. Hand washing sink drain in NICU 1 (N.B. Swab drain rather than basin. If possible, remove drain cover and swab inner drain).

Swabbing of the following areas every week for Fungi:

1. High touch surfaces:
    a. The devices involving the airway, ITT or CPAP tubes (remove the tubing and swab inside).



2. Wet Surfaces
    a. Hand washing sink drain in NICU 1 (N.B. Swab drain rather than basin. If possible, remove drain cover and swab inner drain).

Appendix 2: Specimen Labelling Code

Site		*Week Number*	*Swab type*			*Sample Location*	
E	Hung Vuong Hospital	**01 – 52**	**EB**	Environmental Bacterial	**H** *High touch surface*	**1**	*Keyboard nurse station*
					W *Wet sample area*	**1**	*Water reservoir surface of evaporative humidifier*
						2	*Hand washing sink drain.*
			EF	Environmental Fungal	**H** *High touch surface*	**1**	*The devices involving the airway, ITT or CPAP tubes*
					W *Wet sample area*	**1**	*Hand washing sink drain*

E.g. E02EBW2 = Hung Vuong Hospital, Week 2, Environmental Bacterial swab, Wet Sample location, handwashing sink drain

References

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- Price JR, Cole K, Bexley A, Kostiou V, Eyre DW, Golubchik T, et al.. Transmission of Staphylococcus aureus between health-care workers, the environment, and patients in an intensive care unit: a longitudinal cohort study based on whole-genome sequencing. The Lancet Infectious Diseases [Internet] 2017;17(2):207–14. Available from: https://dx.doi.org/10.1016/s1473-3099(16)30413-3
- Baba H, Kanamori H, Nakayama A, et al. A cluster of *Candida parapsilosis* displaying fluconazole-trailing in a neonatal intensive care unit successfully contained by multiple infection-control interventions. *Antimicrob Steward Healthc Epidemiol*. 2024;4(1):e86. Published 2024 May 16. doi:10.1017/ash.2024.77

Document History

Version	Author(s)	Approved by	Update Reason	Date	SOP No:
1.0	B. Dickson	P. Williams	New document	27NOV2023	NeoCOL_SOP08
2.0	B. Dickson	P. Williams	Re-word. Add handrub tip.	20DEC2023	NeoCOL_SOP08
3.0	R. Kelleghan	P. Williams	Adapted for NeoCOL 2.0	07FEB2025	NeoCOL_2.0_SOP08
4.0	R. Kelleghan	P. Williams	Images added	05JUN2025	NeoCOL_2.0_SOP08

Site Training Record

Trainee Name	Read/Understand SOP (Tick)	Access to SOP (Tick)	Trainee Signature	Date	Trainer Initials