

## Supplementary materials

# Compounding parenteral products at pediatric wards – effect of environment and aseptic technique on product sterility

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### Document S1: Instruction for compounding given to participants.

#### Instruction for sample compounding

Compounding should be done in the same way as normally during the workday. Additionally, settle plates will be opened on the table or in the biological safety cabinet before starting the compounding. After compounding, the participant will give finger dab plates to the agar plate.

1. Open the settle plates on the table or in the biological safety cabinet.
2. Start compounding.
3. Add 5 mL of sterile water for the injections through mini-spike to the injection bottle.
4. Let the powder dissolve.
5. Take 2 mL of solution through mini-spike to two syringes (10 mL).
6. Dilute the solution by adding sterile NaCl solution (0.9%) to the syringes (ad 10 mL) with another syringe and needle.
7. Close the solution syringe with a sterile cap.
8. Give finger dab plates.

### Document S2: Observation forms.

Compounding in patient room:	Participant	
	1	2
Participant does not have infectious disease		
Participant is not wearing jewellery or watches on his/her hands or wrists		
Participant cleans the table with an alkaline cleanser		
Participant cleans the table with 80% denaturated ethanol		
Participant washes hands with soap before compounding		
Participant disinfects hands before compounding		
Participant uses a disposable non-sterile protective gown		
Participant uses a hair cover		
Participant puts on a surgical face mask		

Participant puts on non-sterile gloves before disinfecting the equipment to be used in the compounding and cleaning the compounding area

Participant disinfects his/her hands before changing the gloves

Participant changes the gloves before starting the medicine compounding

Participant disinfects the septum of the vial even though it has manufacturer's cap on

Participant does not touch the connecting part of the syringe or the needle

Participant disinfects the septum of the vial before piercing it again

Participant mixes the product by turning back and forth, not shaking

Compounding in medicine room:	Participant 1	Participant 2
Participant does not have infectious disease		
Participant is not wearing jewellery or watches on his/her hands or wrists		
Participant cleans the table with an alkaline cleanser		
Participant cleans the table with 80% denaturated ethanol		
Participant washes hands with soap before compounding		
Participant disinfects hands before compounding		
Participant uses a disposable non-sterile protective gown		
Participant uses a hair cover		
Participant puts on a surgical face mask		
Participant puts on non-sterile gloves before disinfecting the equipment to be used in the compounding and cleaning the compounding area		
Participant disinfects his/her hands before changing the gloves		
Participant changes the gloves before starting the medicine compounding		
Participant disinfects the septum of the vial even though it has manufacturer's cap on		
Participant does not touch the connecting part of the syringe or the needle		
Participant disinfects the septum of the vial before piercing it again		
Participant mixes the product by turning back and forth, not shaking		

Compounding in laminar biological safety cabinet:	Participant 1	Participant 2
Participant does not have infectious disease		
Participant is not wearing jewellery or watches on his/her hands or wrists		
Participant cleans the table with an alkaline cleanser		
Participant cleans the table with 80% denaturated ethanol		
The BSC is turned on for 15 minutes before starting the compounding		
Airflow of the BSC is at maximum speed		
Participant washes hands with soap before compounding		
Participant disinfects hands before compounding		
Participant uses a disposable non-sterile protective gown		
Participant uses a hair cover		
Participant puts on a surgical face mask		
Participant puts on non-sterile gloves before disinfecting the equipment to be used in the compounding and cleaning the compounding area		
Participant cleans the cabinet with an alcoholic disinfectant		
Participant places a sterile drape cover onto the benchtop in the BSC		
Participant disinfects the equipment to be used in the compounding before the compounding or putting them into the BSC		
Participant disinfects his/her hands before changing the gloves		

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Participant changes the gloves before starting the medicine compounding

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Participant disinfects the septum of the vial even though it has manufacturer's cap on

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Front glass of the BSC is kept in working position

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Participant opens sterile packages inside the BSC

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Participant does not touch the connecting part of the syringe or the needle

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Participant disinfects the septum of the vial before piercing it again

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Participant mixes the product by turning back and forth, not shaking

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No spatters

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**Table S3.** Microbes identified by OmniLog ID System in the two contaminated product samples.

Compounding area	Phenotype of the CFU	Number of CFU/ml	Identified contaminant	Omnilog ID System protocol used
PR	Bright orange, big, round convex, shiny	$1.89 \times 10^6$	<i>Dietzia maris</i>	Protocol A
PR	Bright yellow, small, round, convex, shiny	$0.38 \times 10^6$	<i>Corynebacterium mycetoides</i>	Protocol A
BSC	Light yellow, big, round, flat, shiny	$1.8 \times 10^4$	<i>Paenibacillus castanea</i>	Protocol B
BSC	Light yellow (almost white), small, round, flat, shiny	$0.21 \times 10^6$	<i>Staphylococcus capitis</i>	Protocols A and C1