[LOGOS OF SPONSORING ORGANIZATIONS]

Reprocessing Guidelines for Basic Neonatal Resuscitation Equipment in Resource-Limited Settings
WORKSHOP FACILITATORS' GUIDE

OBJECTIVE
The objective of this training workshop is to introduce the reprocessing guidelines for basic neonatal resuscitation equipment in [COUNTRY]. The workshop will develop the expertise of the attendees and equip them with tools to implement changes both nationally and at facility level.

SPECIFIC AIMS
At the end of the workshop, participants will be able to:

1. Describe the new reprocessing guidelines and be familiar with all reprocessing steps.
2. Understand the rationale for each step.
3. Understand strategies to improve reprocessing of neonatal resuscitation equipment both nationally and at the facility level.
4. Be able to use and improve upon templates for training content, flow, and materials.

RECOMMENDED SETUP
The workshop is designed to be conducted in one business day in a large venue with enough space for a projected presentation, simulated reprocessing spaces, and separate group discussions. A ratio of one facilitator per every five participants is recommended. Following the space recommendations described in Section 3 of the *Reprocessing Guidelines for Basic Neonatal Resuscitation Equipment in Resource-Limited Settings*, a simulated reprocessing space should be arranged for every five participants. Ideally, each reprocessing space will be set in a separate room.

Items that facilitators should prepare to have available at the workshop include:

1. Materials needed to set one simulated reprocessing space for every five participants (including two rectangular tables, buckets with lids, water, gloves, printed high-level disinfection (HLD) logs, job aids posted on walls, etc.). See list of materials in reprocessing guidelines for further details. Pick only one or two methods of disinfection to demonstrate during the hands-on session. Include as many of the materials as possible as this will be what participants remember should be done. **Due to concern about fumes, do not use bleach or glutaraldehyde during the demonstration. Simulate such chemicals with water but be sure to have real labels or simulated labels.**
2. Projector.
3. Projection screen.
4. One printed copy of the facilitators' guide for each facilitator.
5. One printed copy of the workshop agenda for each participant.

6. One printed copy of reprocessing guidelines and laminated general job aid for each participant.
7. One printed copy of the pre-test for each participant.
8. One printed copy of the post-test for each participant.
9. One printed copy of the simulation checklist for each participant.
10. One printed copy of the quality improvement road map for each participant.
11. One USB for each participant that has an electronic copy of PATH planning tools, all available in http://www.path.org/publications/ (Quantification Tool for Basic Neonatal Resuscitation Commodities; A Toolkit for Procuring Quality-Assured Basic Neonatal Resuscitation Commodities; Reprocessing Guidelines for Basic Neonatal Resuscitation Equipment in Resource-Limited Settings; Reprocessing General Job Aid; Quality Improvement Roadmap).
12. One printed copy of the workshop evaluation for each participant.
13. One printed certificate of completion for each participant.
14. Per Diem for each participant.
15. Optional: one laptop for every five participants (to project pictures from their facility, to take notes during small group discussions).

During the hands-on demonstration and small group sessions, each facilitator will lead a team of five participants. During the small group session, the team will discuss an improvement plan for their specific health facility or a plan for national roll-out. The national roll-out team will consist of Ministry of Health (MOH) officials and other relevant stakeholders. The facility-based implementation teams will consist of the in-charge nursing officer of the labor ward of a given facility, one selected member of the Infection Control Committee (ICC) of that same facility, one provider from the same facility, one Helping Babies Breathe (HBB) master trainer/facilitator and one MOH official.

RECOMMENDED PARTICIPANTS

1. MOH officials that oversee reprocessing of neonatal resuscitation equipment.

2. In-charge nursing officer of the labor ward from each type of facility.

3. Members of ICC:
   - Hospital administrator
   - Infection control nurse
   - Contractor of cleaning services
   - Medical officer in-charge
   - Infection control nurse
   - Health facility in-charge

4. Providers directly responsible for reprocessing resuscitation devices from the same facilities as the in-charge nursing officers.

5. HBB master trainers/facilitators that provide patient care and normally perform reprocessing.

ADVANCED PREPARATION FOR PARTICIPANTS

- Review PATH's reprocessing guidelines in detail.
- Review current national or facility infection prevention and control guidelines (whichever are currently being used in the facility).

- Identify similarities and differences between the PATH guidelines and the current guidelines that are being used.
- Optional: take pictures of their facility's labor ward reprocessing space (bring in USB for projecting on laptop) and bring examples of current log books used in the facility. These tools will be used to guide improvement discussions.

ACTIVITIES FOR WORKSHOP

1. **Registration (15 minutes)**

2. **Welcome and introductions (30 minutes)**

3. **Welcoming words from [Country] MOH representative (5 minutes)**

4. **Pre-test (15 minutes)**
   Use pre-test developed by PATH.

5. **Reprocessing theory presentation (60 minutes)**
   Use presentation developed by PATH.

6. **Break (10 minutes)**

7. **Hands-on stations (2 hours or more)**
   Dynamic: Each facilitator explains and demonstrates the complete process to his/her team of five participants (this takes about an hour). Depending on time available and preferred structure of the workshop, the facilitator may plan to allow more time for the hands-on station to allow each participant to go through the simulation. If time is limited, then one participant from each team is selected to demonstrate the whole process (prior selection of one single disinfection method to be simulated; boiling method preferred) while the rest of the team provides feedback using the simulation checklist.

   Standing during the entire simulation might be tiring for participants, so encourage participants to sit in chairs placed in a way that allows everyone to observe the simulation.

   The facilitator will be well acquainted with the content of guidelines and will go over all methods and steps, making emphasis on the following points in each stage. (Note: the pages in the guidelines where detailed information on those points can be found are provided in parenthesis in the list below.)

   A. Preparing the area for reprocessing
   - Reprocessing general job aid and other job aids (including disassembly/reassembly images) in place.
   - Gloves **(p. 12)** and personal protective equipment **(Appendix 3)**.
   - Clean vs. dirty areas/surfaces for each step **(p. 5–10)**.
   - Wiping counters, mopping floors **(p. 13)**.
     - **Clean the reprocessing space from "CLEAN" to "DIRTY"**
   - Safe storage of chemicals **(Appendix 4)**.
   - Preparation of all solutions **(p. 15–17)**.
   - Labeling (content, date, time) and covering.
   - Chlorine recommendations **(p. 16 and 17)**.
     - Caution about exposure to heat, sunlight, and mixing with other chemicals (including soap).

- Practice dilution of chlorine **(Appendices 5 and 6)**. Use of simulated sodium hypochlorite (household liquid bleach) during the workshop will be easier than simulating powdered bleach.
- Frequency of changing the different solutions (chlorine, daily or earlier if cloudy; soapy water, after each use; rinse water, after each use).
- Use of HLD and/or sterilization logs **(Appendices 8 and 9)**.

B. Pre-disinfection

- **Immediate pre-cleaning (p. 18 and 19)**:
  - Terminology clarification: "decontamination" term to be avoided as it is easily confused with disinfection
  - Not using gloves from delivery cot (due to potential contamination from feces and vaginal secretions).
  - Not using cotton wool.
- **Disassembly (p. 19)**:
  - Devote time to practice disassembly.
  - Importance of posting a copy of the instructions or self-made instructions for disassembly/reassembly guidance.
  - Count number of pieces. Suggest writing it somewhere in log, even if no specific space was provided.
  - Open suction device away from face.
- **Cleaning (p. 20)**:
  - Do NOT mix resuscitation equipment with delivery equipment.
  - Source of water, importance of liquid soap, brush. Option of enzymatic cleaner. Wash gloves first.
  - Use of rolled gauze for cleaning small spaces of bag, mask, and suction; use of toothpicks for cleaning suction device.
- **Rinsing after cleaning (p. 21)**:
  - Source of water. Rinse gloves first.
- **Mention (briefly) removal of limescale (calcium carbonate) (p. 22 and 23)**:
  - 1-part water to 1-part vinegar (1:1); soak for 10 minutes; rinse; repeat if needed.
- **Wiping dry after cleaning (p. 23)**:
  - Air drying increases reprocessing time.
  - Only needed before sterilization or chemical disinfection.

❖ **Emphasize that after completing cleaning the equipment is still NOT disinfected.**

C. Disinfection

❖ Each unit needs to determine primary and backup disinfection method.
❖ Reiterate the use of gloves and when to change gloves during the process.

- Ideal method is **autoclaving (p. 24–26)**.
  - How to determine time and temperature (brief instruction only) **(Appendix 7)**.
  - Use of sterilization log **(Appendix 8)**.
- **Thermal disinfection (for both mention water source, timing, use of HLD log)**:
  - Boiling: Fully submerged equipment (at least 2.5 cm of water above equipment). Wait for rolling boil to begin timing for 20 minutes **(p. 27 and 28)**.
  - Steaming: Wait for steam to come out of the pans and lid to begin timing for 20 minutes **(p. 29 and 30).**
  - HLD log for both boiling and steaming can be found in **Appendix 9**.

❖ Remind group about use of aseptic technique for removal of equipment from HLD method (to prevent burns, only use HLD forceps to remove equipment from

boiling machine. Can use sterile/HLD gloves to remove equipment from steamer if equipment is cooled).

- **Chemical disinfection (p. 31)**:
  - Chlorine (mention concentration/dilution, timing, use of logs, rinsing) **(p. 32–33, 35)**.
  - Glutaraldehyde (describe testing solution before use, concentration/dilution, timing, use of logs, rinsing) **(p. 33–35)**.
  - ❖ Remind group about use of aseptic technique for removal of equipment from HLD method (demonstrate technique once with HLD forceps and once with sterile/HLD gloves).
  - ❖ Remind about frequency of changing chemical solutions.

- **Drying after HLD (p. 36)**:
  - Parts should be placed on HLD surface or autoclaved linen.
  - Benefit of using sterile gauze (and new pair of sterile gloves) for wipe drying. Cons of air drying (to demotivate use): longer time, higher risk of recontamination, saves the use of one more pair of gloves given that they have to come back a few hours later if air drying.
  - If no other choice, air dry in protected space (stacking steamer pans if applicable).
  - Autoclave provides benefit of drying equipment in protected space, as part of process. Wait until machine is cool before removing equipment.

D. Post-disinfection

❖ All these steps take place in an HLD area or on top of autoclaved linen.

- **Inspection (p. 37 and 38)**:
  - Ensure all parts are from same brand and model.
  - Count parts again.
  - Describe damaged equipment (damage, missing parts, membranes stuck together, residual contamination or moisture, mineral deposits).
- **Reassembly (p. 38)**:
  - Posting a copy of the instructions or self-made instructions for disassembly/reassembly guidance.
  - Devote time to practice reassembly.
- **Function testing (p. 38 and 39)**:
  - Use of general job aid for function testing.
  - Three steps to test bag/mask and one for suction device.
  - Simulate non-functional equipment.
    - Non-functional equipment can be simulated by removing the intake valve.
- **Failed equipment (p. 40)**:
  - Check with supervisor.
  - Develop and implement process to prevent malfunctioning equipment from being used.
  - Intact components can be used as replacement parts for SAME brand and model of resuscitator.
- **Storage (p. 40 and 41)**:
  - Use HLD plastic/metal covered container, NEVER cardboard containers (pests and insects).
  - Disinfection of large storage container through autoclaving/boiling is likely difficult, so should follow HLD method described on p. 41 of the guide at LEAST

once a week (or more often if dusty). Demonstrate cleaning/washing storage container and then wiping with clean gauze soaked in chlorine 0.5%.
- Option to wrap and store in autoclaved linen. Autoclave linen weekly.

8. **Lunch (60 minutes)**

9. **Post-test (10 minutes)**
   Use post-test developed by PATH.

10. **OPTIONAL: Understanding the current status of HBB in [Country] (15 minutes)**

11. **Small group discussions (60 minutes). Break up into small groups (national and facility levels; five participants per facilitator) and use the following discussion points.**

    NATIONAL LEVEL: One group can discuss the possibility of incorporating neonatal resuscitation equipment reprocessing into HBB training in [Country].

    1. What are the strengths/opportunities and challenges/weaknesses to incorporating the reprocessing training?
       a. Example: How might reprocessing be incorporated into HBB training?
       b. How to train those who don't regularly receive HBB training (such as rotating students and custodial staff)?
    2. What are activities that need to be undertaken?
       a. What are the priority activities and the timeline for those activities?
       b. Who are the major stakeholders for each activity?

Possible prompts for facilitators (if needed) to keep discussion moving:

- leadership for rollout,
- approach to roll-out (geographic, by facility level, etc.),
- timeline,
- service delivery (training of reprocessing) [see further discussion items below],
- process and quality indicators (and tracking of data),
- resources (funding, people, etc.).

For service delivery:

- types of training pre-service, in-service, Trainers of Trainers, workshops, Continuing Medical Education (CME) sessions, other
- how to train custodial staff or rotating students who reprocess (since they aren't part of HBB training),
- mentorship of trainers/healthcare workers/custodial staff
- quality improvement cycles.

FACILITY LEVEL: other groups will discuss the implementation of neonatal resuscitation equipment reprocessing at the facility level.

- **Main topics for facility level:**
  - Organizing a team to improve reprocessing in the facility.
  - Identify gaps in current reprocessing practices, barriers, and possible changes needed (optional starting point: analyze pictures of team's reprocessing area).
  - Determine how to tailor reprocessing to the level of the health facility
  - Discuss how to determine resuscitation equipment needed (use of quantification tool, procurement toolkit).
  - Discuss ways to improve dissemination of these reprocessing guidelines within facility (mentorship, CME, quality improvement cycles)
  - Establish timeline for implementing changes.
- **Other topics (if time allows):**
  - Determine how to incorporate reprocessing into HBB training.
  - Discuss setting up skills practice for providers.
  - Identify resources to support quality improvement in facilities.
  - Identify possible process and outcome measures (use of quality improvement road map) (baseline performance and post-implementation performance).
  - Discuss how to determine volume purchasing of chemicals and materials.
  - Determine distribution of supplies and equipment (replacement).
  - Discuss how to get bioengineering/maintenance resources to support reprocessing.

12. Report out from both groups and plans for implementation—entire group (45 minutes)

Each group will have 15 minutes each to share conclusions and plans with rest of the groups.

13. Workshop evaluation (10 minutes)

Use workshop evaluation form developed by PATH.

14. Distribution of certificates of participation (10 minutes)

Facilitator should allow time for distribution of per diem, when necessary, following customary methods of country.

Use the Test Key developed by PATH to compare average results between the Pre-Tests and the Post-Tests. This comparison along with the input received in the Workshop Evaluation Forms will help the facilitator determine if the workshop achieved some of its aims, and whether improvements in the training technique are needed.

Support for this project is made possible by the generous support of the American people through the United States Agency for International Development (USAID) under the terms of the HealthTech V Cooperative Agreement #AID-OAA-A-11-00051. The contents are the responsibility of PATH and do not necessarily reflect the views of USAID or the US Government.