

## **SUPPLEMENTARY MATERIAL**

Supplementary material S1: First-round survey questionnaire

Supplementary material S2: Second-round survey questionnaire

**Supplementary material S1: First-round survey questionnaire****GENERAL INFORMATION**

1. What is your profession?
2. How many years of experience do you have working with neonates?
3. Please select one place where you work the most.
4. Which country do you work in?

**MONITORING**

5. Which is the most commonly used method to determine the neonate's temperature in your institution?
6. Which is the most commonly used site to determine the neonate's temperature to diagnose hypothermia in your institution?
7. In your personal opinion, how good is the neonate's temperature currently monitored in your institution?
8. How soon is neonatal hypothermia detected for prompt interventions in your institution?
9. Do you think manual measurement of hand/foot temperature is useful in detecting/monitoring adequate thermal balance in the neonate?
10. In your personal opinion, what improvement is necessary for better monitoring of the neonate's temperature in your institution?

**PREVENTION**

11. In your personal opinion, how important are the 10 preventive measures\*<sup>1</sup> below?
12. In your personal opinion, how good are the 10 preventive measures practiced in your institution?
13. In your personal opinion, what specific interventions could potentially improve the prevention of neonatal hypothermia in your institution?

\*<sup>1</sup> Keeping the delivery room warm (>25 °C), drying immediately after birth, skin-to-skin contact, breastfeeding, delayed bathing and weighing at birth, appropriate clothing/bedding, keeping mother and baby together, warm transportation, warm resuscitation, improved awareness and recognition of hypothermia risk.

**MANAGEMENT**

14. In your personal opinion, how important are following means for the management\*<sup>2</sup> of hypothermic neonates in resource limited settings?
15. How good these management interventions currently done in your institution?
16. In your personal opinion, what specific interventions potentially improve the management of hypothermic neonate in your institution?
17. In your institution, what thermal care practice need to be improved the most?
18. In your institution, do you have guidelines or protocols to prevent and manage neonatal hypothermia?
19. If you answered yes in above question, what guidelines or protocols do you use in your institution?

\*<sup>2</sup> Keeping the room or space warm (>25 °C), applying plastic wrap/bag, skin-to-skin contact, breastfeeding, applying silvers waddler or survival blanket, appropriate clothing/bedding, using closed incubator, using radiant warmer, using heated mattress, treating underlying cause.

## Supplementary material S2: Second-round survey questionnaire

### GENERAL INFORMATION

1. What is your profession?
2. How many years of experience do you have in working with neonates?
3. Please select one place where you work the most.
4. Which country do you work in?

### MONITORING

In the optimum environmental temperature, a newborn uses the lowest oxygen and energy whilst maintaining a normal body temperature. Below the optimum environmental temperature, s/he is under cold stress<sup>\*3</sup> using more oxygen and energy to maintain a normal body temperature.

<sup>\*3</sup> In physiological terms, cold stress is defined as a condition in which neonates are in the below optimum environmental temperature using more oxygen and energy while still maintaining normal body temperature. It would result in hypothermia if uncompensated by thermoregulation.

5. Would you agree or disagree that core temperature (e.g. rectal or axillary) is a good indicator for cold stress.
6. Please explain reason(s) for your answer to the above question.
7. Would you agree or disagree that peripheral temperature (e.g. foot or hand) is a good indicator for cold stress.
8. Please explain reason(s) for your answer to the above question.
9. Would you agree or disagree that nurses and midwives are able to detect whether peripheral temperature (e.g. foot or hand) is cool/cold or not.
10. Would you agree or disagree that mothers (family members) are able to detect whether peripheral temperature (e.g. foot or hand) is cool/cold or not.

### DEVICES

Some respondents mentioned that warming devices would improve neonatal thermal care in resource limited settings at the first survey.

Warming devices require well trained health staff and skilled personnel to maintain and repair them when necessary. There are associated risks of use of these devices including hyperthermia, nosocomial infections, cross-infection from other neonates when devices are shared. Moreover, spare parts for repair may be impossible to get in resource limited settings.

11. How would you assess the three different devices (Radiant warmer, heated mattress, incubator) in terms of each indicator?
12. You are in charge of purchasing equipment for a new hospital with 100 deliveries/month and 20 admissions in neonatal intensive care unit/month in resource limited settings. When monetary resource is limited, which below option would you choose? (Please choose the one which seems the best or better than others)
13. Please explain the rationale for your above answer.

### GUIDELINES

14. How satisfied are you with the guidelines or protocols of hypothermia in your institution?
15. If you answer 'unsatisfied' or 'very unsatisfied', please explain reason(s) for your answer to the above question and how to improve it.