



Government of the Republic of Trinidad and Tobago

Ministry of Health



Women's Health

National Neonatal Transfer Protocol

Directorate of Women's Health
Ministry of Health

Trinidad and Tobago
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Message from the NeoCoTT and the Directorate

In 2017, the National Neonatal Committee (NeoCoTT) was officially founded to aid the Maternal, Neonatal and Child Health Committee in advancing this nation's agenda of neonatal and perinatal health, in keeping with the Sustainable Developmental Goal (SDG) targets for 2030 and the Sustainable Health Agenda for the Americas.

With the achievement of the 2030-SDG target of a neonatal mortality rate of less than 9 per 1000 live births in 2018, and continuing to present day, the focus of the Committee is now on sustaining the reduced mortality rate while ensuring the continued reduction through the practice of client focused evidence-based neonatal care. The NeoCoTT reports through the Directorate of Women's Health (DOWH) at the Ministry of Health.

The DOWH was created to improve maternal and perinatal outcomes and address international targets for Trinidad and Tobago. In line with the Global Strategy for Women's, Children's and Adolescent's Health (2016-2030), this document supports the objectives of "Survive, Thrive and Transform" by promoting the reduction of maternal and perinatal morbidity and mortality.

We used an 'adopt and adapt' method in the production of this guideline based on existing resources and expertise. Consensus was obtained from recognized multidisciplinary stakeholders based on the evidence and publications at the time of producing this document.

This Guideline complements and provides updated information related to 'Standard 4: Access to care and continuity of care of the neonatal patient' in the Standards for the Care of the Neonatal Patient (MOH, 2011) and in the 'Referral and Transfer Protocol (MOH, 2011).

Acknowledgements

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The work of the team from the Corporate Communications department in finalizing this publication is also acknowledged.

Dr. Marlon Timothy
Chairman
NeoCoTT

Dr. Adesh Sirjusingh
Director, Women's Health

List of Abbreviations

| | |
|-----------------|--|
| A&E | Accident and Emergency Department |
| CO ₂ | Carbon dioxide |
| DOWH | Directorate of Women's Health |
| IV | Intravenous |
| MOH | Ministry of Health |
| NICU | Neonatal Intensive Care Unit |
| NeoCoTT | National Neonatal Committee of Trinidad and Tobago |
| O ₂ | Oxygen |
| PEEP | Positive End Expiratory Pressure |
| PPE | Personal Protective Equipment |
| RHA | Regional Health Authority |
| SDGs | Sustainable Development Goals |
| SMO | Specialist Medical Officer/Consultant |

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Preamble

On a regular basis, both in the private and public sector, there is need to transport or transfer neonates to other public institutions for specialist care, higher order neonatal care or specialist procedures. Most instances of neonatal transportation occur immediately following delivery or in the first few hours of life. While the need to have the neonate transferred and admitted quickly is the goal of the referring hospital/physician, it is preferable to transport the neonate safely and efficiently rather than quickly and inappropriately which can contribute to the morbidity or mortality.

1.0 Communication

- Any neonate requiring admission to a Neonatal Intensive Care Unit (NICU) at a public hospital is to be discussed with the Specialist Medical Officer (SMO)/Neonatologist on duty at that hospital (see current contact information below).
- The closest referral NICU is recommended but if no bed space is available, the next closest unit should be tried.
- Inter-Regional Health Authority (RHA) communication and arrangements can be made to facilitate transfer of patients.
- Independently while arranging the transfer, suitable transport arrangements must be put in place by the referring team and as directed by the SMO/paediatrician.
- All maternity units should be proactive and be aware of the on-call rosters for the nearest NICU.
- Ensure that the process for admission to the NICU is clear, depending on the hospital to avoid unnecessary delay through the A&E and clerical areas.
- Therefore on arrival, direct admission to the NICU, with paperwork to follow, is strongly recommended.

Current contact information for the NICUs:

- POSGH (Level 3) 285-8989/285-8988 Ext 2002
- MHWB (Level 3) 662-7583
- Sangre Grande (Level 2) 226-9972
- San Fernando 716 -5066/ 225-4325 Ext 3509

2.0 Documentation and Consent

- Ensure all documentation accompanies the patient e.g. referral letter, antenatal and intrapartum details, details of resuscitation, blood reports, radiographs and other imaging studies.
- The contact information of the parent(s) is clearly documented.
- The contact information for the referring doctor and facility should be documented in the referral letter, to facilitate ongoing communication.
- A copy of the signed parental medical consent form must accompany the patient to the referral centre. The referral hospital must also consent the parent(s) for the transportation process as there may be unpredictable events during the transfer.
- Counsel and obtain specific consent for possible blood and blood products- transfusion(s) and ensure that maternal blood samples accompany the patient [a full red top (clotted) and a purple top (EDTA sample)]. Where the parents are Jehovah's Witnesses or are refusing to give consent, please indicate this clearly on the consent and highlight same.

3.0 General care of the neonate during transfer

- Contact the NICU again at the time of departure and give an estimated time of arrival.
- All babies are to be transported to the NICU in a previously warmed, purpose-built, transport incubator.
- All babies are to be accompanied by the appropriate healthcare staff member(s) with the required expertise to facilitate the transfer according to existing protocols e.g. staff trained in the care of, and the resuscitation of the newborn.
- Ensure IV fluids are flowing at the appropriately calculated rate. Fluid should only be infused at a calculated rate using the general guidelines below:
 - a. Term neonate: 60 ml/kg/day
 - b. Preterm neonate 80 ml/kg/day
- Prior to departure, perform a blood glucose assessment and blood pressure assessment, and repeat every 15 minutes on route.
- Continuous pulse oximetry and heart rate monitoring is preferred.
- Temperature checks should be done during the transfer if the incubator lacks a temperature probe.

4.0 Special Scenarios

The following should be in place for a safe transfer process, in addition to the general requirements as noted above:

4.1 Transportation of the Intubated Neonate

If an infant has been intubated at the referring hospital-

- a. The appropriately sized endotracheal tube must be in place in accordance with the National Resuscitation Guidelines. These are:
 - i. ≤ 1000 g Size 2.5 Insertion depth 7 – 8 cm orally
 - ii. 1001 – 2000 g Size 3.0 Insertion depth 8 – 9 cm orally
 - iii. > 2000 g Size 3.5 Insertion depth 9 – 10 cm orally
- b. Correct ETT placement should be confirmed by auscultation, carbon dioxide (CO₂) colorimetric testing or Chest X-ray.
- c. Ventilation of the neonate while on route to the hospital should be done by one of the following methods:
 - i. By Positive End Expiration Pressure (PEEP) generating devices e.g. a transport ventilator or a T piece resuscitator (such as the Neo-T® or the Neopuff®)
 - ii. By flow inflating resuscitation bags – PEEP generating
 - iii. By self-inflating resuscitating bags – non-PEEP generating (least favourable)

PEEP generating devices help to improve aeration of the lungs, recruit alveoli and improve CO₂ elimination and Oxygen delivery. Any assistance needed in determining the peak pressure and PEEP needed to ventilate a neonate can be provided by the referral hospital team members.

- d. A blood gas assessment post intubation should be performed prior to transportation. This ensures the assessment of the intervention as well as provide a physiologic snapshot of the neonate prior to transportation. Abnormalities in the blood gas can also be corrected in real time prior to starting a journey with abnormal parameters which may persist for the duration of the transfer.
- e. Contact the referral hospital with all blood gas assessments prior to departure.
- f. Where possible and if needed, surfactant may be considered for administration prior to the transportation, as long as the referring paediatrician/team is competent at performing same.

4.2 Transportation of the neonate with sepsis

- Where sepsis is suspected or confirmed as the need for admission to the NICU, the referring paediatrician should indicate the antibiotics and dosages that have been administered.
- Where blood cultures have been taken, the referring paediatrician/team should provide the contact details for the laboratory where the sample is being processed or bring the specimens to the NICU.
- Staff accepting such babies at the referral hospital must observe the appropriate level of PPE as per the Manual of Infection Prevention and Control Policies and Guidelines (MOH,2011)
- Transfer of patients with contagious or viral diseases of unknown transmissibility from newborns to adults must be done in a transport incubator with the minimal standards as indicated in this document. This is applicable to all SARS-CoV-2 positive neonates, infants born to suspected or confirmed SARS-CoV-2 positive mothers.

4.3 Transfer of the neonate for possible surgical intervention

- The transfer of a neonate for surgical intervention follows the same pathways as above.
- Specific surgical management and capabilities available to each NICU should be discussed before effecting transfer.
- The accepting NICU will discuss with the surgical SMO on duty. Following this, the surgeon may also assist in effecting transfer of the patient.
- Where abdominal decompression is required, a size 6 – 8 orogastric tube must be inserted and left to drain freely.
- Any additional instructions given by the surgeons for stabilization and transportation are to be followed and documented in the referral note to the NICU.

5.0 Arrival and handover at the NICU

1. As noted, direct admission to the NICU is recommended.
2. On arrival, the physician will “handover” to the team accepting the patient.
3. On no account should parents’ vehicles or the use of vehicles, other than an ambulance, be utilized for transfers. This increases the risk of injury to the neonate, and the risk of sepsis to the baby and to the NICU of the receiving hospital.
4. Receiving units should ‘barrier nurse’ such babies until clinical assessment of sepsis risk is completed.

6.0 Research and Audit

Auditable elements include:

- 100% of relevant staff are aware of the National Neonatal Transfer protocol
- All relevant equipment standards are met and with documented checklists and certification including preventative maintenance schedules
- The unit’s compliance with standards including documentation and the transfer processes
- Compliance with national accreditation standards for the care of patients

7.0 Bibliography

- Referral and Transfer Protocol. Ministry of Health, Trinidad and Tobago, 2009
- Standards for the Care of the Neo-natal patient. Ministry of Health, Trinidad and Tobago, 2011.
- Manual- Infection Prevention and Control. Policies and Guidelines for Health Care Services. Ministry of Health, Trinidad and Tobago, and the Pan American Health Organization, 2011.
<http://www.health.gov.tt/downloads/DownloadItem.aspx?id=245>

Appendix

Recommended technical specifications for neonatal transportation equipment

Pneumatic driven PEEP generating resuscitators (e.g. Neo-T, Neopuff)

- Delivered Oxygen Concentration Up to 100%
- Cycling Pressure Range 0 to 60 cm H₂O
- Dead Space <4 ml
- Expiratory Resistance <0.2 cm H₂O at minimum PEEP setting @ 6 LPM
- Inspiratory Resistance <1.6 cm H₂O at minimum PEEP setting @ 6 LPM
- Input Gas Flow Range Minimum 5 LPM to Maximum 15 LPM
- Integral Patient Circuit Manometer Accuracy +/- 2% full scale deflection
- Maximum Pressure on Controller 60 cm H₂O +/- 5 cm H₂O @ 15 LPM
- (dependent on flow rate)
- Light weight device
- Patient Connection on T-Piece 15mm Taper Female (ISO 5356-1)
- D.I.S.S. standard Gas Delivery Pressures:
- Peak Inspiratory Pressure Range 0 - 60 cm H₂O
- Positive End Expiratory Pressure (PEEP) Range 5 to 15 cm H₂O pressure flow dependent
- Single use patient circuits

Transport Incubator

- Standard Features Large double-wall infant chamber with 360° visibility
- Head and front access doors
- Minimum 2 hand ports on front door
- +/- 2 hand ports on back of infant chamber
- Minimum 4 access ports for IV / respiratory tubing
- Light source
- Extended life battery
- Large LED display
- Infant restraint straps and adjustable infant restraint harness
- Air and O₂ cylinder mounts (2.5 L or 5.0 L)
- Skin temperature probe
- 6 IEC style accessory power outlets
- Oxygen blender with flowmeter (0 to 15 L/min)
- Audible and Visual Alarms System failure, Temp sensor failure, Air flow failure, AC failure, Power failure, High temp, Low battery
- Visual Indicators Set air temp, Set temp >37°C, Air temp, Baby temp, Battery life, Battery power
- Battery charging
- AC power
- External DC power
- AC Power 230V AC, 50-400 Hz
- External DC Power 12V DC, 10A maximum

- Internal Battery One 12V 26-amp hour sealed lead acid type with auto recharge
- Digital Air Temperature Control 17.0°C to 38.9°C range, 0.1°C increments Display resolution 0.1°C
- Sound Level <60 dB
- Additional Options Available
- Integrated Pulse Oximetry e.g. Masimo® or Nellcor™ with audible and visual alarms
- +/- Ventilator: Conventional

Oxygen saturation monitor

- Lightweight device capable of spot-check and continuous monitoring of SpO2 and pulse rate.
- Performs SpO2 and pulse rate measurement in either spot-check or continuous mode
- 2 – 7 inch LCD displays with SpO2 and pulse rate readings as a minimum
- Adjustable visual and audible alarms
- Either lithium ion battery back up
- Automatic standby mode and selectable auto-shutdown mode assist in conserving battery power

END OF DOCUMENT