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DEPARTMENT OF HEALTH

DOH STANDARD FOR PROVISION OF NEONATAL CARE SERVICES

January 2019

PUBLIC عـــام

Document Title:	DOH Standard for provision of Neonatal Care Services		
Document Ref. Number:	DOH/SD/NCS/0.9	Version:	0.9
Approval Date:	10/01/2019	Effective Date:	14/01/2019
Document Owner:	Healthcare Quality Division		
Applies to:	DOH Licensed Healthcare Providers in the Emirate of Abu Dhabi		
Classification:	⦿ Public		

1. Purpose

To ensure the provision of neonatal healthcare services in the most appropriate setting, by the most appropriate personnel to support the delivery of high quality specialized healthcare services.

2. Scope

This Standard applies to all healthcare providers, public and private, licensed by DOH in the Emirate of Abu Dhabi to provide neonatal care services.

3. Definitions[1]

Neonate	Infant age below and equal to 28 days.
High risk neonates	Deliveries or neonates cared for at emergency rooms. Neonate requires special procedures. Neonate requiring cardiac surgery at cardiac center. Neonate requiring admission for post-operative observation.

[1] British Association of Perinatal Medicine (August 2011) Categories of Care 2011.p.3-4. http://www.bapm.org/publications/index.php#guidelines.

Newborn in Level I Unit (Postnatal ward)	Mother must be resident with her baby and providing care with support from a midwife/healthcare professional. This includes newborns requiring a specific treatment that can be administered in post-natal ward, such as antibiotics or phototherapy.
Neonatal Care Unit - Level II Special Care Baby Unit	Neonate requiring IV fluid infusion, oxygen by nasal cannula less than 4 L/min and equal or less than 30% or for less than 24 hours. Feeding by nasogastric, jejunal tube or gastrostomy in the first 3 days and in consultation with pediatric surgery, continuous physiological monitoring (excluding apnea monitors) and special observation of physiological variables of 4 hourly or less, care of a stoma until feeding established and in consultation with pediatric surgery.
Neonatal Intensive Care - Level III and IV Neonatal Intensive Care Unit	Neonates requiring invasive and non-invasive respiratory support including oxygen by nasal cannula of more than 30% or more than 4 liter/min or for a duration of more than 24 hours. Neonates requiring surgery including therapy for retinopathy of prematurity (ROP) except uncomplicated circumcision. Neonates requiring or receiving any of the following: Central line , arterial lines, insulin infusion, chest drain, exchange transfusion, therapeutic hypothermia, prostaglandin infusion, inotropes infusion, replogle tube, parenteral nutrition, epidural catheter , silo for gastroschisis, urethral or suprapubic catheter, trans-anastomotic tube following esophageal atresia repair, naso-pharyngeal airway, nasal stent, observation for seizures, cranial function monitoring, tracheostomy until the first tube change and in consultation with pediatric ENT (usually done 5-7 days after insertion of the tracheostomy tube), external ventricular device, frequent ventricular taps and any type of dialysis .
Special Care (SC)	Special Care is that provided for all babies not requiring high dependency care or intensive care who could not reasonably be looked after at home by their mother or caregiver.
High dependency care (HDC)	HDC takes place in a neonatal unit and involves care for babies who need continuous monitoring, for example those who weigh less than 1,000g, or are receiving help with their breathing via continuous positive airway pressure (CPAP) or intravenous feeding, but who do not fulfil any of the requirements for intensive care.
Intensive care (IC)	Care provided for babies with the most complex problems who require constant supervision and monitoring and, usually, mechanical ventilation.
Neonatal intensive care units (NICUs)	NICUs are sited alongside specialist obstetric and feto-maternal medicine services. They provide the whole range of medical neonatal care for their local population, along with additional care for babies and their families referred from the neonatal network.

4. Enforcement and Sanctions

DOH licensed healthcare providers must comply with the requirements of this Standard. DOH may impose sanctions in relation to any breach of requirements under this Standard in accordance with Chapter XI, Complaints, Investigations, Regulatory Action, and Sanctions, the DOH Healthcare Regulator Manual.

5. DOH Requirements of Healthcare Providers:

General Service Requirements:

All healthcare facilities and professionals licensed by DOH to provide Neonatal Care Services must:

5.1. Comply with the uniform definitions and criteria of levels of care of neonates set out in Appendix 1 and ensure its implementation.

5.2. Comply with the uniform definitions and criteria for care outcomes of neonates set out in Appendix 2 of the scope of services for levels of neonatal care.

5.3. Comply with the required personnel and staffing resources as set out in Appendix 3.

5.4. Document and monitor quality and safety of clinical care provided to neonatal patients and make these available to DOH for auditing, as and when requested to do so as well as report as per the JAWDA Performance KPI guidelines for all applicable indicators.

Specific Service Requirements:

5.5. Have the following services in place as an integral part of neonatal care:

- 5.5.1. Transfer services;
- 5.5.2. Maternity bed and neonatal cot location services;
- 5.5.3. Family-centered care, including psychological support for mothers and families;
- 5.5.4. Follow-up services, including structured neurodevelopmental assessment of at-risk groups; and
- 5.5.5. Allied health professional support during and following neonatal care.
- 5.5.6. This includes programs and services such as:
  - 5.5.6.1. Feto-maternal services;
  - 5.5.6.2. Neonatal surgery;
  - 5.5.6.3. Ophthalmology/retinopathy of prematurity (ROP) screening and pathway to access treatment
  - 5.5.6.4. Discharge;
  - 5.5.6.5. Longer-term follow up (2 to 5 years)
  - 5.5.6.6. Access to universal newborn screening;
  - 5.5.6.7. Immunization programmes;
  - 5.5.6.8. Safeguarding children;
  - 5.5.6.9. Access to perinatal pathology.

5.6. Have in place transfer arrangements as set out in Appendix 4.

APPENDICES

Appendix 1: Definitions of Neonatal Care Unit levels, Capabilities, and Healthcare Professional Types[2]

Criteria used to define the level of unit

- Unit clinical experience, providers documented privileges, patient volume or census.
- Location of service in-born/out-born deliveries, regional perinatal center, or children's hospital.
- Case mix; including stillbirths, delivery room deaths, and complex congenital anomalies. Level of prematurity, complexity of care, services provided.
- Availability of safe and timely transport of high-risk neonate to higher level of care.
- Availability of pediatric medical subspecialists and pediatric surgical specialists.
- Availability of maternal fetal medicine service.
- Availability of management of potential preterm birth.

Level of Care	Capabilities	Healthcare Professional Types
High risk neonates cared for in facilities without neonatal care units or birth care	• Provide neonatal resuscitation. • Basic newborn support including thermoregulation and resuscitation as needed as per AHA Guidelines for Neonatal Resuscitation[3] and Stabilization. • Establish at the site a consultative agreement for a timely and safe referral for continuity of care to level III or IV facility.	Emergency room physicians, pediatric surgical subspecialties, licensed specialty nurse (pediatric nurse).

[2] Levels of Neonatal Care. COMMITTEE ON FETUS AND NEWBORN. ; 2012; 130; 587 Pediatrics. DOI: 10.1542/peds.2012-1999

[3] Neonatal Resuscitation, 2015 American Heart Association Guidelines Update for Cardiopulmonary Resuscitation and Emergency Cardiovascular Care. Circulation. 2015;132:S543-S56

Level I Well Newborn Nursery	• Provide a basic level of care to neonates who are at low risk. • Provide neonatal resuscitation at every delivery. • Evaluate and provide postnatal care to stable term newborn infants. • Stabilize and provide care for infants born >35 weeks gestation who remain physiologically stable. • Stabilize newborn infants who are ill and those born at <35 weeks gestation until transfer to appropriate level of care. • Establish at the site a consultative agreement for a timely and safe referral and transport process for all high-risk neonates to level III facility.	Pediatricians, family physicians, nurse practitioners and other registered nurses with relevant experience, training, and documented competence and privileges. All providers that are attending deliveries and working at level 1 newborn unit must have an active neonatal resuscitation program certification and attend 1/year simulation or mock code to be verified by the healthcare facilities where applicable.
Level II Intermediate Neonatal Care Unit (INCU/SCBU)	Level I capabilities plus: • Provide care for infants born ≥32 weeks gestation and weighing ≥1500g who have physiological immaturity or who are moderately ill with problems that are expected to resolve rapidly and are not anticipated to need subspecialty services on an urgent basis. • Provide care for infants convalescing after intensive care. • Provide mechanical ventilation for brief duration (<24 h) or continuous positive airway pressure or both. • Stabilize infants born before 32 weeks gestation and weighing less 1500g until transfer to a neonatal intensive care facility. • Establish at the site a consultative agreement for a timely and safe referral and transport process for all high-risk neonates to level III facility.	DOH licensed pediatric specialists, neonatologist, and specialist nurse (neonatal nurse) as appropriate. All providers attending deliveries and working at level II Intermediate Care Unit must have active neonatal resuscitation program certification.

Level III Neonatal Intensive care unit (NICU)	Level II capabilities plus: • Provide continuously available personnel (neonatologists, specialist nurses, respiratory therapists) and equipment to provide life support as clinically indicated. • Provide comprehensive care for infants born <32 weeks gestation and weighing <1500g. • Provide comprehensive care for all infants with medical or surgical conditions, regardless of gestational age. Arrangements are made to transfer patients requiring neurosurgery or cardiac surgery to a level IV NICU. • Provide prompt and readily available access to a full range of pediatric medical and surgical subspecialists. • Provide a full range of conventional respiratory support that include non-invasive and invasive ventilation with additional services of weaning or long-term ventilator support and protocols. This may include conventional and/or high- frequency ventilation and inhaled nitric oxide when necessary. • Provide continuously available physiologic monitoring equipment • Provide continuously available laboratory facilities • Provide continuously available imaging facilities • Provide continuously available nutrition facilities • Provide continuously available pharmacy facilities • Provide continuously available support with pediatric expertise • Provide continuously available basic imaging and support with advanced imaging, with interpretation on an urgent basis, including computed tomography, MRI, ultrasound and echocardiography. • Coordinate with other level III and IV NICUs to accept all referrals from level I and level II units based on a region's consideration of geographic constraints, population size, and personnel resources.	Level II health care provider plus: Pediatric medical subspecialists, DOH licensed anesthesiologists, with documented pediatric experience to be verified by the healthcare facilities where applicable, pediatric surgeons and ophthalmologist with appropriate qualifications and experience in ROP screening & treatment with appropriate qualifications. All providers attending deliveries and working at level III Neonatal Intensive Care Unit must have active neonatal resuscitation program certification to be verified by the healthcare facilities where applicable.

Level IV Regional/center of excellence (NICU)	Level III capabilities plus: • Located within an organization with the capability to provide surgical repair of complex congenital or acquired conditions and have robust clinical pathways for it. • Facilitate transport from and to level I, II, III and regional and geographic constraints areas. • Provide advance training and educational programs (including DOH accredited Neonatal Postgraduate Fellowship Programs) • Ability to collection of data on long-term outcomes to evaluate both the effectiveness of delivery of perinatal health care services and the safety and efficacy of new therapies. • Neonatal neurodevelopmental care for high risk infants up to the age of 2 years • Provide advance ventilation support for example extracorporeal membrane oxygenation (ECMO) therapy for infants with severe respiratory failure who cannot be treated successfully with conventional methods.	Level III health care providers plus: Pediatric surgical subspecialists. All providers attending deliveries and working at level IV newborn unit must have active neonatal resuscitation program certification to be verified by the healthcare facilities where applicable.

Appendix 2: Definition of the Scope of Neonatal Care Services[4]

Level 1	Level II	Level III	Level IV
Services and capabilities of all Level I: • Newborn resuscitation per AHA Guidelines including use of positive pressure and CPAP, intubation and vascular access for medications and volume expander. • Stabilize sick newborns pending transport to level III unit. • Breastfeeding support per WHO guidelines.[5] • Controlled thermal environment. • Neonatal cardiorespiratory monitor for use during stabilization, assessment or observation prior to transport. • Neonatal pulse oximeter. • Oxygen blender. • Device for blood glucose screening. • Gavage feeding.	Services and capabilities of Level I plus continuous availability of the following: *If services are limited to ≥34 weeks and ≥2000 g and for newborns whose problems are expected to resolve rapidly and without need for CPAP, assisted ventilation, or arterial catheter:* • Space designated for care of sick/ • convalescing neonates • Cardiorespiratory monitor for continuous observation • Peripheral IV insertion, maintenance and monitoring for fluids, glucose, antibiotics • Neonatal blood gas monitoring • Average daily census of at least one - two Level II patients	Services and capabilities of Level II plus continuous availability of the following: • Conventional mechanical ventilation. • Cranial ultrasound • Pediatric echocardiography with written protocols for pediatric cardiology interpretation and consultation • High-risk NICU follow-up program • Quality improvement program with comparisons to national benchmarks for Level III • NICUs	Services and capabilities of Level III plus continuously available of the following: • Full spectrum of medical and surgical pediatric subspecialists available 24/7 • Multi-disciplinary team for management of orthopedic and neurosurgical anomalies • Surgical repair of complex conditions that may require cardiopulmonary bypass, ECMO, dialysis, tracheostomy, etc. (ref 14) • Neuro-developmental follow-up program • Quality improvement program with comparisons to national benchmarks for level IV NICUs • Training and educational relationship with referring hospitals

[4] Levels of Neonatal Care. COMMITTEE ON FETUS AND NEWBORN. ; 2012; 130; 587 Pediatrics. DOI: 10.1542/peds.2012-1999

[5] Breast Feeding Support Guidelines : http://www.who.int/topics/breastfeeding/en/

• Device and appropriate-size cuffs for assessing blood pressure. • Hood oxygen/nasal cannula • Peripheral IV insertion for fluids, glucose, and antibiotics prior to transport. • Phototherapy equipment available that produces irradiance of at least 30µWcm2/nm or ability to simultaneously cover body surface under and over baby • Irradiance meter to measure light irradiance of equipment • (Device to measure blood gas in <0.4 mL blood).	*If caring for 32-33 weeks gestation or moderately-ill infants, add:* • Umbilical or peripheral arterial catheter insertion, maintenance and monitoring • Peripheral or central administration and monitoring of total parenteral nutrition and/or medication and fluids • High flow nasal cannula • Nasal CPAP • Average daily census of at least two - four Level II patients	• Access to complete range of genetic diagnostic services and genetic counselor available, referral arrangement for geneticist and diagnostics per written protocol. • Access to perinatal pathology services. • Average daily census of at least 10 Level II/Level III patients. • When high-frequency ventilation or inhaled nitric oxide is in use: NICU respiratory care practitioners should continuously be present in the NICU during use. If services include major surgical procedure, add: • 24/7 pediatric surgeons • 24/7pediatric anesthesiologists • 24/7 pediatric radiology • NICU nurses trained to care for post-op infants.	

Appendix 3: Definitions of required personals and resources for Neonatal Care

Staffing parameters should be clearly delineated in a policy that reflects (a) staff mix and ability levels; (b) patient census, intensity, and acuity; (c) plans for delegation of selected, clearly defined tasks to competent assistive personnel. It is an expectation that allocation of personnel provides for safe care of all patients in a setting where census and acuity are dynamic.

Level	Physician Staffing	Nurse: Neonate ratio[6]	Obstetrical Patients: Services and Capabilities
Level 1	General pediatric/family medicine physician minimum 24/7 in-house 1/10 beds	1:6 neonates requiring only routine care in postnatal ward	Uncomplicated pregnancies ≥ 35-37 weeks gestation Capabilities include: • Continuous electronic fetal monitoring. • Initiate cesarean section within 30 minutes of decision to do so. • Management consistent with ACOG guidelines of potentially complicated births, but with low likelihood of neonatal or maternal morbidity. • Arrangement made for in utero transfer when complicated birth is expected. • Stabilization and transport for unexpected maternal problems consistent with ACOG guidelines.

[6] Association of Women's Health, Obstetric and Neonatal nurses (2010). Guidelines for Professional Nurse Staffing for Perinatal

Level II SCBU	Specialist Pediatrician minimum 24/7 in-house </=15 beds 1 16-40 beds 2 >40 beds 3 Consultant Pediatrician minimum 24/7 availability 1/10 beds	1:3 neonates, requiring intermediate either continuing care or those requiring close observation of 4 hourly or less	Level I patients and services plus: For hospitals limited to care newborns ≥ 34 weeks gestation and estimated birth weight >2000 grams, OB capabilities include management consistent with ACOG guidelines of selected high-risk pregnancy conditions such as: • Complications not requiring invasive maternal monitoring or maternal intensive care. • Preterm labor or other complications of pregnancy judged unlikely to deliver before 34 weeks gestation. For hospitals prepared to care for newborns ≥ 32 weeks gestation and estimated birth weight > 1500 grams, OB capabilities include management consistent with ACOG guidelines of selected high-risk pregnancy conditions such as preterm labor or other complications.
NICU level III, IV	Specialist Neonatologist minimum 24/7 in-house </=15 beds 1 16-40 beds 2 >40 beds 3 Consultant Neonatologist minimum 24/7 availability 2/10 beds	1:2 neonates requiring intensive care	Level II patients and services plus OB capabilities include: • Immediate cesarean delivery • Maternal intensive care • For hospitals prepared to care for newborns at all gestational ages, OB capabilities include diagnosis and treatment of all perinatal problems.

Appendix 4: Transfers

1. A service is available at all times, providing safe and effective transfers for new-born babies. This service should be additional to the delivery of in-patient care, should recognise the importance of family circumstances and should provide arrangements to undertake or facilitate transfers in all categories as part of its baseline provision.
2. The transfer service is responsible for the organisation of any neonatal transfer, which lies within its service specification.
3. There are guidelines for ex utero and in utero transfers (IUT), including:
   1.3.1. Referral processes;
   1.3.2. Indications and contraindications for transfer;
   1.3.3. Requirements to document discussions between healthcare staff and women/parents/families undergoing transfer;
   1.3.4. Requirements to document discussions between receiving and sending units;
   1.3.5. Management prior to and during ex utero transfers;
   1.3.6. Management prior to and during IUT, including administration of steroids and tocolysis; and
   1.3.7. Parental travel arrangements.
4. There is a single point of telephone contact in the Unit through a dedicated line on which clinical advice, cot/maternal bed availability and the transfer service can be accessed and activated at all times. Tele-conferencing and call-handling functionality are available.
5. All transfers require clinical observation and record keeping. These are of at least the same standard as would be expected throughout clinical care, reflecting the additional challenges of the transfer environment.
6. The facility should maintain comprehensive documentary evidence including:
   1.6.1. Protocols showing referral processes;
   1.6.2. Clinical records;
   1.6.3. Incident reporting records;
   1.6.4. Service level agreement/contract;
   1.6.5. Guidelines and records for IUT;
   1.6.6. Operational specification of service;
   1.6.7. Audit of departure times; and
   1.6.8. Annual reports.