

Neonatal Resuscitation Online Registry in Shenzhen: protocol for a prospective, multicentre, open, observational cohort study
Supplementary File 4

Registry variables for Neonatal Resuscitation Online Registry in Shenzhen

Maternal and infant information

Infant information

Name: _____ Birth hospital: _____
Hospitalization number: _____ Sex: Male /Female /Hermaphroditism
Gestational age (GA): _____ Birth weight: _____ (g)
Length: _____ (cm) Head circumference: _____ (cm)
Small for gestational age (SGA): Yes /No Birth date: _____ (select)
Birth at 0:00-8:00: Yes /No Weekdays /Weekends or legal holidays
Multiple births: Yes /No Congenital anomalies or hereditary syndromes: Yes /No
Medical payment methods: Medicare /Commercial Insurance /Out-of-pocket payment

Maternal information

Name: _____ Age: _____ (y)
Ethnicity: _____ Mobile phone number: _____
Residential address: _____ Occupation: Yes _____ (select) /No
Marital status: Married /Unmarried /Divorced /Widowed
Monthly family income (RMB): <1000 /1000-3000 / 3000-5000 / 5000-8000 / >8000
Education level: Illiterate /elementary school /junior high school /middle school /high school /college /university and above
Medical payment methods: Medicare /commercial Insurance /out-of-pocket payment

Antenatal information

Maternal history: G _____ (select) P _____ (select)
previous adverse pregnancy outcomes: Yes /No
Mode of conception: Natural conception /Assisted Reproductive Technology (ART)
Antenatal care: Regular /Irregular /No /Unknown
Antenatal intervention: Yes /No
Antenatal body mass index (BMI): Low weight /normal weight / overweight /obesity
Hypertension: Yes /No
Diabetes: Yes /No
Anaemia: Yes /No
Cardiac disease: Yes /No
Placenta praevia: Yes /No
Placental abruptio placenta: Yes /No
Antenatal haemorrhage: Yes /No
Chorioamnionitis: Yes /No
Premature rupture of membranes >18h: Yes /No

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Other pregnancy complications: Yes _____ /No

Antenatal steroid: Full course /Exposure /No

Antenatal magnesium sulphate: Yes /No

Antenatal anaesthesia or analgesia: Yes /No

Antenatal foetal monitoring anomalies: Yes /No

Obstructed labour: Yes /No

Emergency labour: Yes /No

Type of labour initiation: Spontaneous /Catalysis

Prolonged second stage of labour: Yes /No

Weak contractions: Yes /No

Intrapartum information

Mode of delivery: Vaginal delivery /Forceps delivery /Fetal head extraction /Emergency caesarean section /Elective caesarean section /Caesarean section after trial of labour

Fetal position: cephalic /breech /transverse /unknown

Amniotic fluid volume: Normal /Insufficient /Excessive

Nature of amniotic fluid: Clear /I° Faecal stained /II° Faecal stained /III° Faecal stained /Others _____

Umbilical cord around the neck: No /Yes

Umbilical cord prolapse: No /Yes

Umbilical cord extrusion: No /Yes

Delayed umbilical cord ligation: No /Yes _____ (s)

Apgar Score

1min Total score _____ (select)

Skin colour of body and extremities _____ (select) Respiration _____ (select)

Heart rate _____ (select) Muscle tone _____ (select) Reflexes _____ (select)

5min Total score _____ (select)

Skin colour of body and extremities _____ (select) Respiration _____ (select)

Heart rate _____ (select) Muscle tone _____ (select) Reflexes _____ (select)

10min Total score _____ (select)

Skin colour of body and extremities _____ (select) Respiration _____ (select)

Heart rate _____ (select) Muscle tone _____ (select) Reflexes _____ (select)

Umbilical artery blood gas analysis (UABGA): No /Yes

PH _____ BE _____ mmol/L

Diagnosis: No /Mild Asphyxia /Severe Asphyxia /Low Apgar Score /Neonatal Acidosis

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Resuscitation information

Resuscitation process

Place of resuscitation: Delivery room /Operating theatre /Others _____

Antenatal counselling: Yes /No

Resuscitation team (numbers): _____ (select)

Resuscitation participants: Midwife /Obstetrician /Anesthesiologist /Chief neonatologist /Associate chief neonatologist / Neonatologist attending /Neonatologist resident /Neonatology nurse (multiple choices allowed)

Division of labour: Yes /No

Title of resuscitation team leader: Chief physician /Associate chief physician /Attending Physician /Resident /Chief nurse /Co-chief nurse /Supervisor nurse /Senior nurse /Nurse

Working experience of resuscitation team leader (numbers): _____ (select)

Preparation of resuscitation items: Advance preparation /Provisional preparation

Warmth: Yes /No

Warming measure: Preheated radiant table /Preheated towel /Hat /Plastic bag or Cling film

Suction or stimulation: Yes /No

Suction device: Rubber suction bulb /Suction

Oxygen administration: Yes /No

Start time: _____ min/after birth

End time: _____ min/after birth

Duration: _____ min (automatic calculation)

Initial oxygen concentration: _____ % (select)

Maximum oxygen concentration: _____ % (select)

Positive-pressure ventilation: Yes /No

Mode of ventilation: Resuscitation bag /T-Piece /Nasal continuous positive airway pressure (nCPAP)

Maximum peak inspiratory pressure (PIP): _____ cmH₂O

Maximum positive end-expiratory pressure (PEEP): _____ cmH₂O

Start time: _____ min/after birth

End time: _____ min/after birth

Duration: _____ min (automatic calculation)

Ventilation assessment: Good chest rise and fall /Rapid increase in heart rate (multiple choices allowed)

Saturation of Peripheral Oxygen (SPO₂) monitoring: Yes /No

Start time: _____ min/after birth

Corrective ventilation steps: Mask adjustment and check mask tightness /Reposition airway /Suction /Open mouth /Increase ventilation pressure appropriately (multiple choices allowed)

Laryngeal mask airway: Yes /No

Start time: _____ min/after birth

End time: _____ min/after birth

Duration: _____ min (automatic calculation)

Endotracheal tube insertion: Yes /No

Number of intubations: _____ (automatic calculation)	
Intubation time (min/after birth)	Success of intubation
Time: _____	Yes /No
Time: _____	Yes /No

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Chest compression ≥ 30 seconds: Yes /No

Compression method: Thumb method /Two-finger method

Start time: _____ min/after birth

End time: _____ min/after birth

Duration: _____ min (automatic calculation)

Electrocardiographic Monitoring: Yes /No

Start time: _____ min/after birth

100% oxygen concentration: Yes /No

Start time: _____ min/after birth

Resuscitation administration

Umbilical vein cannulation: Yes /No

Number of cannulations: _____ min/after birth

Epinephrine: Yes /No

Number of administrations: _____ (automatic calculation)		
Time of administration (min/after birth)	Dose of administration (mg/kg)	Mode of administration
Time: _____	Dose: _____	Endotracheal tube /Umbilical vein /Peripheral vein /Others
Time: _____	Dose: _____	Endotracheal tube /Umbilical vein /Peripheral vein /Others

Type of fluid resuscitation: Saline /Plasma /Albumin /Erythrocyte /Others _____

Total dose: _____ ml

Other interventions: Yes _____ /No

Time of intervention: _____ min/after birth

Resuscitation summary

Resuscitation end time: _____ (select)

Duration: _____ min

Resuscitation outcome: Success /Failure /Forgo treatment

Postnatal transition: Transfer to neonatal ward /Rooming in /Transfer to another hospital /Death in delivery room

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Hospitalization information

Treatment information

Temperature on admission (°C): _____
Therapeutic hypothermia: Yes /No
Cooling method: Whole bod /Head /Others _____
Temperature control mode: Automatic /Manual
Start time: _____ hours/after birth
Postnatal glucose monitoring: Yes /No
Minimum blood glucose measurement: _____ mmol/L

Auxiliary examination information

Echocardiography: Yes /No
Examination time: _____ (select) Examination result: Normal /Abnormal _____
Cranial ultrasound: Yes /No
Examination time: _____ (select) Examination result: Normal /Abnormal
Cranial computed tomography (CT): Yes /No
Examination time: _____ (select) Examination result: Normal /Abnormal
cranial magnetic resonance imaging (MRI): Yes /No
Examination time: _____ (select) Examination result: Norma /Abnormal
Amplitude-integrated electroencephalogram (aEEG): Yes /No
Examination time: _____ (select)
Examination result: Normal /Mild abnormality /Moderate to severe abnormality
Examination time: _____ (select) Examination result (points): _____
Brainstem auditory evoked potentials (BAEP) or automatic auditory brainstem response (AABR): Yes /No
Examination time: _____ (select) Examination result: Left: Passed /Failed Right: Passed /Failed
Retinopathy of Prematurity (ROP) screening: Yes /No
Examination time: _____ (select)
Examination result: Left: Normal /Abnormal Right: Normal /Abnormal

Summary of hospitalization

Duration of hospitalization: _____ (d)
Discharge outcome: Cured or improved /Transfer to another hospital /Death before discharge /Forgo treatment
Complication
Pneumothorax: Yes /No
Meconium aspiration syndrome (MAS): Yes /No
Bronchopulmonary dysplasia (BPD): Yes /No
Persistent pulmonary hypertension of the newborn (PPHN): Yes /No
Symptomatic patent ductus arteriosus (sPDA): Yes /No
Necrotizing enterocolitis (NEC): IA /IB /IIA /IIB /IIIA /IIIB /No
Feeding intolerance (FI): Yes /No
Acute kidney injury (AKI): Stage 0 /Stage 1 /Stage 2 /Stage 3
ROP: Yes /No
Hypoxic-ischemic encephalopathy (HIE): Mild /Moderate /Severe /No
Intraventricular haemorrhage (IVH): Class I /Class II /Class III /Class IV /No
Cystic periventricular leukomalacia (cPVL): Yes /No

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Follow-up information

Follow-up examination

Cranial MRI

Follow-up time	Result	Follow-up recommendations
Time ____ (select)	Normal/abnormal	Normal, no follow-up / 1 month / 2 months / 3 months / 6 months / 1 year/2 years
Time ____ (select)	Normal/abnormal	Normal, no follow-up / 1 month / 2 months / 3 months / 6 months / 1 year/2 years

aEEG

Follow-up time	Result	Follow-up recommendations
Time ____ (select)	Normal/mild abnormality/moderate to severe abnormality	Normal, no follow-up / 1 month / 2 months / 3 months / 6 months / 1 year/2 years
Time ____ (select)	Normal/mild abnormality/moderate to severe abnormality	Normal, no follow-up / 1 month / 2 months / 3 months / 6 months / 1 year/2 years

BAEP or AABR

Follow-up time	Result	Follow-up recommendations
Time ____ (select)	Left: Passed / failed Right: Passed / failed	Normal, no follow-up / 1 month / 2 months / 3 months / 6 months / 1 year/2years
Time ____ (select)	Left: Passed / failed Right: Passed / failed	Normal, no follow-up / 1 month / 2 months / 3 months / 6 months / 1 year/2years

Physical examination

Follow-up time	Birth weight (g)	Length (cm)	Head circumference (cm)
Time ____ (select)			
Time ____ (select)			

Griffiths Development Scales-Chinese (GDS-C)

Follow-up time	Result	Follow-up recommendations
Time ____ (select)		
Time ____ (select)		

Follow-up outcome: Normal /Sequelae /Death /Lost to follow-up

Sequelae: Cerebral palsy /Mental retardation /Epilepsy /Cognitive impairment /Hearing impairment /Motor retardation /Neurodevelopmental delay /Attention deficit /Learning difficulties /Visual impairment /Others