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Newborn Respiratory Failure and Further Specifications

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Presented By



Danielle Flores, RN-CDIS, is a CDI specialist with Tower Health - St. Christopher's Hospital for Children in Philadelphia. Her 17 years' experience in patient care includes time in maternal child health, NICU, and general pediatrics, along with a focus in the pediatric ambulatory setting. She also assists with the review and appeal of pediatric denials across the Tower Health system.

Presented By



Ashley Impriano, BSN, RN, CDIS, is a CDI specialist at Tower Health - St. Christopher's Hospital for Children in Philadelphia. She offers pediatric clinical support and knowledge to the Tower Health CDI team. She also provides one-on-one pediatric/newborn education to medical providers along with CDI education at nursing grand rounds. Impriano is responsible for clinical documentation review and provider education in the NICU at Tower Health Phoenixville and the entire St. Christopher's Hospital for Children.

Learning Outcomes

- At the completion of this educational activity, the learner will be able to:
 - Identify the types of neonatal respiratory failure
 - Discuss query opportunities for specifications of respiratory diagnoses
 - Identify challenges in diagnosing and documenting neonatal respiratory failure
 - Identify education opportunities CDI and providers



Respiratory Distress of Newborn

Delayed Transition of Newborn

- First 10 minutes of life
- Can include:
 - Retractions
 - Supplemental oxygen support (CPAP, nasal cannula)
- Transitory period from womb to air; considered to be part of the birth process and does not require coding

Respiratory Distress of Newborn

- Signs of respiratory distress include tachypnea (>60/min), grunting, retractions, nasal flaring, cyanosis, or desaturation on room air (RA).
- P22.9, Respiratory distress of Newborn, unspecified
 - Excludes1
 - Respiratory arrest of newborn (P28.81)
 - Respiratory failure of newborn NOS (P28.5)
- Respiratory distress versus respiratory distress **syndrome** (RDS)
 - Respiratory distress is a general term used to describe symptoms and is not the same as RDS
 - Provider education
 - Chart impact

Transient Tachypnea of the Newborn (TTN)

- P22.1, Transient tachypnea of newborn (TTN)
- TTN is a self-limited condition also known as wet lung syndrome or RDS type II most common in term newborns
- During birth, the pressure of passing through the birth canal results in initial breaths filling the lungs

RESULT = Air IN → Fluid OUT

- Absorption of the fluid into the bloodstream and lymphatic system eventually removes any remaining fluid left in the lungs.
- When not enough fluid is expelled from the lungs during the birth process or if there is slow absorption of the fluid out of the lungs, it can result in TTN. (e.g., C-section, precipitous delivery, SGA)
- TTN usually resolves within two to three days as fluid is absorbed and newborns' pulmonary status improves
- Coding considerations
 - Tachypnea is a symptom and there is no P-code for tachypnea
 - P22.1 versus R06.82, Tachypnea, not elsewhere classified)



Respiratory Failure of Newborn

Newborn Respiratory Failure

- Respiratory failure is the inability to maintain either normal delivery of oxygen to tissues or normal removal of carbon dioxide from tissues.
- Respiratory failure presents as persistent/worsening respiratory distress requiring increased support.
- Providers rely heavily on signs, symptoms, imaging, precipitating factors and management requirements for diagnosis.
- Atrial blood gas tests (ABG) are only one of the supportive clinical findings.
- Coding consideration:
 - Mechanical ventilation is not required to support a diagnosis of respiratory failure in the newborn population.

RDS Type 1

- P22.0, RDS of newborn
- Also known as hyaline membrane disease and respiratory distress syndrome (RDS type I)
- Prematurity, less than 34 weeks gestation
- Result of reduced surfactant in the lungs
- The resultant alveolar collapse leads to atelectasis and hypoxemia
- RDS apparent immediately following birth; requiring immediate support

Respiratory Failure of Newborn

- P22.8, Respiratory failure of newborn, unspecified
- Can be of varying underlying etiologies
 - Cardiac (Trisomy 21, mechanical valve malformations)
 - Affects of maternal medications (e.g., magnesium administration for preeclampsia)
 - Neurologic disorders (HIE, congenital, central apnea, apnea of prematurity)
 - Congenital upper airway malformations (tracheomalacia, laryngomalacia)

Meconium Aspiration Syndrome with Respiratory Symptoms

- P24.01, Meconium aspiration syndrome (MAS) with respiratory symptoms
- Occurs when an infant inhales a mixture of meconium and amniotic fluid, preventing the infant from receiving adequate oxygen
- Defined as meconium in trachea or seen on X-ray after birth
- Common in term infants or post-term infants
- Typically occurs when the infant is stressed
- Exhibit signs of respiratory distress immediately after birth along with the presence of meconium
- Coding considerations
 - Excludes meconium staining and meconium passage WITHOUT aspiration



Comparing Failure Versus Distress

Clinical Indicators

Respiratory Distress

- Term baby
- Tachypnea (>60/min), grunting, retractions, nasal flaring, cyanosis, or desaturation on RA.
 - Resolves with minimal support over a short period of time
- Minimal oxygen requirements
 - Blow-by
 - NC

Respiratory Failure

- Pre-term baby
- Tachypnea (>60/min), grunting, retractions, nasal flaring, cyanosis, or desaturation on RA
 - Requires increased support due to worsening symptoms
- Increased oxygen requirements
 - BiPAP
 - CPAP, intubation



Types of Failure and Distress

Diagnosis Capture

Respiratory Failure

- Respiratory failure, unspecified
- Respiratory failure of newborn
- RDS type 1
- MAS

Respiratory Distress

- Respiratory distress, unspecified
- TTN



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Case Studies

Case Example #1: TTN

- 39-week-old male infant born via repeat C-section who was admitted to the NICU with respiratory failure in newborn. NICU called at 15 MOL 2/2 persistent cyanosis and desaturation despite attempts at mask CPAP. Roughly 18 minutes of life, infant receiving mask CPAP +5 with FiO₂ 40%. Saturations 95-98%. FiO₂ gradually weaned to 21% over five minutes and infant weaned to RA at roughly 25 minutes of life.
- Infant observed in RA with saturations dipping to 83-85%, worsened by crying episodes. Attempted CPAP/blow-by with wean to room air again unsuccessful 2/2 desats and mild retractions, decision made to admit to NICU for continued CPAP- nCPAP +5.
- Plan: Titrate FiO₂ to maintain saturations 92-96%. Monitor oxygenation and work of breathing admission ABG with adequate gas exchange, repeat CBG at 12 hours. Obtain admission chest X-ray (CXR). CXR showed hazy opacities throughout both lungs, may be on the basis of RDS or TTN. Correlate clinically. Asymatric right infrahilar opacity, may reflect atelectasis or pneumonia.
- Infant was weaned to RA DOL 1 and doing well with no increase in WOB.
- Three-day stay: NICU from DR, then step down to WBN DOL 2
- Documentation of respiratory failure in newborn AND respiratory distress of newborn, unspecified with diagnostic reference to RDS or TTN

Query Sent for Clarification

QUERY SENT for clarification.

Reading Hospital
420 S Fifth Ave
West Reading, PA 19611

5/17/22
Dear [Dr. MATAM](#)

A review of the patient's medical record identifies the need for additional clarification to accurately capture the patient's diagnosis(es), treatment and/or severity of illness.

Possible, probable, likely, [questionable](#) or suspected diagnosis(es) can be used in inpatient documentation and followed through to the discharge summary.

Supporting Clinical Documentation from Patient's Record:

Delivery [note](#) 5/16 " NICU called at ~15 minutes of life secondary to persistent cyanosis and desaturations despite attempts at mask CPAP. Upon my arrival at ~18 minutes of life, infant receiving mask CPAP +5 with FiO2 40%. Saturations 95-98%. FIO2 gradually weaned to 21% over 5 minutes and infant weaned to room air at ~25 minutes of life. Infant observed in room air with saturations then dipping to 83-85% and worsened by crying episodes. [Again](#) attempted CPAP/Blow-by with wean to room air again unsuccessful secondary to desaturations and mild retractions, therefore decision made to admit infant to NICU for continued CPAP. "

Risk Factors: 39 weeks - Repeat C section

Signs & Symptoms: Desaturations and mild retractions

O2 Saturations:83-85% at 25 minutes of life

Radiology:

~~Cxr~~ 5/16 - "IMPRESSION:

CHEST:

1. Hazy opacities throughout both lungs, may be on the basis of RDS or TTN. Correlate clinically.
2. Asymmetric right [infralobar](#) opacity, may reflect atelectasis or pneumonia."

Treatment: CPAP for 3 hours initially with transfer to NICU from delivery room - weaned to RA successfully

O2 Mode: CPAP -> RA

Based on these indicators and your clinical judgement, please document in the progress notes if you are treating one of the following [diagnosis\(es\)](#):

Possible Clinical Conditions Include:

- TTN
- Respiratory Failure
- Respiratory Distress
- Other Condition: (please specify)
- Cannot Clinically Determine:

Please document/clarify your diagnosis in the progress notes and discharge summary.

Thank you. Please contact me if you have any questions or suggestions.
Danielle Flores, RN - CDIS

Provider response:

- "It's TTN based on how he responded well to the treatment and weaned to room air within 24hrs of life."

Query Response Impact

DRG Summary	DRG	DRG
DRG	793, Failure	794, TTN/distress
Description	Full term neonate with major problems	Full term neonate without significant problems
Weight	3.97920	1.40840
SOI	3	1
ROM	2	1
APR-DRG Weight	1.69710	0.53280
Geometric mean length of stay (GMLOS)	4.7000	3.4000
Principal diagnosis (PDX)	Z38.01	Z38.01

Query Opportunities

- Documentation of “Mild RDS versus TTN”
- Documentation of respiratory distress of the newborn and surfactant administration
- Documentation of respiratory failure of newborn and TTN
- Clarification of meconium staining with respiratory symptoms versus MAS with respiratory symptoms



Query Templates

Query Template for Respiratory Distress Clarification

Dear Dr. ***/Associates

A review of the patient's medical record identifies the need for additional clarification to accurately capture the patient's diagnosis(es), treatment and/or severity of illness.

Possible, probable, likely, questionable or suspected diagnoses can be used in inpatient documentation and followed through to the discharge summary.

Supporting Clinical Documentation from Patient's Record:

Risk Factors:

Signs and Symptoms:

Documentation:

Respiratory Treatments:

Respiratory Distress has been documented in the patients' medical record, please specify if you are treating one of the diagnoses below.

Based on these indicators and your clinical judgment, please document in the progress notes if you are treating one of the following diagnoses:

Possible Clinical Conditions Include:

RDS type 1

TTN (RDS type 2)

Delayed transition

Meconium Aspiration syndrome

Respiratory Failure of Newborn

Other Condition (please specify)

Cannot Clinically Determine

Please document/clarify your diagnosis in the progress notes and discharge summary.

Thank you. Please contact me if you have any questions or suggestions.



Education

Provider and Hospital Staff Education

- Secure chat messages via Epic
- Email/phone calls for one-on-one education
- Monthly handouts displayed in provider touchdown space
- Pediatric pocket trifold created
- Weekly rounding on unit
- Nursing grand rounds
- Resident education
- Nursing educators
- Vendor pediatric education
- Chart reviews with provider feedback
- Provider specific
 - Diagnosis definitions/documentation requirements

Education Trifold

RESPIRATORY FAILURE

- Acuity of the Respiratory Failure
 - Acute, Chronic, or Acute on Chronic
- Specificity
 - Hypoxemic, Hypercapnic, Hypercarbic
- Tobacco USE, ABUSE, DEPENDENCE, or EXPOSURE

ACUTE RESPIRATORY FAILURE

- Distinguish between Respiratory Distress Syndrome Type I & II (TTN), Respiratory Arrest, & Post Procedural Respiratory Failure
- Mechanical ventilation/intubation is NOT required for diagnosis of Acute Respiratory Failure

CHRONIC RESPIRATORY FAILURE

- Defining features: mechanical ventilation, baseline O₂ requirement, regular respiratory therapies (i.e., IPV, chest PT, inhalers)
- Causes: BPD, asthma, malacia, (congenital or acquired), stenosis, CF, neuro deficits

CYSTIC FIBROSIS

- Document the ORGAN SYSTEM INVOLVEMENT including all MANIFESTATIONS
- Document if admission is related to a MANIFESTATION, COMPLICATION, or EXACERBATION of Cystic Fibrosis
- Document ANY INFECTIONS PRESENT
 - Ex. Pseudomonas, Staph, Hemophilus AND clarify if ACTIVE INFECTION or COLONIZED

COMMON ORGAN SYSTEM INVOLVEMENT

- Pulmonary (bronchiectasis, bronchitis, recurrent pneumonia, pneumothorax)
- Gastrointestinal (meconium ileus, intestinal obstruction, liver disease, DIOS (distal intestinal obstruction))
- Pancreatic (pancreatitis, CF related diabetes, pancreatic insufficiency with malabsorption)

ASTHMA

Severity

- mild intermittent
- mild persistent
- moderate persistent
- severe persistent

Type

- uncomplicated
- acute exacerbation
- status asthmaticus

*With or Without Acute Respiratory Failure

Acuity	Symptoms	Nighttime Awakenings	Lung Function
Mild Intermittent	<ul style="list-style-type: none"> Symptoms <2/week Asymptomatic PEF between exacerbations Exacerbations of varying intensity are rare 	<2/month	FEV ₁ or PEF > 80% predicted & PEF variability <20%
Mild Persistent	<ul style="list-style-type: none"> Symptoms <2/week but >1/day Exacerbation may affect activity 	<2/month	FEV ₁ or PEF > 80% predicted & PEF variability 20-30%
Moderate Persistent	<ul style="list-style-type: none"> Daily symptoms Daily use of inhaled short-acting beta-agonist Exacerbation affect activity Exacerbation <2/week or <1 per day 	<2/week	FEV ₁ or PEF 60-80% predicted & PEF variability >30%
Severe Persistent	<ul style="list-style-type: none"> Symptoms throughout the day Limited physical activity Frequent exacerbations 	Frequent	FEV ₁ or PEF < 60% predicted & PEF variability >30%

Improving Clinical Documentation

Need Help? Contact Us!
Coding Hotline: 1-484-628-8831, Option 3
Email: codinginjax@powerhealth.org

MALNUTRITION

*Indicated for all pediatric patients and for term neonates >28 days old and for premature infants born <37 weeks once they are >28 days old and reach <12 weeks postmenstrual age

- Type of Malnutrition: Protein-calorie or protein energy
- Degree of Malnutrition: mild, moderate, or severe
- Acuity: Acute, Chronic, or Acute on Chronic
- Modifier: Illness-related or non-illness related
- Any related social or environmental issues

Clinical Indicators	Mild malnutrition	Moderate Malnutrition	Severe Malnutrition
Weight for height z score	-1.3 to -1.8 z score	-2 to -2.9 z score	-3 or less z score
OR	OR	OR	OR
BMI for age z score	-1.3 to -1.8 z score	-2 to -2.9 z score	-3 or less z score
OR	OR	OR	OR
Deceleration in weight for length/height z score	Decline of 1 z score	Decline of 2 z score	Decline of 3 z score

- ACUTE Malnutrition is defined as <3 months duration
- CHRONIC Malnutrition is defined as ≥3 months duration
- FTT is a nonspecific infant diagnosis that encompasses a complete lack of normal developmental milestones including weight

ACUTE RENAL FAILURE ACUTE KIDNEY INJURY

- "Renal Insufficiency" DOES NOT CAPTURE the patient's Severity of Illness or Risk of Mortality
- ETIOLOGY of Acute Renal Failure / Acute Kidney Injury
- Document if Acute Renal Failure / Acute Kidney Injury is due to Acute Tubular Necrosis (ATN), Acute Cortical Necrosis, or Acute Medullary Necrosis
- Be specific with documentation as Acute Renal Insufficiency and Acute Kidney Disease are not reported as Acute Renal Failure/Acute Kidney Injury

CLINICAL INDICATORS

- Serum creatinine increased 0.3 mg/dl in 48 hours OR
- Increased 1.5 x base creatinine in 7 days (known or presumed) OR
- Urine output < 0.5 ml/kg/hour for 8 hours

ENCEPHALOPATHY

- Altered Mental Status is a nonspecific diagnosis, please further specify etiology or differential diagnosis
- ACUITY – acute or chronic
- SPECIFICITY
 - Metabolic encephalopathy: due to metabolic disturbances
 - Toxic encephalopathy: effect of drugs, toxins, poisons, or medications (specify drug)
 - Septic
 - Hypertensive
 - Hypoxic/Anoxic
 - Traumatic

EPILEPSY

- Document if Epilepsy is INTRACTABLE AND WITH OR WITHOUT STATUS EPILEPTICUS
- Document the TYPE of Epilepsy
 - Ex: generalized idiopathic, simple partial, complex partial
- Document any Special Epileptic Syndromes
 - Ex: seizure w/ ETOH, drugs, sleep deprivation
- Document CONTROL including descriptions of poorly controlled, pharmaco-resistant, treatment resistant, refractory

CEREBRAL PALSY

- TYPE
 - Ex: quadriplegic, diplegic, hemiplegic, dyskinetic, ataxic
- Document the presence of SPASTICITY

NEWBORN

- Document place of BIRTH
 - In hospital (specify delivery TYPE)
 - Outside hospital
- ANY MATERIAL CONDITIONS affecting the Newborn
- Gestational Age of Newborn
- Weight of the Newborn
- Any CONGENITAL VS. ACQUIRED CONDITIONS
- Any ASSOCIATED DIAGNOSES/ CONDITIONS

INTELLECTUAL DISABILITY

- Formerly known as mental retardation and commonly associated with Down's Syndrome, birth defects, Fetal Alcohol Syndrome, infection, head trauma, and drugs, poisons, and toxins
- Document ADAPTIVE BEHAVIOR PROBLEM
 - Language
 - Motor
 - Self-direction
 - Social skills
 - Practical skills (i.e., activities of daily living)
 - Occupation
 - Safety
- Document any CO-MORBID CONDITIONS
 - Functional Quadriplegia
 - Pressure Ulcers
 - Aspiration Pneumonia
- Document SEVERITY of Intellectual Disability
- CLINICAL INDICATORS
 - MILD: IQ 50-69
 - MODERATE: IQ 35-49
 - SEVERE: IQ 20-34
 - PROFOUND: IQ <20
 - Baseline intellectual function (IQ 70-84) is considered a learning disability

ABUSE OR NEGLECT

- Document REASON FOR SUSPICION
 - Ex: inappropriate parental response, inadequate history of injury, mechanism of injury not consistent with physical findings, evidence of neglect or abuse
- Document PHYSICAL EXAM FINDINGS as appropriate including PHYSICAL & EMOTIONAL state of the child, HYGIENE & APPROPRIATENESS OF CLOTHING, GROWTH MEASUREMENT, SKIN FINDINGS (bruises, burns) OPTHALMIC EXAM, GENITAL EXAM & RADIOLOGICAL FINDINGS
- Include drawings of injuries and details of dimensions, color, shape, texture
- Document if abuse, neglect, or maltreatment is SUSPECTED or CONFIRMED
- Document if abuse, neglect, or maltreatment is RULED OUT

SEPSIS

- SIRS criteria: 2 or more of the following, one of which must be abnormal temperature or leukocyte count
 - Fever, core temperature >101.3° F; >38.5°C or 180 or 40
 - Leukocyte count elevated or depressed for age (not due to chemotherapy)
 - Bands >10%
 - Tachycardia - Heart rate >2 SD above normal for age (not due to other stimuli)
 - Tachypnea - Respiratory rate >2 SD above normal for age or mechanical ventilation (not due to anesthesia or neuromuscular disease)
 - Bradycardia (≤ 1 year)-heart rate <10th percentile for age not due to other specific causes

Age	HR	RR	WBC
29 days-1 year	>180	>34	>17.5 or <6
1-2 years	>150	>26	>17 or <6
2-5 years	>135	>22	>15.5 or <6.5
6-8 years	>130	>20	>13.5 or <4.5
9-16 years	>110	>20	>13 or <4.5
>16years	>100	>20	>12 or <4.5

- CAUSATIVE ORGANISM if known
- The RELATED LOCAL INFECTION (i.e., Pneumonia, Cellulitis, UTI, etc.)
- Document if Sepsis was PRESENT ON ADMISSION vs. HOSPITAL ACQUIRED
- Document if the Sepsis is due to a DEVICE, IMPLANT, GRAFT, INFUSION, or ABORTION
- DO NOT DOCUMENT UROSEPSIS. Document SEPSIS with or SEPSIS due to UTI

CDI Staff Education

- CDI vendor education
- Provided resource materials
- Peer-to-peer pediatric resource



Thank you. Questions?

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In order to receive your continuing education certificate(s) for this program, you must complete the online evaluation. The link can be found in the continuing education section of the program guide.