

Overview & Frequently Asked Questions

Unexpected Newborn Complications (UNC) Measure

PC-06 and NQF #716

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Developed by the California Maternal Quality Care Collaborative

Overview

Description: Unexpected complications among full term newborns with no preexisting conditions.

Rationale: The most important childbirth outcome for families is bringing home a healthy baby. While there have been measures developed to assess clinical practices and outcomes in preterm infants, there are a lack of metrics that assess the health outcomes of term infants—who represent over 90% of all births. This measure addresses this gap and gauges adverse outcomes resulting in severe or moderate morbidity in otherwise healthy term infants without preexisting conditions. This measure uses length of stay (LOS) modifiers to guard against overcoding and undercoding of diagnoses.

Importantly, this metric also serves as a balancing measure for other maternal measures such as NTSV Cesarean rates and early elective delivery rates. The purpose of a balancing measure is to guard against any unanticipated or unintended consequences of quality improvement activities for these measures.

Denominator: Babies without preexisting conditions are identified using a combination of ICD-10 Diagnosis and Procedure Codes, supplemented with clinical data on gestational age and birthweight. The denominator is comprised of singleton live born babies who by best Obstetric Estimate are at least 37.0 weeks of gestation, over 2500gms in birthweight (normally grown), do not have any congenital malformations or fetal conditions, and are not exposed to maternal drug use or to selected maternal conditions. This is a group that is expected to do well and routinely go home with the mother.

Numerator: The numerator is divided into two categories: Severe complications and moderate complications.

Severe complications include neonatal death, transfer to another hospital for higher level of care, severe birth injuries such as intracranial hemorrhage or nerve injury, neurologic damage, severe respiratory, neurologic or infectious complications. Parents of such babies often worry about short or long term infant outcomes.

Moderate complications include diagnoses or procedures that raise concern but at a lower level than the list for severe (e.g. use of CPAP or bone fracture). Most require an infant LOS that is longer than a standard stay given the delivery method, validating that these are indeed significant complications. Examples include less severe respiratory complications (e.g. Transient Tachypnea of the Newborn), or infections with a longer LOS but not sepsis. As a “safety net” to capture cases that are under-coded, the moderate complications numerator also includes cases with a LOS >5 days, provided that these newborns did not have codes for jaundice or a social reason for staying in the hospital (e.g. family disruption or adoption).

Detailed specifications are available within the Joint Commission [Online Manual](#). The conceptual algorithm is available on the CMQCC website [here](#).

Frequently Asked Questions

Which cases are included in the measure?

This metric focuses on term newborns who otherwise would be expected to be healthy. As such, the following exclusions are made from this newborn population: preterm, small for dates, multiple gestations, congenital malformations, fetal diagnoses and exposure to maternal drug use.

What is the target rate for UNC?

There is no target rate for UNC at this time, but it should be stressed that a 0% UNC rate is **NOT** the goal, as it is highly unlikely any hospital will observe a 0% UNC rate over a quarterly or annual period. Instead, the aim is to monitor your own hospital's rate over time and be alert to substantive increases.

That said, a rate above 50 per 1000 livebirths for UNC should lead to immediate review of all numerator cases to identify improvement opportunities for both clinical and coding practices. Ranges for UNC performance can be found on the last page of this document.

How should hospitals use the UNC measure?

Different from many other perinatal metrics, the most important use of UNC is as a balancing measure. A balancing measure is designed to identify unforeseen complications that might arise as a result of the improvement effort. For example, *Severe UNC* can be used as a balancing measure for QI efforts to reduce primary or NTSV cesarean birth rates.

UNC is also useful for identifying potential QI opportunities. The measure can be categorized into diagnosis buckets to help facilitate QI projects by understanding the specific drivers behind the rate.

Severe UNC is where most attention should be focused, and can be parsed into the following categories:

- Severe birth trauma/Neurologic
- Severe infection
- Severe respiratory
- Severe shock/resuscitation
- Transfer to a higher level of care (indicates a major morbidity and results in a major disruption to the family)

One approach is to compare your current UNC rates to past periods—looking for increases. If you do witness increases, then drill down to review specific cases to identify potential patterns driving the increase. An important caveat: given overall low rates of UNC, only very large delivery volume hospitals should look at UNC on a monthly basis. Otherwise, review your trends on a quarterly or even annual basis.

Who will have access to the resulting data? Will it ever be available to public? Or to hospital staff?

When your hospital reports the UNC data to the Joint Commission, their staff will have access to the results. There are no plans for public reporting in 2019; the Joint Commission's future plans regarding public reporting are to be decided.

If your hospital participates in the CMQCC Maternal Data Center (currently available to California, Washington and Oregon hospitals), authorized hospital staff can access the UNC data within the MDC for their confidential use and internal QI activities. The MDC also provides automated tools that parse

the data into the UNC “categorical buckets” and enable drill down to the patient level. Authorized users of the *Maternal Data Center* can visit [this link](#) for tips on reviewing their UNC data.

Do hospitals caring for higher risk cases have higher rates of UNC?

No. Based on data from all 237 California hospitals in 2017, hospitals with Level III or IV NICUs have, on average, UNC rates that are comparable to hospitals with lower levels of care. (In fact, Level III and IV hospitals have lower rates of *Severe UNC*).

NICU Level (N)	Severe UNC Rate per 1000 livebirths	Total UNC Rate per 1000 livebirths
Level III-IV (101)	16 per 1000	30 per 1000
Level II (57)	24 per 1000	34 per 1000
Level I (60)	24 per 1000	31 per 1000
Critical Access (12)	25 per 1000	34 per 1000
University (7)	23 per 1000	44 per 1000

Do we know if variation in the UNC rate is due to quality or perhaps just secondary to coding or protocol differences?

It can be either. When first reviewing their cases of UNC, hospitals may uncover coding practices that are different from peers and can be corrected going forward. However, most of the remaining cases reflect actual untoward events. Careful case reviews can identify system improvement opportunities

Will this measure be based on a random sample (like PC-01) or include all patients who meet criteria?

PC-06 (UNC) will include all newborns delivered at the hospital that meet the measure criteria. This ensures a robust sample size.

Will the UNC measure count for the delivering hospital or the hospital to which the newborn was transferred?

It will count only for the delivering (birth) hospital. This measure is intended to help gauge if delivery services and immediate newborn services have an impact on the newborn outcome.

Are extramural deliveries excluded from UNC?

Yes. UNC only applies to in-hospital births.

How do you count cases that fall into more than one complication bucket? Are they double-counted?

No, they are not double counted. There is an assignment hierarchy to prevent double counting. Also note that groupings into complication buckets are only used internally for hospital QI purposes.

How are perinatal deaths addressed in this measure?

Neonatal deaths are captured using the neonatal discharge disposition code. However, because stillbirths do not generate a newborn record, they will not be captured by this measure. Intrapartum stillbirths are now so rare that their exclusion will not meaningfully affect the rate of UNC. However, they represent an important QI incident and generally are considered a Sentinel Event and subject to a Root Cause Analysis.

Transfers

Why are newborns transferred to different hospitals for higher level care automatically counted as a Severe UNC?

Transfer cases to a higher level of care are counted as severe UNC cases for two reasons:

- 1) Most often, the transfer represents significant neonatal issues that are not coded well in the birth hospital; and
- 2) A transfer, regardless of the reason, results in a major disruption to the family. A key principle behind the UNC measure is the concept of newborn complications viewed from the perspective of the family. A newborn transfer to a facility at a different location is stressful and difficult for the parents to manage, particularly if the mother continues her stay in the birthing hospital.

We are a Level I Birth Center, and we transfer based on moderate complications, hypoglycemia or respiratory distress. Do these transfers to higher level of care still result in a Severe UNC?

Yes, the principle is that a transfer is major disruption to the family. Some hospitals with Level 1 Nurseries may observe neonatal transfers to be the largest component of their severe UNC rates. Even given this situation, Level 1 hospitals, on average, do not have higher rates of *Severe UNC* than hospitals with higher level NICUs.

How are transfers of newborns with known anomalies counted?

The exclusion criteria for the anomaly are applied first. Therefore, newborns with any known anomalies, fetal conditions or maternal drug use are excluded before being considered for the numerator.

We sometimes transfer cases with complications to a different hospital with a higher level NICU, and then a congenital anomaly is diagnosed after transfer to that different hospital (and thus the code for the anomaly isn't present in the delivery hospital diagnosis codes). Can we exclude these cases?

These cases cannot be excluded; the only exception is when the record at the delivery hospital is formally amended within 30 days of discharge; see more below).

Do note the following:

- A large number of congenital anomalies can be diagnosed prenatally and referred to higher level care prior to the birth; as such, these transfer cases can represent a quality improvement opportunity.
- In general, unexpected anomalies that are *not* diagnosable *prenatally* should occur randomly and at low frequency and should not have a substantial impact on hospital's annual rate of UNC—even at small hospitals.

Further, and as noted above, there is no expectation that any hospital will observe an UNC rate of 0 over time. Ranges for UNC performance can be found on the last page of this document.

We sometimes transfer babies with suspected exposure to maternal drug use, but cannot apply any of the exclusionary "drug exposure" codes if the toxicology screen-- with the specific drug result-- is not available prior to the transfer.

Per the official Joint Commission guidance, the newborn record at the delivery hospital can be formally amended once the toxicology results have been documented. Toxicology results are usually available within 1-2 days and can be added upon formal provider documentation to the newborn record. See more below.

What is the Joint Commission guidance on amending a record at the delivery hospital?

Per the Joint Commission General Abstraction Guidelines:

The intent of abstraction is to use only documentation that was part of the medical record during the hospitalization (is present upon discharge) and that is present at the time of abstraction. There are instances where an addendum or late entry is added after discharge. **This late entry or addendum can be used, for abstraction purposes, as long as it has been added within 30 days of discharge**, [Refer to the Medicare Conditions of Participation for Medical Records, 42CFR482.24(c)(2)(viii)], unless otherwise specified in the data element. Documents containing amendments, corrections, or delayed entries must employ the following widely accepted record keeping principles (CMS Medicare Program Integrity Manual Chapter 3, Section 3.3.2.4):

- Clearly and permanently identify any amendments, corrections or addenda;
- Clearly indicate the date and author of any amendments, corrections, or addenda;
- Clearly identify all original content.

It is not the intent to have documentation added at the time of abstraction to ensure the passing of a measure. Prenatal forms which are available during the hospitalization and become a permanent part of the patient's medical record (electronic health record/EHR or paper) for the current hospitalization may be used for abstraction.

What if you transfer a newborn to a higher level of care because of the availability of a specialist you don't have at your own facility, but the baby doesn't really require a higher level of care (e.g. needs genetics)?

If a newborn has been coded as having a genetic condition or anomaly at the delivery hospital, the case will be excluded from the denominator before the transfer.

We sometimes have to transfer babies to another hospital just for space/staffing issues or at the request of their insurer. If this happens, does it fall out (i.e. become a numerator case)?

The transfer case can be excluded if it meets all the following criteria:

- The transfer is not for a medical reason or to a higher level of care
- **The mother and baby transfer together to the new hospital**
- The newborn record at the birth hospital does not include any ICD-10 codes that would result in an UNC fallout.

TJC has provided guidance on the *Discharge Disposition* code values that can be used for this situation, per below:

8 Not Documented or Unable to Determine (UTD)

TJC Instructions for PC-06 Only: If a newborn is transferred to another acute care facility for purposes other than medical treatment or the need for a higher level of care and mother and baby remain together, abstract allowable value 8. Examples include transfers:*

- o To another facility covered by their healthcare plan*
- o For disaster evacuation*
- o For full census*

**Maternal Data Center Users can edit the Disposition code by going to the case edit screen for the newborn, identify the Disposition drop down menu and choose "UB: Other".*

What if the mother has to be transferred for her own illness and the baby is transferred with her?

This criteria listed in the above question apply to this situation as well.

How are transfers to a NICU within our own hospital treated?

Newborns transferred to NICUs within the same building (no ambulance transfer) of the birthing facility are not considered a transfer to a higher level facility for the purposes of this measure—even if that NICU is operated by a different owner from the birthing hospital. Of course, these newborns may meet other criteria for being included in the UNC measure and it is important to track the ICD-10 codes for these newborns after transfer to the NICU; see more below.

How will coding work when the transfer occurs to a NICU that is within the same four walls, but is operated by a different entity?

If the NICU is in the same four walls as the delivery hospital, but is technically owned by a different entity, it will NOT count as a transfer out. However, there can be some complexity in making sure the birth hospital captures all the relevant diagnosis and procedure codes related to that NICU admission. The birth hospital coding department is likely to classify that newborn as being transferred, and thus may not consider themselves responsible for tracking the diagnosis and procedure information for the NICU stay.

For the purposes of this metric, it is imperative that the two hospitals have a mechanism to track the ICD-10 diagnosis and procedure codes for the newborn's NICU stay. Otherwise, the UNC rate for the delivery hospital will be artificially low. Moreover, this measure is intended to reflect outcomes of both L&D practices and newborn care; it is very important for the birth hospital to know the outcomes of their infants for their own QI purposes!

What if a different entity operates the pediatric unit within the four wall of our hospital, and the discharge data reflect a transfer, but it is not technically to a higher level of care (e.g. for phototherapy treatment for elevated bilirubin)?

As noted above, hospitals need to develop a robust mechanism to track the ICD-10 codes for care provided by an “in-house” pediatric unit, even if owned by a separate entity. In this specific case, if the baby had no other numerator codes than phototherapy that infant would not meet criteria for UNC.

How is a home birth transferred to deliver at a higher level of care hospital captured? Example: Mom laboring at home or birth center, then after a few days the mother decides to be transferred and ends up with chorioamnionitis. Will the hospital receiving this patient end up having UNC for respiratory / infection codes?

Yes, if the baby does otherwise meet criteria for sepsis. Note that the code for baby affected by maternal chorioamnionitis requires a neonatal LOS longer than 2 days for a vaginal birth and longer than 4 days for a cesarean birth. Also recall that there is no target rate for this measure. Most hospitals will have a rate of severe UNC ranging from 15 to 25 per 1000 livebirths. Rare cases like this should not affect the overall rate over time.

Mother Length of Stay

What happens if the reason for a long LOS (i.e. > 5 days) is related to the mom only (thus the reason the baby stayed long as well)? Can the case be excluded?

Background: To guard against potential undercoding of baby conditions, babies with LOS > 5 days will count as Moderate UNC's (even if they do *not* have any of the UNC complication codes).

Response: Newborns with LOS > 5 days will not be excluded unless they have one of the designated codes for a jaundice or a social issue. In the vast majority of cases, insurance companies require term babies to be discharged if they have been deemed ready to go home, regardless of the mother's length of stay. This discharge might manifest as staying in the hospital with the mother as rooming-in only or being discharged to family.

What if insurance companies cover the baby to stay in the hospital when the mother needs to stay?

If the baby does stay longer than 5 days and has no jaundice related diagnoses, the case would fall into the numerator for Moderate UNC. We do encourage hospitals to focus reviews and QI efforts on cases of Severe UNC. This should not be common and is unlikely to affect the overall rate.

Specific Conditions

Severe UNC included meconium aspiration - but some meconium aspiration is a short 2 day stay and some are severe. How can we differentiate these?

Meconium aspiration has recently changed to require a LOS requirement for just this reason. The TJC updated their specifications to reflect this change (in the November 2018 update), and for hospitals that participate in the CMQCC Maternal Data Center, the MDC will be rolling out this change with the change to the TJC specification by March 2019.

For babies that just get a few minutes of CPAP in the delivery room, should they be coded as the mechanical CPAP procedure code - 5A09357?

It is up to your coding staff to determine the appropriateness of applying this code. For the purposes of the UNC measure, this code will only result in a fallout if the case also meets specific LOS criteria.

What if infant is being held for Child Protective Services (CPS) clearance?

Hospitals can use the ICD-10 code that reflects this situation to exclude the case: Z6221 *Child in welfare custody*.

Are blood issues other than Rh also excluded - e.g. Kell, Anti E, Anti M?

Newborns with these hemolytic diseases are excluded from the denominator using the code: P55.8 *Other hemolytic diseases of newborn*

To clarify the moderate respiratory complications -- does the baby have to have a LOS of >2 days vaginal or >4 days cesarean for it to count?

Some of the moderate respiratory diseases need a LOS modifier (e.g. TTP, RDS unspecified, atelectesis, apnea, meconium) while others do not (e.g. CPAP>24 hrs, pneumothorax, pneumomediastinum). Please see the Joint Commission's detailed specifications in the Appendix Tables (links below).

[Table Number 11.47: Moderate Respiratory Complication: Diagnosis Codes](#)

[Table Number 11.48: Moderate Respiratory Complication: Procedure Codes](#)

[Table Number 11.50: Moderate Respiratory Complication Diagnosis Codes with LOS Modifier](#)

[Table Number 11.52: Moderate Respiratory Complication Procedure Codes with LOS Modifier](#)

Does the presence of THC count as maternal drug exposure?

The Joint Commission excludes newborn cases with the code P0481: Newborn affected by maternal use of cannabis.

In the "Maternal Drug Use" codes, isn't "affected by" very vague?

"Newborn affected by maternal use" of a specific drug is the wording used within ICD-10 coding definitions and has some inherent vagueness. Refer to your coding specialist.

What about mothers affected by multiple psychiatric problems? (bipolar, schizophrenia, etc); is this an exclusion or taken into consideration?

The large majority of term infants born to mothers with psychiatric problems will not meet UNC criteria. A few newborns may have effects from maternal medications and the following codes will result in a newborn being excluded from the UNC measure:

- P0415 Newborn affected by maternal use of antidepressants
- P0417 Newborn affected by maternal use of sedative-hypnotics
- P0418 Newborn affected by other maternal medication
- P041A Newborn affected by maternal use of anxiolytics

Our coders use the code P031 for c section due to breech. Will that be treated as a complication if the LOS is greater than 4 days?

P031 *Newborn affected by other malpresentation, malposition and disproportion during labor and delivery* is in the bucket Moderate Birth Trauma with LOS. This means that the newborn will be a moderate UNC fallout if their record includes this code and they were delivered by cesarean and their LOS was greater than 4 days (or if delivered vaginally and the LOS was greater than 2 days).

What if the code P031 described above is applied to a shoulder dystocia case, and the newborn stays longer than 4 days, but was also treated with phototherapy?

The algorithm flow is designed such that this case would be a moderate UNC fallout, even with the phototherapy code. Two reasons: first, the longer length of stay may in fact be due to the birth complication and second, the management of the delivery may have resulted in bruising or the like that in turn necessitated the phototherapy. Do note that this code leads to being placed in the "moderate" and not "severe" bucket.

We have a lot of patients with lower socioeconomic situations, Medicaid or no prenatal care patients how is that accounted for in the data?

After application of all of the exclusion criteria (prematurity, small for dates, homelessness, etc), payment status and SES should not affect the UNC rate.

Have you considered including birth center births since they are only singleton term babies without the exclusion criteria listed and are among the levels of care recognized by SMFM?

This measure is based on ICD-10 codes. If Birthing Centers apply ICD-10 codes to its newborn records, they would be able to monitor this measure (although only inpatient hospitals will report to the Joint Commission.)

Statistics

What proportion of a hospital's births is included in this measure?

Typically >80% of a hospital's births are included in the measure population, with 15---18% meeting one or another of the exclusion criteria.

What is the distribution of rates among hospitals and how much variation is there?

	Mean	Range
Overall UNC	31.7 per 1000	0 - 12 per 1000
Severe UNC	19.0 per 1000	0 - 75 per 1000
Moderate UNC	12.8 per 1000	0 - 61 per 1000

All rates are per 1000 livebirths; based on California statewide data for CY 2017.

Do UNC rates vary substantially by hospital types / characteristics?

No. However, we do see significant variation within any individual hospital category: e.g. low volume hospitals; high-level Neonatal Intensive Care Units; Public/County facilities.

What are the common diagnosis categories that drive this measure? The codes from both Severe and Moderate Complications can be combined into 6 categories for further analysis. The most frequent category is Respiratory followed by Infection, Transfer to another hospital, Neurologic/Birth Injury, Shock/Resuscitation and lastly Long LOS-----without clear diagnosis. Examining hospitals with high rates, we find significant variation among diagnostic categories—some hospitals have high rates of infection while others have high rates of respiratory issues suggesting improvement opportunities.