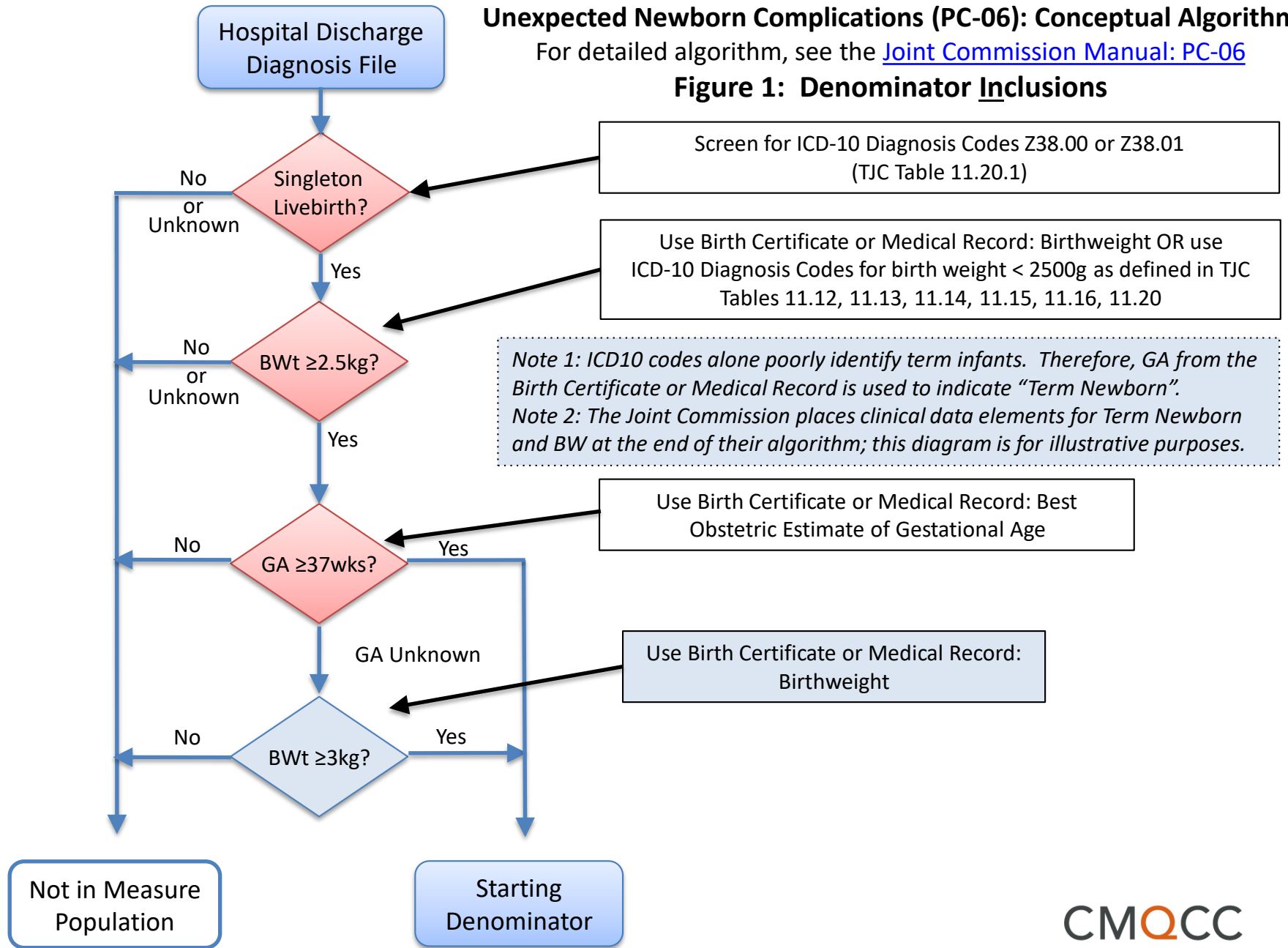# Unexpected Newborn Complications (PC-06): Conceptual Algorithm
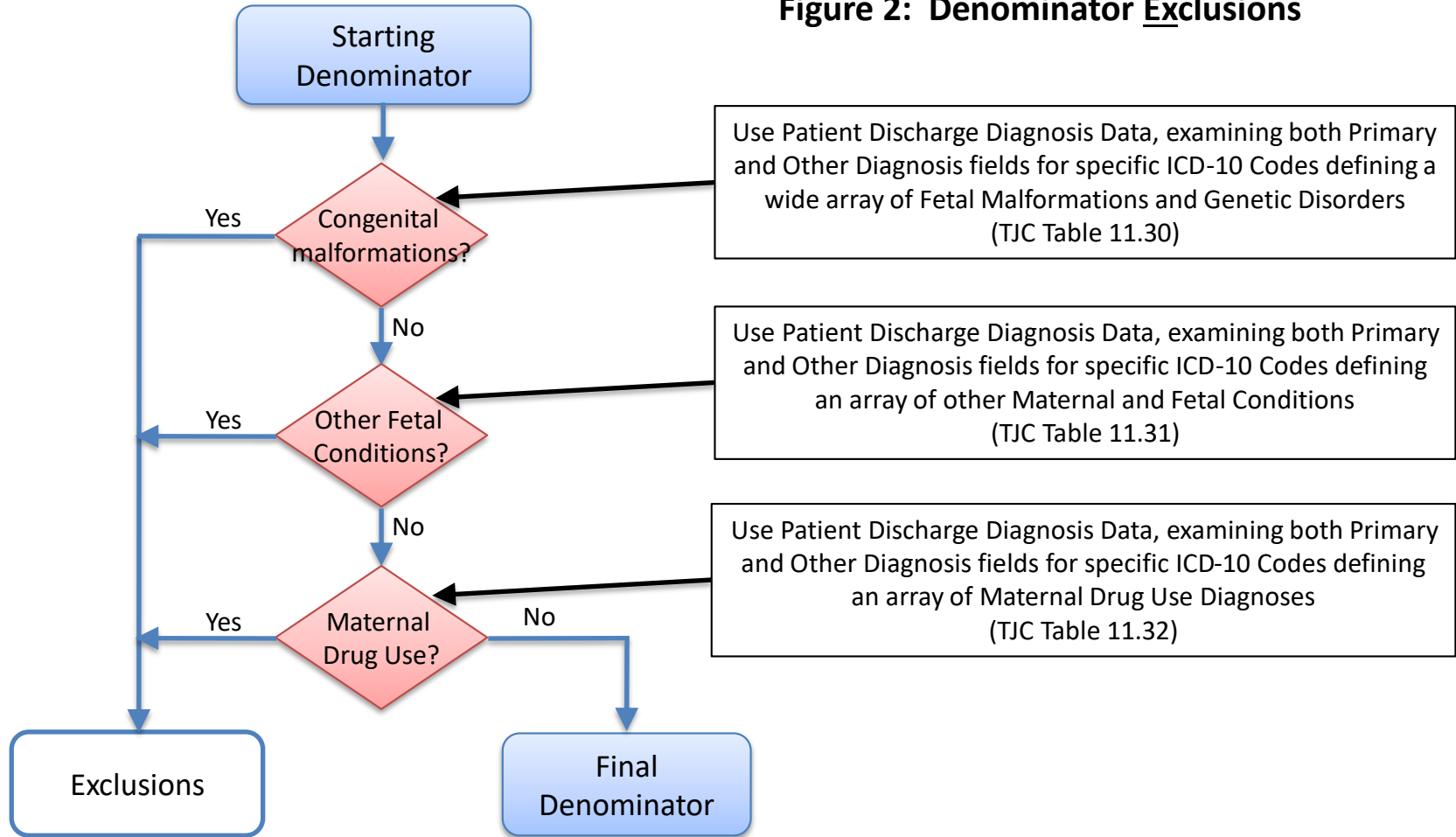For detailed algorithm, see the Joint Commission Manual: PC-06

Figure 1: Denominator Inclusions

Hospital Discharge Diagnosis File

Singleton Livebirth? — No or Unknown / Yes

Screen for ICD-10 Diagnosis Codes Z38.00 or Z38.01
(TJC Table 11.20.1)

BWt ≥2.5kg? — No or Unknown / Yes

Use Birth Certificate or Medical Record: Birthweight OR use ICD-10 Diagnosis Codes for birth weight < 2500g as defined in TJC Tables 11.12, 11.13, 11.14, 11.15, 11.16, 11.20

Note 1: ICD10 codes alone poorly identify term infants. Therefore, GA from the Birth Certificate or Medical Record is used to indicate "Term Newborn".
Note 2: The Joint Commission places clinical data elements for Term Newborn and BW at the end of their algorithm; this diagram is for illustrative purposes.

GA ≥37wks? — No / Yes / GA Unknown

Use Birth Certificate or Medical Record: Best Obstetric Estimate of Gestational Age

BWt ≥3kg? — No / Yes

Use Birth Certificate or Medical Record: Birthweight

Not in Measure Population

Starting Denominator

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TJC PC-06: Unexpected Newborn Complications
(aka Healthy Term Newborn)
Figure 2: Denominator Exclusions

Starting Denominator

Congenital malformations?

Use Patient Discharge Diagnosis Data, examining both Primary and Other Diagnosis fields for specific ICD-10 Codes defining a wide array of Fetal Malformations and Genetic Disorders (TJC Table 11.30)

Yes

No

Other Fetal Conditions?

Use Patient Discharge Diagnosis Data, examining both Primary and Other Diagnosis fields for specific ICD-10 Codes defining an array of other Maternal and Fetal Conditions (TJC Table 11.31)

Yes

No

Maternal Drug Use?

No

Use Patient Discharge Diagnosis Data, examining both Primary and Other Diagnosis fields for specific ICD-10 Codes defining an array of Maternal Drug Use Diagnoses (TJC Table 11.32)
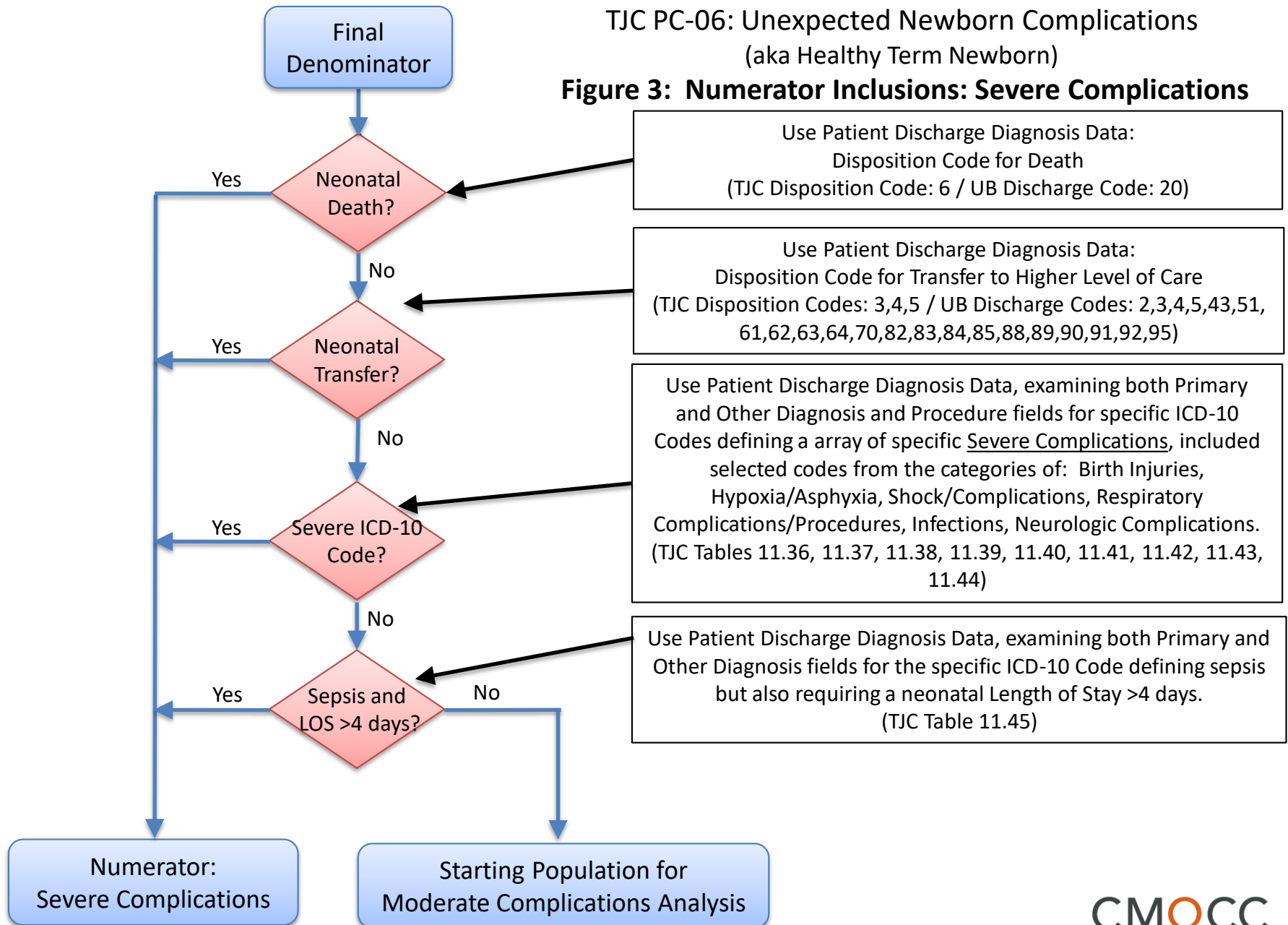
Yes

Exclusions

Final Denominator

In summary, the Final Denominator excludes most serious fetal conditions that are "preexisting" (present before labor), including: prematurity, multiple gestations, poor fetal growth, congenital malformations and genetic disorders, other specified fetal and maternal conditions and maternal drug use.
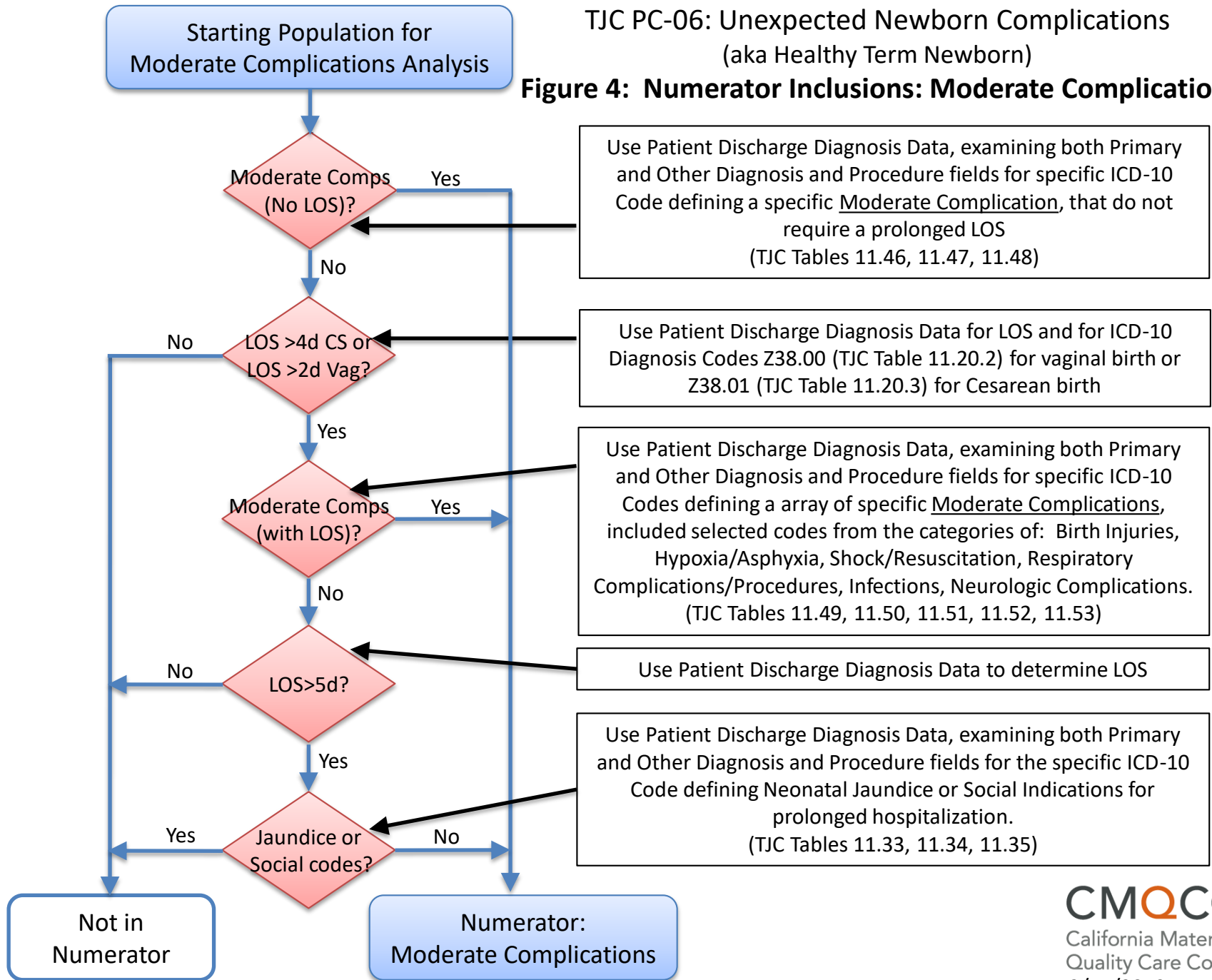
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(aka Healthy Term Newborn)
Figure 3: Numerator Inclusions: Severe Complications

Final Denominator

Neonatal Death?
- Yes →
- No ↓

Use Patient Discharge Diagnosis Data:
Disposition Code for Death
(TJC Disposition Code: 6 / UB Discharge Code: 20)

Neonatal Transfer?
- Yes →
- No ↓

Use Patient Discharge Diagnosis Data:
Disposition Code for Transfer to Higher Level of Care
(TJC Disposition Codes: 3,4,5 / UB Discharge Codes: 2,3,4,5,43,51, 61,62,63,64,70,82,83,84,85,88,89,90,91,92,95)

Severe ICD-10 Code?
- Yes →
- No ↓

Use Patient Discharge Diagnosis Data, examining both Primary and Other Diagnosis and Procedure fields for specific ICD-10 Codes defining a array of specific Severe Complications, included selected codes from the categories of: Birth Injuries, Hypoxia/Asphyxia, Shock/Complications, Respiratory Complications/Procedures, Infections, Neurologic Complications. (TJC Tables 11.36, 11.37, 11.38, 11.39, 11.40, 11.41, 11.42, 11.43, 11.44)

Sepsis and LOS >4 days?
- Yes →
- No ↓

Use Patient Discharge Diagnosis Data, examining both Primary and Other Diagnosis fields for the specific ICD-10 Code defining sepsis but also requiring a neonatal Length of Stay >4 days. (TJC Table 11.45)

Numerator: Severe Complications

Starting Population for Moderate Complications Analysis

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TJC PC-06: Unexpected Newborn Complications
(aka Healthy Term Newborn)
Figure 4: Numerator Inclusions: Moderate Complications

Starting Population for Moderate Complications Analysis

Moderate Comps (No LOS)? — Yes / No

Use Patient Discharge Diagnosis Data, examining both Primary and Other Diagnosis and Procedure fields for specific ICD-10 Code defining a specific <u>Moderate Complication</u>, that do not require a prolonged LOS
(TJC Tables 11.46, 11.47, 11.48)

LOS >4d CS or LOS >2d Vag? — No / Yes

Use Patient Discharge Diagnosis Data for LOS and for ICD-10 Diagnosis Codes Z38.00 (TJC Table 11.20.2) for vaginal birth or Z38.01 (TJC Table 11.20.3) for Cesarean birth

Moderate Comps (with LOS)? — Yes / No

Use Patient Discharge Diagnosis Data, examining both Primary and Other Diagnosis and Procedure fields for specific ICD-10 Codes defining a array of specific <u>Moderate Complications</u>, included selected codes from the categories of: Birth Injuries, Hypoxia/Asphyxia, Shock/Resuscitation, Respiratory Complications/Procedures, Infections, Neurologic Complications.
(TJC Tables 11.49, 11.50, 11.51, 11.52, 11.53)

LOS>5d? — No / Yes

Use Patient Discharge Diagnosis Data to determine LOS

Jaundice or Social codes? — Yes / No

Use Patient Discharge Diagnosis Data, examining both Primary and Other Diagnosis and Procedure fields for the specific ICD-10 Code defining Neonatal Jaundice or Social Indications for prolonged hospitalization.
(TJC Tables 11.33, 11.34, 11.35)

Not in Numerator

Numerator: Moderate Complications

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TJC PC-06: Unexpected Newborn Complications
(aka Healthy Term Newborn, Revised Specifications)
Table 1: Final Measure Calculations

- **Unexpected Newborn Complications (Total)**: (rate per 1,000 livebirths)

$$\frac{(\text{Severe Complications Numerator} + \text{Moderate Complications Numerator}) \times 1{,}000}{\text{Final Denominator}}$$

California state-wide rate in 2017: **31.7 per 1,000 births**

- **Unexpected Newborn Complications (Severe)**: (rate per 1,000 livebirths)

$$\frac{(\text{Severe Complications Numerator}) \times 1{,}000}{\text{Final Denominator}}$$

California state-wide rate in 2017: **19.0 per 1,000 births**

- **Unexpected Newborn Complications (Moderate):** (rate per 1,000 livebirths)

$$\frac{(\text{Moderate Complications Numerator}) \times 1{,}000}{\text{Final Denominator}}$$

California state-wide rate in 2017: **12.8 per 1,000 births**

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