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INTRODUCTION

We never stop working to improve care for California’s most vulnerable infants and children, and we know you don’t either. Every year, CPQCC staff, members, experts and volunteers review and reconsider the data elements being collected and presented to be sure we’re staying on the cutting edge of neonatal quality improvement care.

Below are features of the NICU Data or NICU Reports websites that were either created or modified in early 2021.

NEW FEATURES – NICU DATA

NICU DATA SITE – HOME PAGE

We have made some recent enhancements to the Home page of the NICU Data site. This page now uses bullet charts designed to show progress towards a goal.
The three goals we’ve included are:

- **Data Entry into the NICU Database of All CPQCC Eligible Infants** – to show timely data entry
- **Complete Data Entry into the NICU Database of all CPQCC Eligible Infants** – to show timely data completeness
- **NICU Database Records without Use of the Unknown Option for Key Risk Factors and Outcomes** – to show minimal use of the unknown option

We felt that these three aspects of the data collection are important since optimal use for quality improvement of the data collected hinges on these three aspects.

Each chart shows a target, progress line, pace indicator and tooltip with additional information.

The target is based on the most recent year for which the number of eligible infants has been confirmed, adjusted for the number of days that have passed for the current year. However, once a center has confirmed their IDs, the completeness should be shown relative to the number of records confirmed for that year, not the prior year.

The progress line shows the current level achieved for the goal. The progress line is updated in real-time for the first bullet chart; and is updated bi-hourly for the second and third charts.

New NICUs do not have a target and hence no bullet charts. If you are a new NICU and have a target in mind, please contact the data center, and we will set your target manually.

The pace bands reflect to what extent a NICU is on pace for the target.

- **All Records** chart: data entry is considered on pace if over 90% of the expected records are currently entered; it is considered far below pace if under 60% of the expected records are currently entered.
- **Complete Records** chart: data entry is considered on pace if over 90% of the expected records are complete; it is considered far below pace if under 60% of the expected records are complete.
- **Records without Unknowns** chart: data entry is considered on pace if over 95% of the records entered do not have any key risk factors or outcomes coded as unknown; it is considered far below pace if under 75% of the records entered do not have any key risk factors or outcomes coded as unknown.
The **All Records** chart summarizes progress towards the total number of records submitted (irrespective of errors, pending or unknown items). The goal is determined based on the most recent year for which the number of CPQCC eligible infants has been confirmed adjusted for the number of days that have passed in the chart year and allowing 10 extra days for starting a CPQCC record.

- A **green** band indicates that the center has entered 90% or more of the expected number of records and is **on pace** towards the target.
- An **orange** band indicates that the center has entered between 60% and 80% of the expected number of records and is **below pace** towards the target.
- A **red** band indicates that the center has entered fewer than 60% of the expected number of records and is **far below pace** towards the target.

**Note:** Deleted records are excluded from the counts.

**All Records Chart:**

\[
\text{target} = \frac{\# \text{ days passed in year} - 10}{\# \text{ days in year}} \times \# \text{ records for most recently confirmed year}
\]

**Example for birth year 2021:**

- Center confirmed 120 records in 2019, center has not confirmed 2020 records.
- Expected records for 2021 = 120
- Target on 4/1/2021 = \( \frac{90-10}{365} \times 120 = \sim 26 \)
- Center has submitted 15 records by 4/1/2021: \( \frac{15}{26} \times 100\% = \sim 58\% \)
- **Tool Tip:** **Data Entry Far Below Pace:** 15 records entered which is 58% of 26 expected records.

If your center expects substantially fewer or more records for the current year compared to the most recently confirmed year, please submit a help ticket to request an adjustment of your target.

**Complete Records Chart:**

\[
\text{target} = \frac{\# \text{ days passed in year} - 90}{\# \text{ days in year}} \times \# \text{ records for most recently confirmed year}
\]

**Example for birth year 2020:**

- Center confirmed 324 records in 2019, center has not confirmed 2020 records.
- Expected records for 2020 = 324
- Target on 3/1/2021 = \( \frac{\text{MIN}(366, 425-90)}{366} \times 324 = \frac{335}{366} \times 324 = \sim 297 \)
- Center has submitted 324 records by 3/1/2021: \( \frac{324}{297} \times 100\% = \sim 109\% \)
- **Tool Tip:** **Data Entry of Complete Records on Pace:** 324 records completely entered which is 109% of 324 expected records.
Records without Unknowns Chart: target = # records submitted for the year

Example for birth year 2021:
- Center has submitted 15 records by 4/1/2021.
- Target on 4/1/2021 = 15
- Center has submitted 13 records by 4/1/2021 with at least 1 key risk factor or outcome coded as unknown: \( \frac{13}{15} \times 100\% = \sim 86\% \)
- Tool Tip: Minimal Use of Unknown Option below Target: 13 records entered without risk factors or critical outcomes unknown which is 86% of 15 records entered.

(Optional) All NICU Admits Database

We recently made some enhancements to the All NICU Admits Database. This database gives our members the ability to track all infants admitted to their NICU. It is optional and separate from the main NICU Database. All babies admitted to the NICU, for any reason, are eligible for entry into the All NICU Admits Database; unlike the main NICU Database, there are no other criteria for entry. Learn more about it at [https://www.cpqcc.org/nicu/nicu-data/all-nicu-admits-database](https://www.cpqcc.org/nicu/nicu-data/all-nicu-admits-database).

With the recent enhancements, the Optional NICU Admits Database can now be used as a starting point for all data entry facilitated through the NICU Data website as it has the ability to create and populate records for the following databases:

- **CPQCC NICU A/D Database Connection (NEW)** – Members can now create or edit an Admission/Discharge form. When starting a new A/D form, it is possible to specify the need for a CPeTS form such that upon saving the A/D form a CPeTS form is initialized as well. (please see the [All NICU Admits Database Manual](https://www.cpqcc.org/nicu/nicu-data/all-nicu-admits-database), section 8).

- **CCS Supplemental Form** – Members can populate the following sections from within the CCS Supplemental form (please see the [All NICU Admits Database Manual](https://www.cpqcc.org/nicu/nicu-data/all-nicu-admits-database), section 7):
o **Section A:** NICU deaths prior to and including day 28, NICU deaths after day 28 by birth weight.

o **Section B:** Total Admits to your NICU: Inborn, Outborn, Acute and Non-Acute by birth weight.

o **Section C:** All Transports-Out from your NICU: Acute and Non-Acute by birth weight.

o **Section D:** Inborn NICU Admits by gestational age.

o **Section E:** Total number of patient days/Average daily Census, total number of IM or IV antibiotic NICU days/Antibiotic Use Rate.

o **Section F:** Number of central line-associated bloodstream infection (CLABSI) and number of central line days by birth weight.

- **Maternal Substance Exposures (MatEx) Database** – Members can create or edit a MatEx record for infants with Neonatal Abstinence Syndrom (NAS) or Neonatal Opioid Withdrawal Syndrome (NOWS) directly from the All NICU Admits Database. (please see the All NICU Admits Database Manual, section 9).

  **Note:** You must participate in the MatEx database to use this feature.

- **Additional features** – You can add/edit records, create queries, upload/download records, filter and search records, and select specific columns you want to review.

- **(NEW) Maternal Items:** maternal birth date, gender and delivery mode were added to facilitate linkage to tertiary administrative databases.

- **(NEW) Advanced Queries:** More advanced NAD queries can be formulated using the Query tool. Clicking on the Query tool brings up an overlay or pop-up that allows using filtering criteria for each field. The tool allows combining several fields to generate more complex criteria (please see the All NICU Admits Database Manual, section 6.3).

- **(NEW) Discharge diagnoses:** discharge diagnoses were added to the disposition tab, and are similar to the admission reasons (please see the All NICU Admits Database Manual, section 10.13)

- **(NEW) Quick copy links:** The new turquoise badges allows users to populate the associated field from the field indicated on the badge. For instance, the admission date can be set to the infant's birth date, or the discharge date can be set to the infant's admission date (please see graphic in the All NICU Admits Database Manual, section 10.15).
Pilot Projects – NICU Data Collection

We currently have two on-going pilot data collection projects, Delivery Room Oxygen (DRO2) and Family Centered Care (FCC). To participate in either of these projects, please submit a help ticket.

Delivery Room Oxygen (DRO2)

We are currently in the pilot stage of collecting data on mean oxygen saturation (SaO2) and inspired oxygen concentration (FiO2) at 5 minutes after delivery for inborn infants <1500 grams or <32 weeks. By collecting this data, we aim to examine the current practice of initial oxygen concentration levels for preterm infants and the effect on long-term neurodevelopmental outcomes. These two variables are the only supplemental questions that are required for the pilot study.

Mean Oxygen Saturation (SaO2) at 5 Minutes
The infant's average oxygen saturation (SaO2) as a percentage ranging from 0% to 100% at 5 minutes as noted in the Labor and Delivery record, if available.

Inspired Oxygen Concentration (FiO2) at 5 Minutes
The infant's inspired oxygen concentration (FiO2) ranging from 21% to 100% at 5 minutes as noted in the Labor and Delivery record, if available.

Family Centered Care (FCC)

Our work on disparities in the NICU has revealed considerable gaps in family-centered care. To address these gaps, CPQCC is partnering with NICU families to pilot test measures of family-centered care in the NICU. Improving family-centered care through measurement and feedback will ensure that NICU families, including the most marginalized, are better supported in caring for their infant. Measures being pilot tested include:

- Days from NICU admission to first skin-to-skin care
- Days from NICU admission to first social worker contact
- Hours from birth to priming with oral colostrum

Please let us know about any challenges or considerations regarding the data collection of the FCC items for this infant. (optional)
• A comment box can be used to provide additional details as to why these FCC measures might not be useful or have limitations for this infant.

NEW FEATURES – NICU REPORTS

All NICU Admits Focusboard

We have created a new focusboard, the All NICU Admits Focusboard, on the NICU Reports website. This report was created in response to the need of generating a more complete picture of NICU care based on all NICU admissions.

The data for the All NICU Admits Focusboard come from 3 sources:

• The annual CCS form that captures aggregated counts of hospital births, NICU admissions by inborn/outborn status and birth weight or gestational age since 2006.
• The Optional All NICU Admits database that captures minimal data on individual NICU admissions since 2018.
• California Department of Public Health (CDPH) birth certificate data.

Home Page

The home page shows the total number of NICU admissions either for the current year or most recently closed out year depending upon the NICU's participation in the Optional All NICU Admits Database.

For years not closed out, the number of total NICU admissions is based on the Optional All NICU Admits Database for participating centers. For non-participants, the number of total NICU admissions is based on the CCS form for the most recently closed-out year.

The top 3 reasons for NICU admissions are shown only for Optional All NICU Admits Database participants. Click the “Go” buttons or use the drop-down menu in the upper right corner of the page to select other reports. Clicking on the All NICU Admits Focusboard header always takes you back to the Home page.

You can click the “i” in the upper left corner of the page for more information about the All NICU Admits Focusboard (see images below).
NICU Admits Tables

The NICU Admits table shows hospital births, NICU admissions, inborn NICU admissions and low acuity inborn NICU admissions by birth weight and gestational age that are derived from the CCS Form for closed-out years or the NICU Admits Database by year. You can change the table year using the drop-down in the header of the first column.

- The birth weight table resembles Section A of the CCS report.
- The gestational age table resembles Section D of the CCS report.

Inborn NICU Admit % over Time

The Inborn NICU Admit % over Time report features NICU admit trends by year. For each year, a boxplot shows the NICU’s observed percentage with box statistics derived either from the CPQCC network or the set of NICUs that provided a similar level of NICU care. The comparison group can be modified using the right drop-down above the chart. The left drop-down above the chart allows the selection of different inborn admit metrics.

NOTE: This report is not available for freestanding children’s hospitals.
Inborn NICU Admit % Funnel Charts

The funnel charts give an alternative way to review annual Inborn NICU Admit percentages in comparison to all CPQCC network NICUs or the set of NICUs providing a similar level of NICU care. Each point in a funnel chart represents one NICU. The point for the currently active NICU is highlighted, slightly larger than all the other points and labeled with the observed, unadjusted Inborn NICU Admit percent metric selected.

The funnel chart also features confidence limits that are constructed based on the selected comparison group at the 95% and 99.8% confidence level.

NOTE: This report is not available for freestanding children's hospitals.

Admit Reasons

The Admit Reasons table shows the number and percent of NICU Admits (or subgroup) for each of the 17 admit reasons (derived from the All NICU Admits Database) for your NICU and a comparison group. The comparison group either consists of all Network NICUs or of those NICUs that provide a similar level of care. By default, the table is sorted by the largest to smallest admit reasons for the selected group. Length of stay (LOS) statistics are shown.
Admit Reasons Heatmaps

Heatmaps are used to display NICU admission counts and other metrics for each of 17 admission reasons by birth weight or gestational age. A heatmap is a visual tool that focuses the user’s attention on those combinations of admit reason and birth weight / gestational age that have the largest impact. In addition to specifying birth weight or gestational age as stratifiers, users may select the birth year, all NICU admissions or a subgroup based on inborn/outborn status and/or acuity, the metric shown in the heatmap (NICU admissions, NICU average length of stay, total NICU days, etc.), and either the network or the group of NICUs that provide a similar level of care as the selected NICU to be displayed in a comparison heatmap.

Daily Occupancy

The daily occupancy charts summarize NICU admits either as a column or as a line chart. The line chart distinguishes admits, discharges, infants seen, end-of-day census (hidden by default), and a simple moving average based on the previous 30 days for the last two metrics. Legend entries are clickable turning a line on (visible) or off (invisible). The bar chart distinguishes admits discharges and all-day infants.
Note: When a NICU begins entering data into the All NICU Admits DB by birth year (rather than admit year), the first few months in the chart will show a steady increase until the birth years entered account for all NICU admits.