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ORIGINAL ARTICLES

Infants Born at Late Preterm Gestation: Management during the Birth Hospitalization

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Objective To examine the admission practices, frequency of common clinical morbidities, and rates of medical intervention in infants born at 34-36 weeks gestational age (GA, late preterm).

Study design This retrospective, single institution, cohort study analyzed electronic health records of infants born late preterm from 2019 through 2021. Infants with known congenital anomalies necessitating neonatal intensive care unit admission were excluded. Analysis included descriptive and inferential statistics.

Results The study included 1022 infants: 209 (21%) 34 weeks GA, 263 (26%) 35 weeks GA, and 550 (54%) 36 weeks GA. Sixty-three percent of infants at 35 weeks GA and 78% of infants of 36 weeks GA remained in well newborn care throughout the birth hospitalization; infants born at 34 weeks GA were ineligible for well newborn care. The need for respiratory support was 32%, 18%, and 11% in infants of 34, 35, and 36 weeks GA, respectively. Supplemental tube feeds were administered in 55%, 24%, and 8% of infants of 34, 35, and 36 weeks GA, respectively. Most infants born at 34 weeks GA (91%) were placed in an incubator; this was less frequent in infants at 35 (37%) and 36 weeks (16%). Tachypnea, hypoglycemia, and hypothermia were noted in 40%, 61%, and 57% of infants, respectively. A subset of these infants (30% with tachypnea, 23% with hypoglycemia, and 46% with hypothermia) required medical intervention for these abnormalities.

Conclusions This single-center study provides an outlook on the care of infants born late preterm. Multicenter studies can contextualize these findings in order to develop clinical benchmarks and quality markers for this large population of infants. *(J Pediatr 2025;276:114330)*.

Infants born at late preterm gestation (between 34 and 36 weeks) account for 7% of all births in the US, or over 263 000 infants annually.[1] Previously called "near term infants," this subset of infants was renamed in 2005 to better characterize their unique clinical needs and developmental immaturity compared with infants born at term.[2] These infants are born at a unique developmental stage during which some thrive and require only routine newborn care, whereas others may develop complications such as temperature instability, feeding difficulty, hyperbilirubinemia, respiratory distress, and early onset sepsis that require neonatal intensive care unit (NICU) management.[3,4] Significant variation exists across hospitals in NICU admission rates and admission criteria for infants born late preterm and is not explained by differences in measures of clinical illness severity between infants.[5-8] This suggests that the observed variations in care may represent a knowledge gap regarding which infants stand most to benefit from NICU-level care. This is important because both the NICU admission itself, and its resultant separation of the parent-infant dyad, can have negative impacts on breastfeeding, bonding, maternal and paternal mental health, and health care utilization and expenditures.[9-11]

Clinical reports by the American Academy of Pediatrics in 2007 and updated in 2019, and multidisciplinary guidelines from the National Perinatal Association highlight the epidemiology, antenatal care research, clinical morbidities, discharge criteria, and long-term neurodevelopmental outcomes for infants born late preterm.[4,12,13] However, no clinical practice guidelines exist for their management during the birth hospitalization and there is limited understanding regarding the frequency of need for medical intervention in this group. A recent study of US' nurseries showed the minimal admission criteria for well newborn care varied between 34 and 37 weeks of gestation and 1750 to 2500 g birth weight, suggesting that wide variability exists in where, and potentially how, infants born late preterm are managed during the birth hospitalization.[5]

Limited research has examined the care of infants born late preterm during the birth hospitalization, and the few existing studies in this area are outdated because of changes in newborn care practices such as early breastfeeding initiation, stratified approaches to determine need for antibiotics, immediate skin-to-skin practices,

CPAP	Continuous positive airway pressure
GA	Gestational age
HFNC	High flow nasal cannula
IVF	Intravenous fluids
NICU	Neonatal intensive care unit
SCN	Special Care Nursery
SGA	Small for gestational age

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thresholds for initiation of phototherapy, and nursery staffing models following the World Health Organization's Baby Friendly Hospital Initiative.[3,13-22] With a steadily increasing rate of late preterm births in the US, understanding the clinical morbidities and needs of infants born late preterm is critical to ensure these patients receive appropriate and cost-effective care during the birth hospitalization.[1,13] The objective of this study was to examine the admission practices, frequency of common clinical morbidities and rates of medical intervention in infants born late preterm at a single institution.

Methods

This retrospective study was conducted at a single freestanding, university-based, tertiary care hospital offering both obstetric and neonatal care. Neonatal care occurs in a level I well newborn nursery within a mother-infant dyad, a level II Special Care Nursery (SCN), and a level III/IV NICU. Per hospital protocol, infants born late preterm born on or after 35 weeks gestational age (GA) are admitted to the level I well newborn nursery if clinically well-appearing; infants do not need to meet a minimal birth weight criterion. In the level I well newborn nursery, phototherapy can be provided. Incubator care for thermoregulation, continuous cardiorespiratory monitoring, intravenous fluids or medications, and supplemental tube feeding all require admission to a level II SCN. Of note, phototherapy can be either delivered in an open crib or in an incubator to ensure the infant stays warm when undressed during therapy; some infants accordingly receive radiant heat for phototherapy delivery rather than concern for impaired thermoregulation.

For infants needing respiratory support, oxygen by low flow nasal canula can be provided in the level II SCN. High flow nasal canula (HFNC), continuous positive airway pressure (CPAP), mechanical ventilation, and high frequency oscillatory ventilation are provided only in the level III/IV NICU. Infants with mild symptoms can be monitored and treated in a triage area in the level I well newborn nursery for <4 hours prior to decision to admit to NICU. The triage area offers continuous cardiorespiratory monitoring, radiant heat, short trials of CPAP support, and frequent clinical assessments. All infants born late preterm are eligible to receive supplemental donor human milk. Physicians are available in house 24/7 for assessment and evaluation of infants.

All inborn infants born late preterm between January 1, 2019 and December 31, 2021 were eligible for inclusion. Infants with prenatally suspected major congenital anomalies, such as complex congenital heart disease, were excluded from the cohort prior to analysis; these included all infants with a prenatal plan for direct NICU admission regardless of clinical status. Electronic health records were obtained through a clinic informatics data query, including demographics, admission locations, laboratory testing, administered medications, completed orders, and nursing flowsheets.

Admission location, discharge location, need for transfer to NICU-level care, and length of stay were captured. Clinical outcomes examined included any single episode of tachypnea (respiratory rate >60 respirations per minute), hypothermia (axillary temperature <36.5 °Celsius), and hypoglycemia (blood glucose <45 mg/dL). The cumulative incidence over time was reported in 6-hour windows. Infants were counted once for a clinical outcome. Medical interventions assessed included use of incubator, nasogastric or orogastric tube feeds for supplemental nutrition, phototherapy, dextrose-containing intravenous fluids (IVF), respiratory support, and antibiotics. Respiratory support included low flow nasal oxygen, HFNC, CPAP, mechanical ventilation, and high frequency oscillatory ventilation. Antibiotic exposure was determined by receipt of ampicillin, as all infants with concern for sepsis receive ampicillin as part of antibiotic regimen in a standardized protocol. The hospital utilizes a serial clinical examination-based protocol for determination of need for antibiotics. Phototherapy is prescribed per clinician discretion. The Premie BiliRecs (https://pbr.stanfordchildrens.org) Clinician Decision Making Support tool and CoSense Bilitool (https://bilitool.org) are both incorporated into the institution's electronic health record. Maternal data were not abstracted.

The analysis consisted of descriptive and inferential statistics of eligible infants during the birth hospitalization. Frequencies and proportions were calculated, and stratified by week of GA (34 weeks, 35 weeks, and 36 weeks). Comparisons between groups were made using the 2-sided t test, ANOVA, and χ^2. A threshold probability value of $P < .05$ was used to determine statistical significance. Statistical analyses were completed using SAS on Demand for Academics (SAS Version 9.4). The study was approved by the Institutional Review Board at Stanford University.

Results

Our study sample over a 3-year period included 1105 infants of whom 78 were excluded due to congenital anomalies necessitating NICU admission. Five infants were excluded for incomplete data availability. This resulted in 1022 infants available for study analysis. Characteristics of study participants are shown in **Table I**. Of included infants, 209 were born at 34 weeks (20.5%), 263 at 35 weeks (25.7%), and 550 at 36 weeks (53.8%) gestation.

Admission Patterns

Table II shows admission and discharge patterns for infants stratified by GA. **Figure 1** shows highest level of care required by gestational age. Notably, 81.8% (n = 215) of infants of 35 weeks gestational age (GA) and 87.5% (n = 481) of infants of 36 weeks GA were clinically well appearing at birth and initially admitted to the level I well newborn nursery within dyadic care; infants of 34 weeks GA were not eligible for admission to level I well newborn nursery per institutional protocol. One

Table I. Characteristics of study participants (n = 1022)

Characteristic n (%) or median (IQR)	34 week n = 209 (20.5)	35 week n = 263 (25.7)	36 week n = 550 (53.8)	Total n = 1022
Sex				
Female	98 (46.9)	134 (51)	263 (47.8)	495 (48.4)
Male	111 (53.1)	129 (49.1)	287 (52.2)	527 (51.6)
Race*				
Asian	57 (27.3)	73 (27.8)	162 (29.5)	282 (28.6)
Black	8 (3.8)	2 (0.8)	6 (1.1)	16 (1.6)
Pacific Islander	1 (0.5)	1 (0.4)	6 (1)	8 (0.8)
White	46 (22)	83 (31.6)	138 (25.1)	267 (26.1)
Other	97 (46.4)	97 (36.9)	214 (38.9)	399 (39)
Unknown	9 (4.3)	7 (2.7)	24 (4.4)	40 (3.9)
Ethnicity*				
Hispanic/Latino	78 (37.3)	87 (33.1)	184 (33.5)	349 (34.2)
Non-Hispanic	126 (60.3)	170 (64.6)	343 (62.4)	639 (62.5)
Unknown	5 (2.4)	6 (2.3)	23 (4.2)	34 (3.3)
Primary language				
English	171 (81.8)	212 (80.6)	454 (82.6)	837 (81.9)
Language other than English	38 (18.2)	51 (19.4)	96 (17.5)	185 (18.1)
Birth weight				
≥ 2500 g	48 (23)	120 (45.6)	381 (69.3)	549 (53.7)
2000-2499 g	95 (45.5)	107 (40.7)	143 (26)	345 (33.8)
1500-1999 g	61 (29.2)	31 (11.8)	25 (4.6)	117 (11.5)
< 1500 g	5 (2.34)	5 (2)	1 (0.2)	11 (1.1)
Small for gestational age† (SGA)				
SGA	23 (11)	39 (14.8)	79 (14.4)	141 (13.8)
No SGA	186 (89)	224 (85.2)	471 (85.6)	881 (86.2)
Delivery type				
Cesarean section	134 (64.1)	150 (57)	277 (50.4)	561 (54.9)
Vaginal	75 (35.9)	113 (43)	273 (49.6)	461 (45.1)
1 minute Apgar	8 (7,8)	8 (8,8)	8 (8,8)	8 (8,8)
5 minute Apgar	9 (8,9)	9 (9,9)	9 (9,9)	9 (9,9)

*Race and ethnicity are self-reported by parents within the electronic health record.
†Birth weight less than 10th percentile for gestational age and sex.

hundred fifty infants were initially admitted to the level III/IV NICU at birth. For all others, escalation in level of care during the hospitalization occurred in 12% (n = 19/158) of infants of 34 weeks GA, 23.4% (n = 52/222) infants of 35 weeks GA, and 10.8% (53/492) infants of 36 weeks GA (**Table III**).

Infants of 34 weeks GA had significantly longer median length of stay (median 11.2 days, IQR 8.3-14.3), than infants of 35 weeks GA (median 4.2 days, IQR 2.6-8.7) and infants of 36 weeks GA (median 3.2 days, IQR 2.1-4.3), $P < .001$. Although infants born via either vaginal or cesarean delivery at 34 weeks GA had similar lengths of stay (median 10.8 days vs 11.3 days, $P = .91$), infants of 35- and 36-weeks GA had significantly shorter lengths of stay when born via vaginal compared with cesarean delivery (35 weeks: 4.8 days vs 7.6 days, $P < .001$; 36 weeks: 2.9 days vs 5.2 days, $P < .001$).

Table II. Locations of care for late preterm infants

	Well newborn nursery, n (%)	Level II NICU, n (%)	Level III NICU, n (%)
34 wk (n = 209)			
Admission	1 (0.5)*	157 (75.1)	51 (24.4)
Discharge	7 (3.4)	202 (96.7)	0 (0)
35 wk (n = 263)			
Admission	215 (81.8)	7 (2.7)	41 (15.6)
Discharge	177 (67.3)	84 (31.9)	2 (0.8)
36 wk (n = 550)			
Admission	481 (87.5)	11 (2)	58 (10.6)
Discharge	472 (85.8)	74 (13.5)	4 (0.7)

*Infants at 34 weeks require empiric admission to the level II or level III NICU per hospital policy. This infant was born at 34w6d and turned 35w0d soon after birth and therefore was able to stay in well newborn care.

Interventions

Figure 2 shows rates of intervention by gestational age. Overall, 95.2% of infants of 34 weeks GA (n = 199) received one or more of the 6 medical interventions examined (antibiotics, respiratory support, phototherapy, supplemental tube feeding, dextrose-containing IVF, and incubator care). Comparatively, 46.8% (n = 123) of infants of 35 weeks GA and 26.5% (n = 146) of infants of 36 weeks GA received one or more medical interventions. The number of medical interventions received by GA is shown in **Figure 3**.

Table III. Transferred to higher level of care during birth hospitalization by gestational age. Infants admitted to the NICU at birth are excluded

	No, n (%)	Yes, n (%)
34 wk (n = 158)	139 (88)	19 (12)
35 wk (n = 222)	170 (76.6)	52 (23.4)
36 wk (n = 492)	439 (89.2)	53 (10.8)

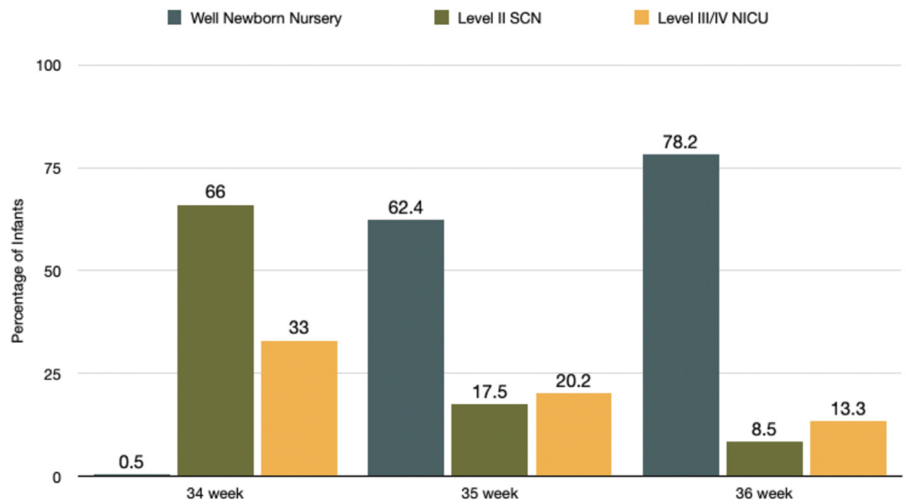

Figure 1. Highest level of care of infants during the birth hospitalization by gestational age.[a]34 wks infants not eligible for well newborn care per hospital protocol. One infant was born at 34 w6d gestation and turned 35 w0d within hours of delivery, and therefore was admitted to the Well Newborn Nursery.

Infants with birth weights small for gestational age (<10th percentile for gestational age and sex)[23] were more likely to receive IVF (RR 1.86, 95% CI 1.43-2.41), supplemental tube feeding (RR 1.77, 1.36-2.3, incubator care (RR 1.64, 1.38-1.95), and phototherapy (1.35, 1.02-1.79) compared with infants who were not small for gestational age. No significant differences were seen for antibiotics (RR 0.83, 0.44-1.57) or respiratory support (RR 0.73, 0.46-1.14).

Tachypnea

Tachypnea was noted in 54.5% (n = 114) of infants of 34 weeks GA within the first 6 hours of life, and in 35% (n = 92) and 26% (n = 143) of infants of 35- and 36-weeks GA, respectively. The cumulative incidence of tachypnea over the first 72 hours of life is shown in Figure 4A; by 72 hours, 40.1% (n = 410) of all infants had tachypnea. Notably, of those who developed tachypnea, the majority presented within the first 6 hours after birth (34 weeks: 86.4%, 35 weeks: 86.8%, 36 weeks: 83.1%). Of the entire cohort, 174 infants (17%) required some respiratory support (Figure 2). The highest level of respiratory support in these 174 infants was blow by oxygen (n = 6, 3.4%), low flow nasal cannula (n = 15, 8.6%), CPAP (n = 137, 78.7%), HFNC (n = 0), mechanical ventilation (n = 15, 8.6%), and high frequency oscillatory ventilation (n = 1, 0.5%). Eighty-eight percent (n = 153/174) of infants who required respiratory support had documented tachypnea, whereas 30.3% of infants with tachypnea required respiratory support (n = 153/505).

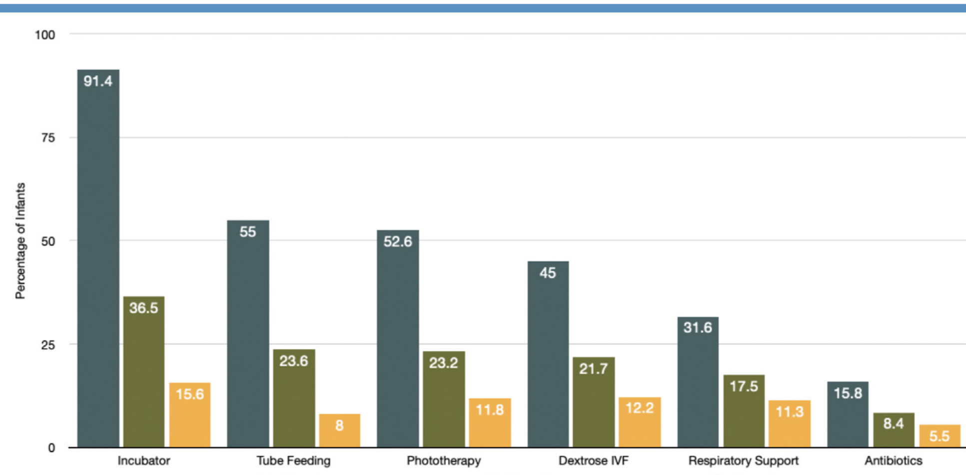

Figure 2. Frequency of medical interventions for late preterm infants by gestational age.

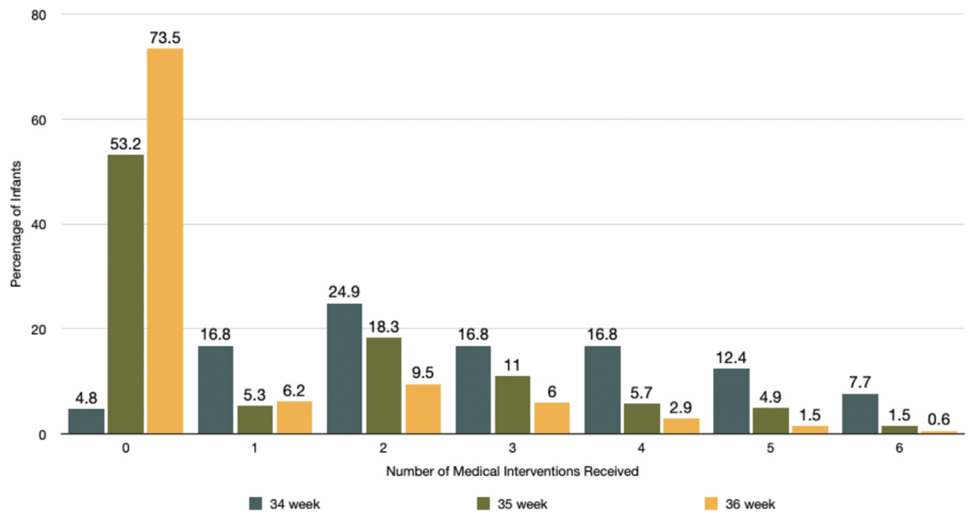

Figure 3. Number of medical interventions received during birth hospitalization by gestational age. Possible medical interventions include antibiotics, IVF, respiratory support, incubator, feeding tube, and phototherapy.

Concern for Early Onset Sepsis

The majority of infants receiving antibiotics also received respiratory support (n = 73/85, 85.9%); however, 58% of infants who received respiratory support did not receive antibiotics (n = 101/174). The maximum respiratory support received for the remaining 73 infants on antibiotics was low flow nasal

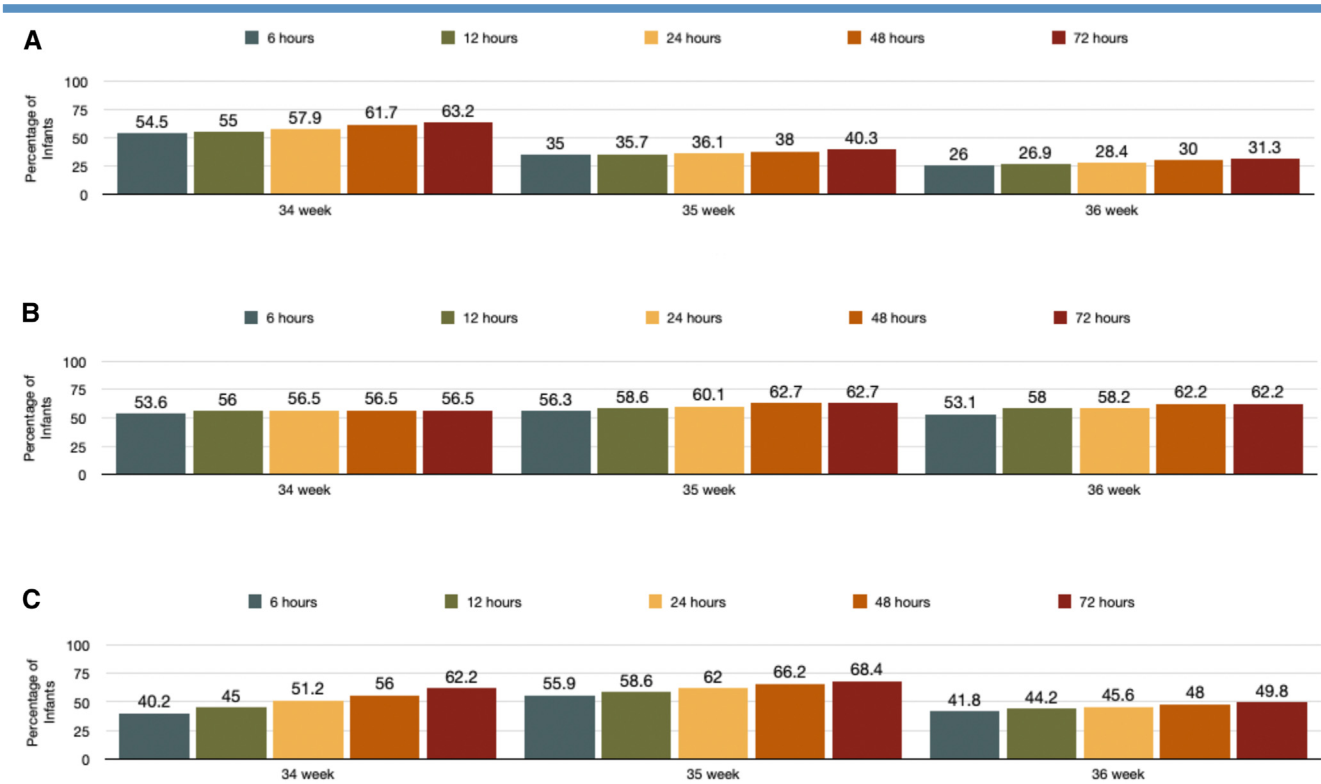

Figure 4. Cumulative incidence of **A,** tachypnea [respiratory rate > 60 breaths per min], **B,** hypoglycemia [glucose < 45 mg/dL], and **C,** hypothermia [temperature < 36.5 C] by gestational age and hours after birth.

cannula (n = 3, 4%), CPAP (n = 57, 78.1%), mechanical ventilation (n = 12, 16.4%), and high frequency oscillatory ventilation (n = 1, 1.4%). Six infants received antibiotics for 5 or more days, representing 7.1% of all infants receiving antibiotics and 0.6% of the entire study sample. No infants had culture positive early onset sepsis.

Hypoglycemia

All infants in this study were routinely screened for hypoglycemia. Within the first 6 hours of birth, 53.6% of infants of 34 weeks GA (n = 112), 56.3% infants of 35 weeks GA (n = 148), and 53.1% of infants of 36 weeks GA (n = 292) had at least one episode of hypoglycemia <45 mg/dL (Figure 4B). By 12 hours of life, these numbers increased to 56% (n = 117), 58.6% (n = 154), and 58% (n = 319). Very few infants developed new hypoglycemia between 12 and 72 hours of birth; by 12 hours of life, 99.2% (n = 117/118) of infants of 34 weeks GA, 93.3% (n = 154/165) of infants of 35 weeks GA, and 93.3% (n = 319/342) of infants of 36 weeks GA with hypoglycemia were identified. By 72 hours, 61.2% (n = 625) of all infants had hypoglycemia. Of infants who received dextrose-containing IVF, 67% (n = 146/218) also had one or more episodes of documented hypoglycemia. Twenty-three percent of infants with hypoglycemia received dextrose-containing IVF (n = 146/626).

Hypothermia

Hypothermia was noted in 40.2% (n = 84), 55.9% (n = 147), 41.8% (n = 230) of infants of 34 weeks, 35 weeks, and 36 weeks GA within the first 6 postnatal hours (Figure 4C). By 12 hours, these numbers increased to 45% (n = 94), 58.6% (n = 154), and 44.2% (n = 243). By 72 hours of life, the cumulative percentage with any noted hypothermia was 57.1% (n = 584), By GA, this included 130 infants of 34 weeks (62.2%), 180 infants of 35 weeks (68.4%), and 274 infants of 36 weeks (49.8%). The percentage of infants with documented hypothermia who required radiant heat was 46.3% (n = 290/616) and 76.3% of infants receiving radiant heat had at least one low temperature (n = 290/380).

Discussion

Here, we describe the contemporary care practices for management of infants born late preterm during the birth hospitalization, highlighting that most infants of 35 weeks GA (62.4%) and 36 weeks GA (78.2%) safely received care within the mother-infant dyad in the level I well newborn nursery throughout the birth hospitalization. We showed that the tachypnea, hypoglycemia, and hypothermia are very commonly seen in infants born late preterm but only a subset of these infants (30.3% with tachypnea, 23% with hypoglycemia, 46.3% with hypothermia) required medical intervention for these abnormalities. Most infants who developed tachypnea, hypoglycemia, or hypothermia did so within the first 6 hours of life, reinforcing both that the immediate transition period requires close monitoring of these infants. Only 6% of infants with tachypnea, 7.1% of infants with hypoglycemia, and 12% of infants with hypothermia developed these abnormalities after the first 6 hours of life. This small incremental yield for new infants developing these symptoms after 6 hours of life in addition to only a subset with symptoms needing intervention can help shape institutional policies for nursing staffing ratios, location of care, and frequency of testing and evaluation. Many institutions have 24 or 48 hour required monitoring policies in the NICU for infants born late preterm regardless of clinical appearance. These data suggest that neither of these time durations may be reflective of the physiology of infants born late preterm and that earlier reunification within a mother-infant dyad in well newborn care may be safely possible.

Of 1022 infants, only 6 were discharged from the level III/IV NICU (0.6%), suggesting that level III NICU care, when needed in these infants, is most often time-limited and that de-escalation of care across units is a common practice at this institution. This, in conjunction with that the majority of infants of 35 and 36 weeks GA were admitted to well newborn care, promotes the benefits of maintaining care within a mother-infant dyad and the diligent use of NICU-level beds.[7,9,10,24] Successful and safe escalation and de-escalation of newborn care is benefited by appropriate nursing and physician staffing ratios, physical proximity between units, and systems in place for rapid evaluation of clinically ill infants.

Although prematurity is a risk factor for early onset sepsis, the overall incidence of early onset sepsis remains low, and the judicious use of antibiotics requires careful clinical consideration. Stratification of infants with symptoms necessitating antibiotics is a challenge in the late preterm population, where morbidities such as respiratory distress, hypoglycemia, and hypothermia can be commonly seen secondary to prematurity but are also overlapping signs of infection. Despite these clinical symptoms commonly seen in this cohort, there were no cases of culture positive sepsis. The overall antibiotic exposure rate in our sample was 8.3% of infants, with only 0.6% of all infants receiving antibiotics for 5 or more days. A recent study across a large population-based cohort in California NICUs showed the incidence of early onset sepsis in infants born late preterm to be 0.76 per 1000; this suggests potential for further stratification of infants at lowest risk.[25] Low risk infants have previously been defined as born via Cesarean section, with rupture of membranes at time of delivery, without a trial of labor, and with no antepartum concerns for intra-amniotic infection or non-reassuring fetal status.[26] A potential area for investigation for antibiotic stewardship in infants born late preterm is whether subgroups of symptomatic infants (ie, requiring short-duration minimal respiratory support for presumed transient tachypnea of the newborn) can be safely monitored without empiric initiation of antibiotics; more than half of infants in this cohort requiring respiratory support did not receive antibiotics helping support this hypothesis.

Without established clinical benchmarks or quality markers for infants born late preterm, it is difficult to discriminate whether the remaining rates of medical intervention in this cohort are appropriate, whether they represent under or overutilization. Documented rates of tachypnea and hypoglycemia far exceeded intervention with respiratory support and dextrose-containing IVF, respectively. This suggests that these symptoms commonly resolve with either time given for physiological transitioning or with lower acuity interventions within a mother-infant dyad such as skin-to-skin care, feeding, or dextrose gel. Although documented rates of hypothermia in infants of 36- and 36-weeks GA similarly exceeded frequency of intervention, the opposite was true for infants of 34 weeks GA. Here, 91% were placed in an incubator, despite hypothermia only noted in 74.3%. This is likely reflective of both developmental immaturity and local care practices where all infants of 34 weeks GA are admitted to a NICU and many are placed in an incubator prior to demonstrated hypothermia. The clinical utility of empiric thermoregulatory support should be investigated; it is unclear whether this is a beneficial practice (ie, may result in quicker weight gain) or overtreatment (ie., may lengthen birth hospitalization stay without associated benefits). Determining the true incidence of clinical morbidities and their associated need for intervention requires multisite studies, including from institutions with differing admission criteria and care protocols to mitigate bias from any one clinical practice setting.

Establishing clinical benchmarks and quality markers specific to infants born late preterm can allow for distancing from groupings common in contemporary literature – "infants born moderate to late preterm" (32-36 weeks GA) and "infants born late preterm to term" (≥34 weeks GA). Both of these groupings are a disservice to the unique needs of this patient population. That a significant portion of infants born late preterm in this study were safely cared for within a mother-infant dyad in well newborn care suggests their developmental maturity exceeds the management of prematurity in the moderate preterm population, and yet the potential need for medical intervention and frequency of clinical symptoms underscores that infants born late preterm are not the same as infants born at term.

Our study should be viewed in light of its design. As a single institution retrospective study without a control group, our results should be viewed as hypothesis generating and limited in generalizability. Our institution is a tertiary-care high resource setting, and both the ability to closely monitor without intervention and intervene quickly when needed is a result of the local resources available. Although this indeed limits the generalizability of our results knowing that most newborns are taken care of in a community hospital setting, our study provides an initial framework for an understudied large population of hospitalized infants and serves as a call to deepen our understanding of the care of infants born late preterm during the birth hospitalization. The demographics of our included cohort are a reflection of the catchment area of a single institution, and thus further work should strive to include communities representative of all infants across the US. Further expansion into multicenter work, including infants born within diverse hospital settings and with varying admission criteria, can help delineate evidence-based admission criteria, develop clinical practice guidelines, and identify quality markers for the care of infants born late preterm.

This large single center study provides an overview of clinical morbidities and medical intervention rates for infants born late preterm during the birth hospitalization. Further studies should contextualize these intervention rates across multiple practice settings in order to develop clinical practice guidelines and quality measures for late preterm care. Representing a quarter million births in the US annually, infants born late preterm stand to benefit from standardization of care practices and measurement of quality during the birth hospitalization. ■

CRediT authorship contribution statement

Neha S. Joshi: Writing – original draft, Resources, Methodology, Investigation, Funding acquisition, Formal analysis, Data curation, Conceptualization. **Jochen Profit:** Writing – review & editing, Supervision, Methodology, Investigation, Formal analysis, Data curation, Conceptualization. **Adam Frymoyer:** Writing – review & editing, Supervision, Methodology, Investigation, Formal analysis, Data curation, Conceptualization. **Valerie J. Flaherman:** Writing – review & editing, Supervision, Methodology, Investigation, Formal analysis, Data curation, Conceptualization. **Yuan Gu:** Writing – review & editing, Formal analysis, Data curation. **Henry C. Lee:** Writing – review & editing, Supervision, Methodology, Investigation, Formal analysis, Data curation, Conceptualization.

Declaration of Competing Interest

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