PERINATAL JOURNAL

Original Article

Perinatal Journal 2026; 34(3):1-10

https://doi.org/10.57239/prn.26.0343001

Incidence and discharge survival among infants born at 28-32 weeks at Georgetown public hospital corporation: A retrospective cohort study

Stephon John[1]*, Ulanda Haynes[1], Winsome Scott[1]

Georgetown Public Hospital Corporation (GPHC), Georgetown, Guyana

Abstract

To estimate the hospital incidence proportion and discharge survival of infants born at 28–32 completed weeks at Georgetown Public Hospital Corporation in 2023, and to describe maternal characteristics, neonatal complications and care within the cohort. This retrospective cohort included all inborn infants recorded at 28+0 to 32+6 weeks at Georgetown Public Hospital Corporation from January through December 2023. Maternal, neonatal and discharge data were abstracted from clinical records and summarised descriptively. Among 5,284 liveborn infants, 114 were born at 28–32 completed weeks, corresponding to 21.6 per 1,000 live births (95% confidence interval, 18.0–25.9). Mean gestational age was 30.1 weeks and mean birth weight was 1,324.3 g (standard deviation, 276.1 g). Caesarean delivery occurred in 65/114 (57.0%); 60/114 (52.6%) infants were intubated and received surfactant for severe respiratory distress syndrome. Presumed neonatal sepsis was documented in 49/114 (43.0%). Eighty-one infants survived to hospital discharge and 33 died, giving discharge survival of 71.1% (95% confidence interval, 62.2–78.6). Post-discharge vital status was unknown for 35/81 infants at six months and 36/81 at one year. Infants born at 28–32 completed weeks represented 21.6 per 1,000 hospital live births, and 71.1% survived to discharge. Substantial post-discharge loss to follow-up prevented reliable estimation of six- and twelve-month survival. Standardised neonatal documentation, sepsis surveillance and follow-up registration are priorities for prospective quality-improvement evaluation.

Keywords: Preterm infant, Neonatal mortality, Survival, Neonatal intensive care, Guyana

Introduction

Preterm birth, defined as birth before 37 completed weeks, remains a major cause of neonatal mortality and long-term morbidity worldwide.[1–4] The World Health Organization defines very preterm birth as 28+0 to 31+6 weeks of gestation.[2] Because the source dataset also contained five infants recorded at 32 completed weeks, the full study cohort is described throughout as infants born at 28–32 weeks rather than as an exclusively very preterm cohort. Outcomes depend strongly on gestational age, birth weight and access to effective obstetric and neonatal care.[1,5,7]

Although survival has improved where antenatal corticosteroids, respiratory support, surfactant, infection prevention and specialised neonatal care are available, important inequities persist in resource-limited settings.[5–10] Evidence from a public tertiary hospital in Guyana indicates that implementation of a level III neonatal intensive care unit was associated with reduced unit mortality, but contemporary gestational-age-specific data remain limited.[11]

Georgetown Public Hospital Corporation is Guyana's principal public tertiary referral hospital and operates a level III neonatal intensive care unit. Hospital-specific estimates are needed because referral patterns, viability thresholds, case mix and available care limit direct comparison with other countries.

Published international estimates cannot be transferred directly to this setting because cohorts differ in gestational-age distribution, inclusion criteria and outcome definitions. A consistently defined hospital cohort can therefore provide a local benchmark for clinical audit and prospective quality improvement.

The primary objectives were to estimate (1) the hospital incidence proportion of live births at 28–32 completed weeks per 1,000 live births at Georgetown Public Hospital Corporation during 2023 and (2) survival to hospital discharge among eligible infants. Secondary objectives were to describe maternal characteristics, neonatal interventions, complications, deaths and completeness of vital-status ascertainment at six and twelve months. The

Correspondence: Stephon John, Georgetown Public Hospital Corporation (GPHC), Georgetown, Guyana, **e-mail:** stephon.john@mail.digitalmail.site, **Received:** May 19, 2026 **Accepted:** July 22, 2026

study was descriptive and was not designed to identify causes or risk factors for preterm birth.

Methods

The study received ethical approval from the Georgetown Public Hospital Corporation Research Committee and the Guyana Ministry of Health Institutional Review Board. Retrospective clinical data were analysed using coded study identifiers, and the linkage file was stored separately on a password-protected device accessible only to authorised investigators. Parents or guardians contacted for post-discharge follow-up were informed of the study purpose, the voluntary nature of participation and the confidentiality of their responses before providing consent to continue the telephone interview. The study was conducted in accordance with the principles of the Declaration of Helsinki.

Study design

This was a retrospective cohort study reported in accordance with the Strengthening the Reporting of Observational Studies in Epidemiology guidance.[12]

Study population

The source population comprised all liveborn infants delivered at Georgetown Public Hospital Corporation between 1 January and 31 December 2023. Eligible participants were consecutive inborn infants recorded from 28+0 through 32+6 weeks of gestation. This range includes the WHO very preterm category (28+0–31+6 weeks) and five infants recorded at 32 completed weeks. Infants with major congenital anomalies considered incompatible with life and infants transferred from another hospital were excluded. Gestational age was abstracted from the obstetric record and analysed using the completed-week category recorded in the source dataset.

Inclusion criteria

All inborn liveborn infants recorded at 28+0 through 32+6 weeks and delivered at GPHC during the study period were eligible.

Exclusion criteria

- Neonates with major congenital anomalies considered incompatible with life.
- Out-born neonates transferred from other hospitals.

Study setting

The study was conducted across the neonatal intensive care unit, Step-Down Unit and Paediatrics Outpatient Clinic at Georgetown Public Hospital Corporation. Maternal, delivery, neonatal and discharge data were abstracted from hospital records. Post-discharge vital status was first sought in neonatal follow-up clinic records. When no follow-up record was available, a parent or guardian was contacted using the approved telephone script. The analysis included all 114 eligible infants, 81 discharged alive, and vital-status ascertainment at six and twelve months; unsuccessful follow-up was retained as unknown rather than treated as survival.

Sample size

This study used a census of all infants recorded as eligible during 2023 rather than a sample selected through a power calculation. No multivariable mortality model was fitted because only 33 deaths occurred and the available dataset did not support stable adjusted estimation. Infants were the unit of analysis; the available summary data did not permit adjustment for potential clustering among multiple births.

Data collection

Each patient was given a unique identification code to protect patient confidentiality.

Maternal variables were age, ethnicity, antenatal-care attendance, plurality and documented medical or obstetric conditions. Neonatal variables were gestational age, sex, birth weight, Apgar scores, mode of delivery, resuscitation recorded on the abstraction form, respiratory support, surfactant administration, complications, length of admission and discharge status. The two primary outcomes were the hospital incidence proportion of births at 28–32 completed weeks per 1,000 live births and survival to hospital

discharge. Six- and twelve-month assessments were treated as vital-status ascertainment outcomes because status could not be established for a substantial proportion of discharged infants. Clinical diagnoses were accepted as documented by the treating neonatal team and were not independently adjudicated.

Post-discharge vital status was sought in neonatal follow-up clinic records and, when absent, by telephone. Infants not documented alive or dead at a follow-up point were classified as having unknown vital status and were not assumed to have survived.

Each chart was reviewed individually and data were entered manually into a standardised collection sheet on a password-protected laptop accessible only to the authorised research team and supervisor.

Data analysis

Analyses were performed using IBM SPSS Statistics version 21. Categorical variables were summarised as frequencies and percentages using variable-specific denominators, whereas continuous variables were summarised using means and standard deviations. The hospital incidence proportion and survival to discharge were reported with two-sided 95% Wilson confidence intervals. The analysis was descriptive. Odds-ratio modelling was not undertaken because the cohort contained no later-gestation comparison group and only 33 in-hospital deaths, which would not support a large, stable multivariable model. Missing observations were not imputed; available-case denominators were reported, and unknown post-discharge vital status was retained as a separate outcome category.

Incidence calculation

Hospital incidence proportion = (number of eligible liveborn infants recorded at 28–32 completed weeks / all liveborn infants at the same hospital during the same dates) × 1,000.

Survival rate analysis

Discharge survival (%) = (number discharged alive / eligible liveborn infants recorded at 28–32 completed weeks) × 100. Six- and twelve-month survival was not estimated because vital status was unknown for a substantial proportion of discharged infants.

Results

From 1 January through 31 December 2023, 114 infants were born at 28–32 completed weeks among 5,284 liveborn infants at Georgetown Public Hospital Corporation, corresponding to 21.6 per 1,000 live births (95% CI, 18.0–25.9). The numerator and denominator cover births at the same hospital during the same dates.

Recorded completed-week categories were 28 weeks, 16/114 (14.0%); 29 weeks, 26/114 (22.8%); 30 weeks, 24/114 (21.1%); 31 weeks, 43/114 (37.7%); and 32 weeks, 5/114 (4.4%).

The five infants recorded at 32 completed weeks were retained because the analysed source cohort covered 28+0 through 32+6 weeks. Accordingly, results for all 114 infants are reported as a 28–32-week cohort; the manuscript does not describe the full cohort as exclusively very preterm. Mean recorded gestational age was 30.1 weeks (standard deviation, 1.2).

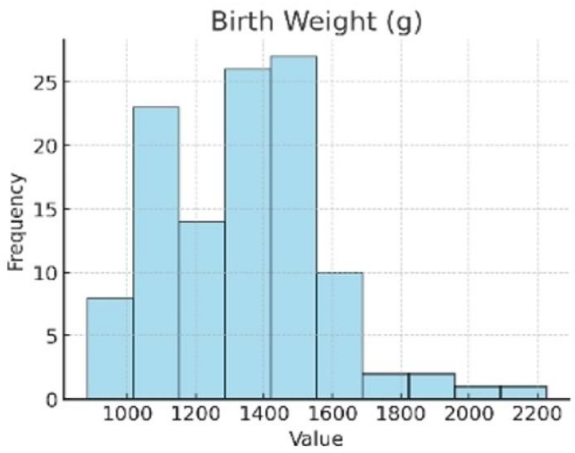

Figure 1. Birth-weight distribution among 114 infants born at 28–32 completed weeks. Birth weight ranged from 695 to 2,375 g

Birth weight ranged from 695 to 2,375 g, with a mean of 1,324.3 g (standard deviation, 276.1 g). Ten infants weighed <1,000 g (8.8%), 91 weighed 1,000–1,499 g (79.8%), 11 weighed 1,500–1,999 g (9.6%), and 2 weighed ≥2,000 g (1.8%) (Figure 1).

The cohort comprised 72 female infants (63.2%) and 42 male infants (36.8%).

Sixty-five infants were delivered by low-segment Caesarean section (57.0%), 48 by vaginal delivery (42.1%), and one had no recorded mode of delivery (0.9%) (Figure 2). Delivery indications were not analysed.

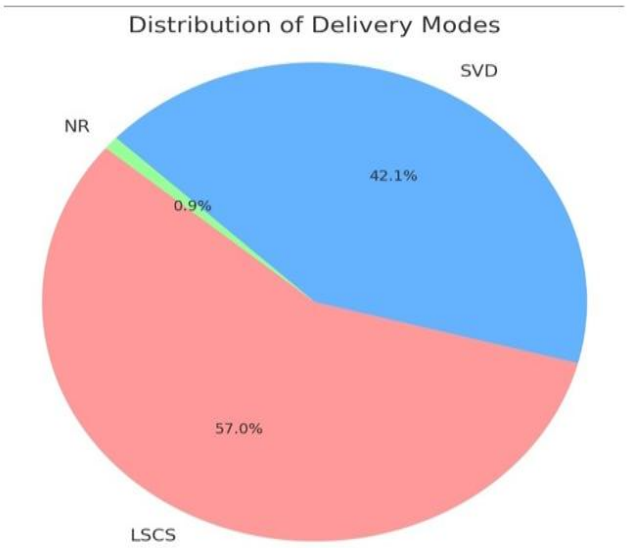

Figure 2. Mode of delivery among 114 infants born at 28–32 completed weeks. LSCS, low-segment Caesarean section; NR, not recorded; SVD, spontaneous vaginal delivery.

On the abstraction form, the broad variable 'resuscitation' captured any immediate newborn assistance, including routine drying and stimulation, and was marked yes for all 114 infants. It should therefore not be interpreted as advanced resuscitation. Advanced respiratory care was reported separately: 60 infants were intubated and received surfactant, whereas 54 received non-invasive respiratory support. Mean Apgar scores were 8.1 (standard deviation, 1.5) at one minute, 9.1 (1.0) at five minutes and 9.6 (0.8) at ten minutes.

Exploratory Pearson correlations were not retained because Apgar scores are bounded ordinal measures and the available analysis did not include the distributional checks, confidence intervals, exact p values or multiplicity control needed for reliable interpretation.

Sixty of 114 infants (52.6%) were intubated and received endotracheal surfactant for recorded severe respiratory distress syndrome. The remaining 54/114 (47.4%) received continuous or non-invasive positive-pressure ventilation for recorded mild or moderate respiratory distress syndrome.

Recorded complications included respiratory distress syndrome in 114/114 infants (100.0%), hyperbilirubinaemia or jaundice in 60/114 (52.6%), presumed neonatal sepsis in 49/114 (43.0%), upper gastrointestinal bleeding in 11/114 (9.6%), mild thrombocytopenia in 10/114 (8.8%) and moderate thrombocytopenia in 9/114 (7.9%). Diagnoses reflect routine documentation by the treating neonatal team and were not independently adjudicated; categories were not mutually exclusive (Figure 3).

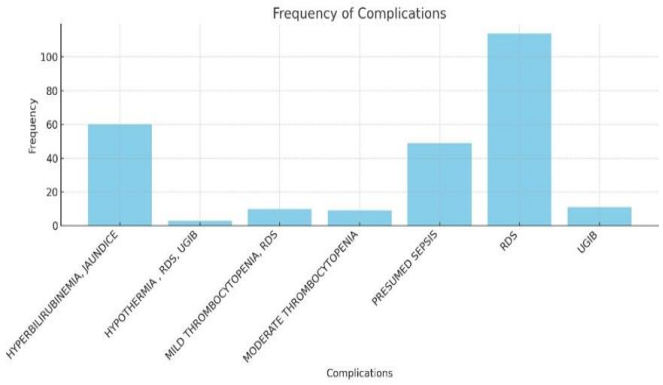

Figure 3. Recorded neonatal complications among 114 infants born at 28–32 completed weeks. Bars show frequencies; categories reflect routine clinical documentation and are not mutually exclusive. RDS, respiratory distress syndrome; UGIB, upper gastrointestinal bleeding.

Thirty-three of 114 infants died before discharge. The available records contained composite diagnostic entries rather than an adjudicated underlying cause of death. Seventeen deaths (51.5% of deaths) had the combined entry 'neonatal sepsis, disseminated intravascular coagulation and severe respiratory distress syndrome'. Four records stated that no post-mortem examination was performed; this is reported as a record-status entry and not as a cause of death. Table 1 therefore presents the documented entries without assigning a single underlying cause.

Table 1. Recorded diagnostic entries and record status among 33 in-hospital deaths

Recorded diagnostic entry or record status	Frequency	Percentage of deaths
Neonatal sepsis, DIC and severe RDS	17	51.5%
Pulmonary haemorrhage and severe RDS	1	3.0%
Pulmonary hypertension, PDA and severe RDS	1	3.0%
No post-mortem examination documented	4	12.1%
Presumed sepsis and severe IUGR	1	3.0%
Neonatal sepsis and DIC	3	9.1%
Bronchopneumonia and multiorgan failure	3	9.1%
Bronchopulmonary dysplasia, congenital heart defect and persistent pulmonary hypertension	1	3.0%
Perforated necrotising enterocolitis and septic shock	1	3.0%
Pulmonary haemorrhage, hydrops fetalis and congenital heart disease	1	3.0%
Total deaths	33	100.0%

Note: The entries are transcribed composite diagnoses or record-status statements and do not represent independently adjudicated underlying causes of death. DIC, disseminated intravascular coagulation; IUGR, intrauterine growth restriction; PDA, patent ductus arteriosus; RDS, respiratory distress syndrome

Eighty-one infants survived to hospital discharge and 33 died. Survival to discharge was 71.1% (81/114; 95% CI, 62.2–78.6), and in-hospital mortality was 28.9% (33/114; 95% CI, 21.4–37.8) (Table 2).

Table 2. Survival status at hospital discharge

Survival status	Frequency	Percentage
Survived to discharge	81	71.1% (95% CI, 62.2–78.6)
Died before discharge	33	28.9% (95% CI, 21.4–37.8)
Total	114	100.0%

At six months, 46/81 discharged infants (56.8%) were confirmed alive and 35/81 (43.2%) had unknown vital status. At one year, 45/81 (55.6%) were confirmed alive and 36/81 (44.4%) had unknown vital status. No infant was documented as confirmed dead in the available follow-up records. These results describe follow-up completeness rather than survival; uncontacted infants were not assumed to have survived (Tables 3 and 4).

Table 3. Six-month vital-status ascertainment among infants discharged alive

Outcome	Frequency	Percentage
Confirmed alive	46	56.8%
Confirmed dead	0	0.0%
Vital status unknown	35	43.2%
Total	81	100.0%

Table 4. One-year vital-status ascertainment among infants discharged alive

Outcome	Frequency	Percentage
Confirmed alive	45	55.6%
Confirmed dead	0	0.0%
Vital status unknown	36	44.4%
Total	81	100.0%

Among the 114 mothers, 49 were recorded as being of African descent (42.9%), 38 as East Indian (33.3%) and 27 as mixed ethnicity (23.7%) (Figure 4).

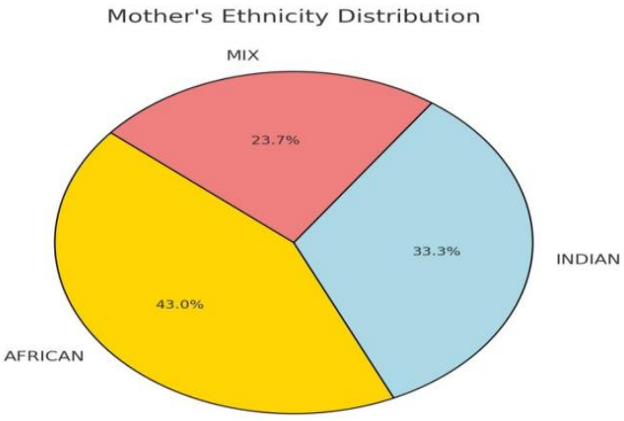

Figure 4. Recorded maternal ethnicity distribution among the 114 births included in the cohort

Most mothers attended four to six antenatal clinic visits (81/114; 71.1%); 22/114 (19.3%) attended fewer than four visits and 11/114 (9.6%) attended

seven or more visits (Figure 5).

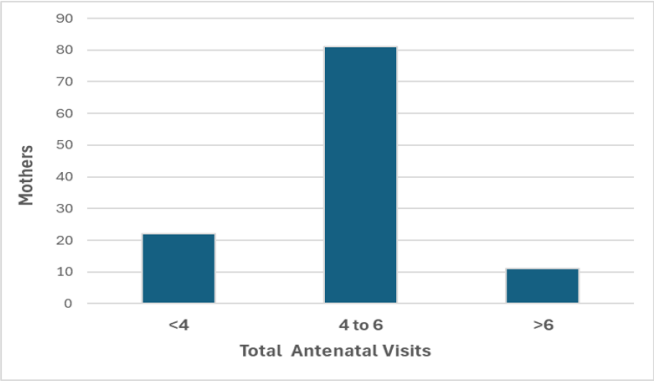

Figure 5. Antenatal clinic attendance among the 114 mothers included in the cohort

Twelve mothers were aged <20 years (10.5%), 97 were aged 20–35 years (85.1%) and 5 were aged >35 years (4.4%) (Table 5).

Table 5. Maternal age distribution

Maternal age	Frequency	Percentage
<20 years	12	10.5%
20–35 years	97	85.1%
>35 years	5	4.4%
Total	114	100.0%

No maternal comorbidity was recorded for 80/114 mothers (70.2%). Isolated chronic hypertension occurred in 20/114 (17.5%); chronic hypertension with diabetes in 4/114 (3.5%); and chronic hypertension with eclampsia and post-cardiac arrest in 2/114 (1.8%). Overall, a hypertension-containing category occurred in 26/114 mothers (22.8%). Diabetes without recorded hypertension occurred in 6/114 (5.3%) (Table 6).

Table 6. Recorded maternal comorbidities

Comorbidity	Frequency	Percentage
Chronic hypertension	20	17.50%
Chronic hypertension and diabetes mellitus	4	3.50%
Chronic hypertension, eclampsia and post-cardiac arrest	2	1.80%
Diabetes mellitus	6	5.30%
Hypothyroidism	1	0.90%
None recorded	80	70.20%
Uterine insufficiency	1	0.90%
Total	114	100.00%

Discussion

Infants born at 28–32 completed weeks at Georgetown Public Hospital Corporation represented 21.6 per 1,000 live births (95% CI, 18.0–25.9) in 2023. This hospital-based proportion should not be interpreted as a population incidence because the tertiary referral setting may receive a higher-risk case mix. Cross-country comparisons also require matched gestational-age ranges, referral patterns, viability thresholds and outcome definitions.[3,4,13]

The cohort described maternal characteristics but did not include a comparison group of mothers delivering at later gestations. Maternal age, antenatal attendance and comorbidities therefore cannot be interpreted as risk factors for preterm birth. No comorbidity was recorded for 70.2% of mothers, and any hypertension-containing category was recorded for 22.8%; both estimates may be affected by incomplete retrospective documentation. Comparable retrospective perinatal record reviews have likewise cautioned that incomplete or inconsistent documentation can limit causal interpretation of maternal and neonatal outcomes.[15]

Caesarean delivery occurred in 57.0% of the cohort. The indication and clinical appropriateness of delivery mode were not formally evaluated, so this frequency cannot demonstrate benefit or conformity with best practice. Mean birth weight was 1,324.3 g, and 91/114 infants (79.8%) weighed 1,000–1,499 g.

Female infants comprised 72/114 (63.2%) and male infants 42/114 (36.8%). Because sex-specific discharge survival was not analysed, no conclusion

can be drawn about sex-related resilience or survival advantage.

The universal resuscitation entry reflects the abstraction form's broad inclusion of immediate newborn assistance and should not be interpreted as advanced resuscitation. Advanced respiratory support was reported separately. The exploratory correlations involving Apgar scores were omitted because the available analysis did not support reliable ordinal or multiplicity-adjusted interpretation.

Presumed sepsis and severe respiratory distress syndrome appeared frequently in the composite diagnostic entries among deaths. These retrospective entries do not establish the underlying cause, timing or causality. Prospective use of standard diagnostic definitions, separation of underlying and contributory causes, and surveillance of respiratory and infectious complications would improve interpretability.

Survival to hospital discharge was 71.1% (95% CI, 62.2–78.6). This uncontrolled retrospective estimate does not demonstrate the effectiveness of neonatal intensive care interventions. Outcomes in preterm cohorts vary substantially by gestational age, birth weight and care setting.[14] Gestational-week- and birth-weight-stratified survival could not be derived from the aggregated data available for this manuscript.

Long-term survival could not be estimated because vital status was unknown for 43.2% of discharged infants at six months and 44.4% at one year. This attrition may bias survival in either direction and highlights the need for a structured follow-up registry with updated contact information and active linkage to clinical and civil-registration records.

Strengths and limitations

- This study provides a hospital-based description of a complete calendar year of births at 28–32 completed weeks at Guyana's principal public tertiary referral centre, but several limitations constrain interpretation. First, the single-centre referral setting may include a higher-risk case mix than the wider population, so the observed hospital incidence proportion and mortality are not national estimates. Second, the absence of a term or later-preterm comparison group means that maternal characteristics cannot be considered risk factors for preterm birth. Third, retrospective documentation may have misclassified gestational age, broad resuscitation, complications and diagnostic entries associated with death. Diagnoses were based on routine clinical documentation rather than independent adjudication, and missingness could not be quantified consistently for every variable. The available summary data also did not permit adjustment for clustering among multiple births. The small number of deaths limited adjusted modelling, while residual confounding prevented causal attribution to neonatal interventions. Finally, vital status was unknown for 43.2% of infants at six months and 44.4% at one year; this attrition precluded valid long-term survival estimates and could bias them in either direction.

Conclusion

During 2023, 114 infants were born at 28–32 completed weeks among 5,284 live births at Georgetown Public Hospital Corporation, corresponding to 21.6 per 1,000 live births (95% CI, 18.0–25.9). Eighty-one infants survived to hospital discharge and 33 died, giving a discharge-survival proportion of 71.1% (95% CI, 62.2–78.6). Respiratory support and presumed neonatal sepsis were common, although the retrospective design and routine diagnostic documentation do not permit causal interpretation.

Long-term survival could not be estimated because vital status was unknown for more than 40% of discharged infants at both follow-up points. These findings support prospective standardisation of gestational-age recording, resuscitation and complication documentation, together with systematic post-discharge follow-up.

Clinical implications and priorities for quality improvement

1. The findings identify priorities for prospective

quality-improvement evaluation rather than proving that any specific intervention will reduce preterm birth or mortality. A standardised perinatal and neonatal case form could document the gestational-age dating method, obstetric indication for delivery, each resuscitation procedure, respiratory-support exposure, surfactant use, predefined complications and discharge status. Prospective sepsis surveillance should distinguish early- and late-onset infection using consistent diagnostic criteria and monitor rates over time, ideally per 1,000 patient-days. Every discharged infant should also be enrolled in a structured follow-up registry, with contact details verified before discharge and vital status documented at prespecified intervals. These measures would support future audits of process adherence, infection trends, follow-up completeness and gestational-age-specific survival. Because invasive neonatal infection can include syndromes such as group B streptococcal meningitis, syndrome-specific and organism-specific fields would improve the clinical value of surveillance.[16]

Declarations

Ethics approval and consent to participate: Ethical approval was obtained from the Georgetown Public Hospital Corporation Research Committee and the Guyana Ministry of Health Institutional Review Board. Retrospective clinical records were analysed using coded study identifiers. Parents or guardians contacted for post-discharge follow-up were informed of the study purpose, voluntariness and confidentiality and provided consent before the telephone interview.

Consent for publication: Not applicable; the manuscript contains no identifiable personal information.

Funding: This study received no external funding.

Conflicts of interest: The authors declare no conflicts of interest.

Author contributions: Stephon John, Ulanda Haynes and Winsome Scott contributed to the study conception and design, data acquisition, analysis and interpretation, manuscript drafting and critical revision. All authors approved the final manuscript and accept accountability for the work.

Acknowledgements: None.

Data availability: De-identified data may be requested from the corresponding author and are subject to institutional and ethics-committee approval and applicable confidentiality requirements.

References

1. Blencowe H, Cousens S, Chou D, et al. Born too soon: the global epidemiology of 15 million preterm births. Reprod Health. 2013;10 Suppl 1:S2. doi:10.1186/1742-4755-10-S1-S2.
2. World Health Organization. Preterm birth. Updated May 10, 2023. Accessed July 14, 2026. https://www.who.int/news-room/fact-sheets/detail/preterm-birth
3. Ohuma EO, Moller AB, Bradley E, et al. National, regional, and global estimates of preterm birth in 2020, with trends from 2010: a systematic analysis. Lancet. 2023;402(10409):1261-1271. doi:10.1016/S0140-6736(23)00878-4.
4. Chawanpaiboon S, Vogel JP, Moller AB, et al. Global, regional, and national estimates of levels of preterm birth in 2014: a systematic review and modelling analysis. Lancet Glob Health. 2019;7(1): e37-e46. doi:10.1016/S2214-109X (18)30451-0.
5. Lawn JE, Kinney MV, Black RE, et al. Newborn survival: a multi-country analysis of a decade of change. Health Policy Plan. 2012;27 Suppl 3: iii6-iii28. doi:10.1093/heapol/czs053.
6. Lawn JE, Mwansa-Kambafwile J, Horta BL, Barros FC, Cousens S. Kangaroo mother care to prevent neonatal deaths due to preterm birth complications. Int J Epidemiol. 2010;39 Suppl 1: i144-i154. doi:10.1093/ije/dyq031.
7. Stoll BJ, Hansen NI, Bell EF, et al. Trends in care practices, morbidity, and mortality of extremely preterm neonates, 1993–2012. JAMA. 2015;314(10):1039-1051. doi:10.1001/jama.2015.10244.
8. Goldenberg RL, Culhane JF, Iams JD, Romero R. Epidemiology and causes of preterm birth. Lancet. 2008;371(9606):75-84. doi:10.1016/S0140-6736(08)60074-4.

9. World Health Organization. WHO recommendations for care of the preterm or low-birth-weight infant. World Health Organization; 2022. Accessed July 14, 2026. https://www.who.int/publications/i/item/9789240058262
10. World Health Organization, United Nations Children's Fund. Born too soon: decade of action on preterm birth. World Health Organization; 2023. Accessed July 14, 2026. https://www.who.int/publications/i/item/9789240073890
11. Singh S, Scott W, Yeager C, Rambaran M, Singh NC, Nelin LD. Implementation of a Level III neonatal intensive care unit was associated with reduced NICU mortality in a resource-limited public tertiary care hospital in Guyana, South America. PLOS Glob Public Health. 2023;3(2):e0000651. doi: 10.1371/journal.pgph.0000651.
12. von Elm E, Altman DG, Egger M, Pocock SJ, Gøtzsche PC, Vandenbroucke JP. The Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) statement. Lancet. 2007;370(9596):1453-1457. doi:10.1016/S0140-6736(07)61602-X.
13. Vogel JP, Chawanpaiboon S, Moller AB, Watananirun K, Bonet M, Lumbiganon P. The global epidemiology of preterm birth. Best Pract Res Clin Obstet Gynaecol. 2018; 52:3-12. doi: 10.1016/j.bpobgyn.2018.04.003.
14. Bell EF, Hintz SR, Hansen NI, et al. Mortality, in-hospital morbidity, care practices, and 2-year outcomes for extremely preterm infants in the US, 2013–2018. JAMA. 2022;327(3):248-263. doi:10.1001/jama.2021.23580.
15. Al-Amoosh HH, Al-Amer R, Alamoush AH, Alquran F, Atallah Aldajeh TM, Al Rahamneh TA, Gharaibeh A, Ali AM, Maaita M, Darwish T. Outcomes of COVID-19 in pregnant women: A retrospective analysis of 300 cases in Jordan. InHealthcare 2024 Oct 23 (Vol. 12, No. 21, p. 2113). MDPI. doi:10.3390/healthcare12212113.
16. Altaf R, Amin A. Identification of Bioactive Postbiotics Against Neonatal Meningitis Caused by Group B Streptococcus via Srr2-Targeted In silico Screening. https://pdpublishers.com/pjdb-pd2601205002/

Appendices

Appendix 1: Data collection form

Data Collection Form

Mother's ID Code:

Age:

Ethnicity:

Gravida:

Para:

Antenatal Care Received (Yes/No):

Number of Antenatal visits:

1-2 ……

2-4……..

> 4……..

Comorbidities/ Obstetric Complications:

Date of Delivery:

Time of Delivery:

Mode of Delivery:

Neonate's ID Code:

Gestational Age:

Sex:

Birth Weight:

Apgar Score at 1 minute:

Apgar Score at 5 minutes:

Need for Resuscitation (Yes/No):

List the Steps that were required:

Admission to NICU (Yes/No):

Duration of NICU Stay:

Complications Noted (Yes/No):

If Yes, Specify:

Use of Mechanical Ventilation (Yes/No):

Length of time on mechanical ventilation:

Other Respiratory Support:

Length of time of Respiratory Support: Use of Surfactant (Yes/No): Other Medications:

Transfusions: PRBC: ..... FFP…… Platelets…… CRYO… Survival Status (Survived/Deceased):

If Deceased, Date of Death: Cause of Death:

Discharge Date (if survived): Length of Hospital Stay: Follow-up Plan:

Appendix 2: Telephone script for post-discharge vital-status follow-up

Telephone Conversation to obtain survival information with the Parent/ Guardian:

Good morning/afternoon/evening, [Parent's Name].

My name is Dr Stephon John/Dr Ulanda Haynes, and I am calling from the Department of Paediatrics, Neonatal Services Section, at Georgetown Public Hospital Corporation. We are conducting a study on outcomes among infants born at 28–32 weeks, and we are contacting you to determine your child's current vital status.

This research was approved by the Ministry of Health Institutional Review Board and the Georgetown Public Hospital's Research Committee.

Your participation is voluntary, and you can withdraw at any time. We appreciate your willingness to participate. If you have any questions or concerns, please don't hesitate to ask.

Thank you for your time and consideration.

Have a nice day.