PREDICTIVE POWER OF CRIB-II AND SNEPPE-II IN MORTALITY RISK OF EARLY PRETERM NEONATE AND/OR LOW BIRTH WEIGHT

BY

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ABBREVATIONS

NICU – Neonatal Intensive Care unit

CRIB - Clinical Risk Index of Babies

CRIB II - Clinical Risk Index of Babies II

SNAP - Score for Neonatal Acute Physiology

SNAP II - Score for Neonatal Acute Physiology II

SNAPPE - Score for Neonatal Acute Physiology with Perinatal Extension

SNAPPE II - Score for Neonatal Acute Physiology with Perinatal Extension II

ABG – Arterial Blood Gas

MBP – Mean Blood Pressure

GA – Gestational Age

BW – Birth Weight

ELBW – Extreme Low Birth Weight

VLBW – Very Low Birth Weight

LBW – Low Birth Weight

POG – Period of Gestation

PIH – Pregnancy Induced Hypertension

UO – Urine Output

BP – Blood Pressure

NBS – New Ballard Score

ABSTRACT

BACKGROUND:

Recently, there have been a significant increase in preterm and LBW neonates brought to Neonatal intensive care units. These neonates need specific attention and need to be thoroughly evaluated because they were born with high clinical risks. Therefore, it is crucial to classify the newborns according to gestational age and birth weight as soon as they are admitted, plan clinical interventions, anticipate outcomes, schedule follow-up visits accordingly, and determine the amount of clinical care that will eventually be required. Significant, diligent initiatives have been taken in recent years to lower neonatal mortality. The mortality of neonates has been evaluated using a variety of grading methods.

OBJECTIVES

To evaluate the CRIB-II and SNAPPE II questionnaires' capacity to detect neonatal mortality in early preterm and/or low birth weight neonates admitted to the NICU.

TYPE OF STUDY: Prospective Observational Study

STUDY PERIOD: Period of 18 months, from Jan 2021 to June 2022.

STUDY POPULATION:

All neonates admitted to LEVEL III-A Neonatal Intensive Care Unit (NICU), BLDE (Deemed to be University, Shri B. M. PATIL MEDICAL COLLEGE HOSPITAL AND RESEARCH CENTRE, VIJAYAPUR, KARNATAKA who meet the inclusion criteria.

METHODOLOGY:

Neonates fulfilling the inclusion criteria were enrolled in the study. Neonatal data in preference to CRIB II and SNAPPE II were documented. Parameters are birth weight, gestational age, gender, temperature, APGAR @ 1 minute and 5 minutes, need for resuscitation at birth, if any, blood pressure (MAP), seizures, and urine output. Neonatal outcome at the time of discharge was assessed.

RESULTS:

A total of 324 neonates in the study group, 283 survived, and 33 not survived, with a mean gestational age of 32 weeks and a birth weight of 1760 grams. Baseline maternal and neonatal characteristics were not significant. SNAPPE II had better mortality predictive in neonates with 78% sensitivity and 82% specificity in neonates born before 34 weeks with a statistically significant p-value (<0.05). CRIB II score had good mortality predictive ability for neonates less than 32 weeks only with a sensitivity of 64% and specificity of 74%. Individually birth weight and gestational weeks were not good predictors of neonatal mortality.

CONCLUSION :

SNAPPE II score is an appropriate means for predicting the outcome of mortality in very low birthweight and in neonates 28-32 weeks . In preterm newborns, SNAP PE II score is a more accurate predictor of neonatal mortality than CRIB II score. CRIB II and SNAPPE II both are better predictors of mortality outcome in comparison to birth weight and gestational age independently.

KEYWORDS: SNAPPE II, CRIB II, Neonates, Mortality Predictor, Preterm, LBW

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INTRODUCTION

The transition from intrauterine to extrauterine life exposes the neonates to risk before ,during or after birth. As the neonates are sensitive and fragile their mortality rates are high. Neonatal mortality constitutes two-thirds of all fatalities in the initial 12 months of life.

Preterm newborns are more exposed to a variety of complications related to the function and maturity of all other organs as their intrauterine life is shorter than the physiological limit.

Preterm births are expected to afflict 15 million babies worldwide, primarily in low- and middle-income nations (LMIC). It directly affects the survival rate, i.e one million neonatal deaths annually are contributed by preterm neonates to childhood morbidity, which is significant both in terms of perinatal, neonatal mortality and under-five mortality risk.

Preterm birth is neonates born before 37 POG. Preterm is the most common cause of adverse neonatal outcomes in terms of survival and quality of life[1]. It is the top cause of perinatal and neonatal mortality and morbidity globally[2] Birth weight and gestational age are essential variables determining the success rate of newborns admitted to neonatal intensive care units (NICUs). But these two are not the only factors determining the outcome. The likelihood of survival also depends on physiological characteristics and other perinatal circumstances, particularly those that are connected to the severity of their disorders.[3] In order to evaluate the severity of an illness and to forecast a neonate's mortality, morbidity, and prognosis in a NICU, scoring systems are necessary.

Neonates are at risk of death during this period due to the structural and functional immaturity of organs. Therefore, utmost care must be exercised for these neonates due to their fragile nature and sensitivity, as all cell are premature, sensitive, and delicate, requiring special care. Equipment's that can detect seriously ill neonate in the initial hour of life after birth aid in assessing the effectiveness of a healthcare professional and a healthcare facility. NICU performance reviews and assessments can be effectively measured by these tools. [4]

There have been numerous distinct illness severity scores developed, such as those from Eunice Kennedy Shriver National Institute of Child Health and Human Development (NICHD), the Clinical Risk Index for Babies (CRIB and CRI+B-II), the Agency for Healthcare Research and Quality, NICHD 2008, Vermont Oxford Network-Risk Adjustment, Score for Neonatal Acute Physiology (SNAP and SNAP-II), Score for Neonatal Acute Physiology with Perinatal Extension (SNAPPE and SNAPPE-II).[5]

SNAPPE II has been used widely in USA and Canada, the CRIB II is used in the UK and other European regions.[6] There are limited studies from developing countries like India evaluating the predictive role of these scores in those settings.[7–10] Additionally, very few studies have compared the CRIB II score and SNAPPE-II score in very low birth weight (VLBW) neonates.[6]

In light of this context, the current study aims to determine the predictive power of the Clinical Risk Index for Babies II(CRIB-II) and Score for Neonatal Acute Physiology with Perinatal Extension II (SNAPPE-II) risk assessment questionnaires for neonates admitted to NICUs with low birth weight or gestational age.

OBJECTIVES

I. To determine the predictive power of the CRIB-II questionnaires in terms of risk of death among neonates with gestational age less than 34 weeks and very low birth weight admitted to the NICUs.

II. To determine the predictive power of the SNAPPE-II questionnaires in terms of risk of death among neonates with gestational age less than 34 weeks and very low birth weight admitted to the NICUs.

III. To assess the validity of the CRIB-II and SNAPPE-II questionnaires in low-birth-weight neonates admitted to NICU.

REVIEW OF LITERATURE

Discussed under these headings

- Epidemiology of preterm and low birth weights
    - Burden estimate
    - Risks, susceptibility
    - Mortality risks
- Scoring systems
- Studies conducted in the past
- Application of predictive scores
- Performance of illness severity scores:
- Critical review of Scoring systems

Preterm Birth and LBW :

Preterm birth and LBW pose major challenges in the care of neonates.[11] LBW neonates and preterm neonates terms are used interchangeably constantly but they are not same. WHO, defines prematurity as neonatal birth before 37 weeks of gestation. Preterm is further categorized into extreme preterm, early preterm (28-32 weeks) and moderate to late preterm (32-37 weeks)[12].LBW babies are babies weighing less than 2500g at birth, and it is further divided into very LBW and severely LBW categories.[11] Multiple pregnancies, undernutrition, genetics, infections, underlying comorbidities (like diabetes), persistent maternal stress, and poor socioeconomic circumstances, and the mother's lifestyle (e.g., smoking) are risk factors for preterm and LBW [13].

Burden Estimate:

Preterm birth, is one sole factor that has the greatest impact on neonatal outcomes that affect quality of life and survival.[1] Globally, preterm births are leading cause of perinatal and neonatal mortality and morbidity.[2] The WHO estimates that in 2014–2015, more than 10% of neonates (or about 15 million neonates annually) born wee preterm, and 15%–20% of infants were born with low birth weight. Low- and middle-income nations report the highest rates of neonatal death and illness, with Africa and Asia bearing the biggest share of this health burden of society.[14]

In 1971, around one million deaths of children under five were reported in India, which accounted for 20% of the global total.[15] Preterm delivery was listed as the reported cause of 0.57 million (or 27.7%) of these neonate fatalities. This scenario is concerning because 23.4% of premature babies worldwide occur in India.[14] A major estimate of LBW infants is that, in the

years 2013–2014, out of almost 19 million newborns, 68.7% were weighed at birth, and of those, approximately 2.43 million births i.e 18.6% were LBW.[16] The proportion of live birth born as Very LBW has increased from 1.17% to 1.45%, as per a study data in US[17]. Data from India also shows an incidence of very LBW as 1.4% to 2.08% of full live births[18,19]. Despite critical care approach in the management of these neonates, their death rate is high, and constitutes to about 30% of early neonatal deaths.

Susceptibility and risks:

Compared to term neonates and neonates with normal BW ,preterm and LBW neonates have an higher risk of infections and death rate. Perinatal infection, prolongation in perinatal hospitalisation, hospital side effects of life-saving interventions, circulating maternal antibodies at low level , and developing preterm immune system constitute the main risk factors. Particularly, it is recognised that as GA and BW decrease, the immune system's immaturity increases. Neonates primarily rely on their physical barrier as their initial line of defence, followed by their innate immune response mainly more than their adaptive immunological response. Both immune defence systems are still maturing when a neonate is born.[20] This developing immune system is immature in preterm neonates and those born with LBW due to several deficiencies. Survival and various morbidities of VLBW rely on a variety of perinatal variables and their clinical circumstances in addition to birth weight and gestational age. Assessment of sickness severity at admission makes it easier to identify neonates in the NICU who have a higher risk of mortality and morbidity at an early stage. This can helps in improved care of neonates and better counselling of parents.

Neonates primarily depend on physical barrier as their initial line of defence, followed by their innate primary immune response rather than adaptive immunological response. Both

defence mechanisms are immature at birth [20]. This immune system immaturity exaggerated in neonates born preterm and LBW, due to several deficiencies. Physical barriers against pathogens include lining of mucous membranes in respiratory and gastrointestinal tracts, keratinized skin and chemical barriers contain a variety of enzymes and other substances that directly prevent microbes from attaching to bodily surfaces or that have an antibacterial effect on their own.[21] Preterm and LBW newborns have a less formed barrier than full-term infants, which makes them more prone to ruptures and makes them more susceptible to infections. Additionally, the respiratory and gastrointestinal tracts' mucosal barriers have less flora that produces antimicrobial peptides, which makes it easier for microorganisms to access and increases the risk of infection. Multiple mechanisms initiate the innate immune response when pathogens go pass the initial barrier of protection. Due to the availability of fewer neutrophils than term and normal birthweight, this innate immune response is only partially present in preterm and LBW neonates. In addition to performing phagocytosis, neutrophils also produce oxygen radicals that aid in the intracellular death of infections. Similar to preterm and LBW newborns, there is a lower pool of monocytes available to them.[22]

The activation of adaptive immune systems B-cells and T-cells, is controlled by monocytes, which are also able to present antigens, secrete cytokines or chemokines, and phagocytose. Due these , preterm and LBW infants are more likely to acquire infection early . Preterm birth is directly caused by intrauterine inflammation, which can result in rapid immune activation, cytokine production, the development of immune resistance, and impaired immune function in preterm and LBW babies.[22–24] Additionally, medical procedures performed during birth may have an impact on immunological function. For instance, maternal corticosteroid treatment to avoid neonatal respiratory illness is linked to decreased lymphocyte proliferation, decreased cytokine production, and greater infection rate. Peptides, which are soluble proteins, and immunoglobulins (Ig) encourage phagocytosis and have antimicrobial effects.

Since the fetus cannot produce many soluble proteins, maternal antibodies are mostly used to promote adaptive immunity. Around 17 weeks into pregnancy, the fetus begins to receive maternal IgG antibodies, and by 32 weeks cord blood IgG levels are comparable to maternal titters and can be up to two times higher at term birth. Because of this, the circulating maternal IgG levels in preterm newborns are low in relation to gestational age at birth. Due to this, infants are more likely to catch diseases, including ones that can be avoided with immunizations.[25]

Mortality risk assessment:

Studies on mortality risk assessments using characteristics that could affect death rates have been conducted in many nations and neonatology units. Birthweight and gestational age were the only two reliable univariate predictors of neonatal death for a very long period. However, the correlation between these parameters and mortality prediction was not very precise.[26] Later, more comprehensive scoring systems that aggregate physiological markers that reflect the neonate's first clinical state have been created for determining the risk of mortality. Scores are usually simple when they based on physiological changes , have fewer factors, and applied quickly; others are more extensive, consider more variables, and take longer to calculate.[5] CRIB, CRIB II ,SNAP, SNAPPE, SNAPII , and SNAPPE- II are the scoring indexes that have received the most attention and are used on neonates more frequently.[27–31] Scoring systems are developed in NICU to assess the severity o and predict the mortality, morbidity , and prognosis of the neonates.

Gestational age assessment of the neonates

Ballard Score for assessment of clinical assessment of neonates:

Establishing the number of weeks of pregnancy is necessary for determining gestational age. Typically, a full-term pregnancy lasts 40 weeks. Assessment of foetal maturation is frequently the only accurate indicator of GA in these neonates because preterm neonates are commonly born to women with irregular menstruation histories or who did not get proper care prior to delivery.

With a simple and quick evaluation, a maturational assessment of neonates has been developed that is precise and applies to all neonates, including those who are born sick. Based on previous studies made by several authors on anatomical and neurological characteristics of neonates [40] permutation and combination of different characteristics of neonates, a criteria was made up ruling out all possible difficulties encountered during the development of score. The 10 physical criteria outlined by Farr et al.[41] and Dubowitz et al.[42] were eventually integrated into six observations using a method that was developed. In addition to resting posture, angles of flexion, resistance to extension, and passive recoil, Amiel-neurologic Tison's criteria were most helpful when applied to passive as opposed to active muscle tone. Thus, six neurologic criteria and six physical criteria made up the simplified score as the end result. (Figure 1)

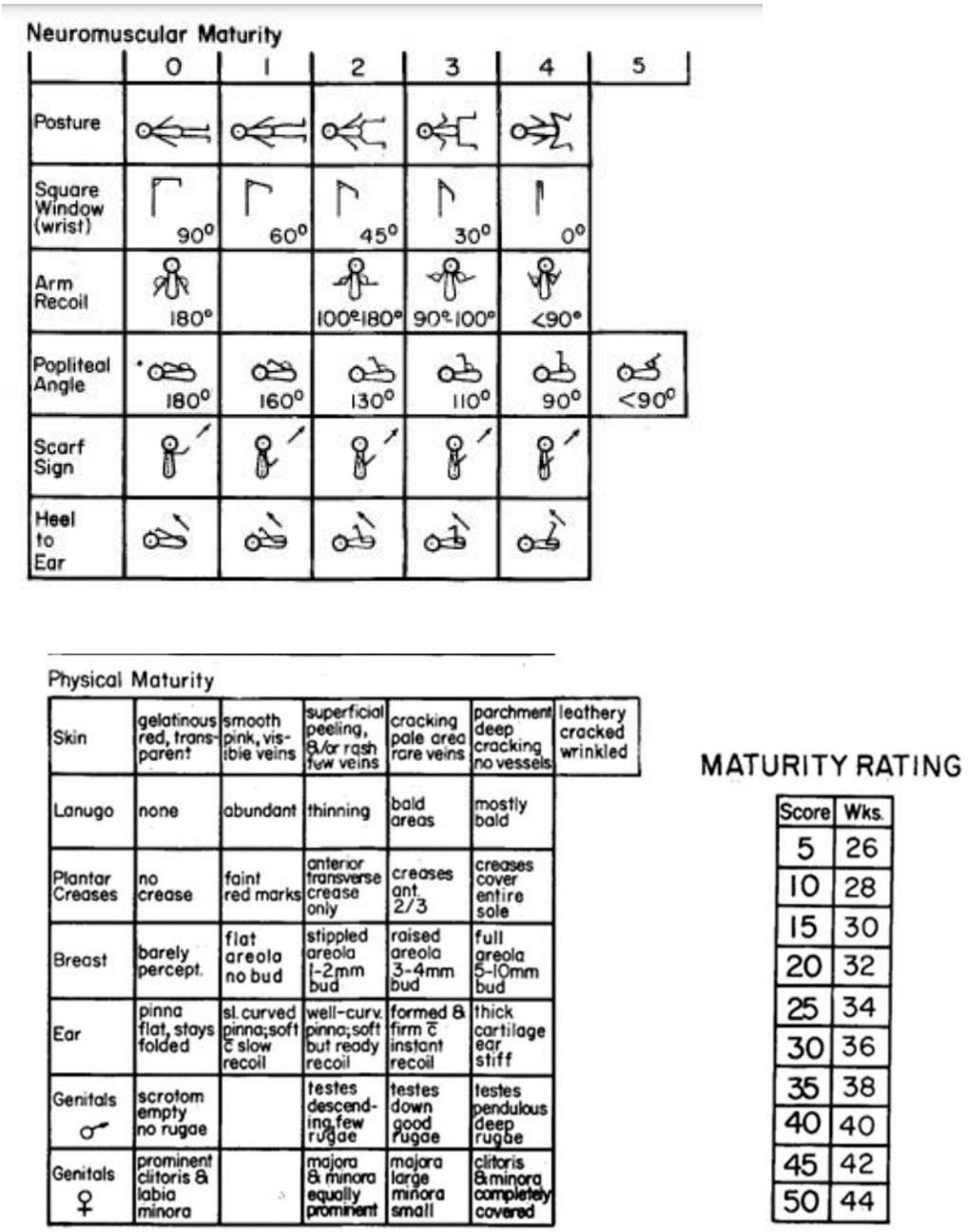


FIG 1: Ballard Scoring

The clinical maturity test that is described examines both physical and neurologic development equally, incorporates the components that have been found to be most helpful, and is unaffected by the existence or absence of disease. Physical changes are less noticeable during these first several weeks, but neurologic modifications between 26 and 34 weeks are prominent. Extensor tone is replaced by flexor tone, which progresses in a caudo-cephalad direction, as

part of the neurologic modifications. Additionally, the examination can evaluate functional or physiological maturity in addition to physical maturation according to the inclusion criteria. The examination can be completed in less time as the new score comprises fewer items. and is applicable to all neonates, even those in intensive care. This test is most accurate during 30 and 42 hours after birth, most likely because of its simplicity as neonates requires time to settle and adapt to life outside the womb after the delivery. (Figure 2). This imply that, once stabilised, the neonate matures more quickly outside of the uterus than inside of it.

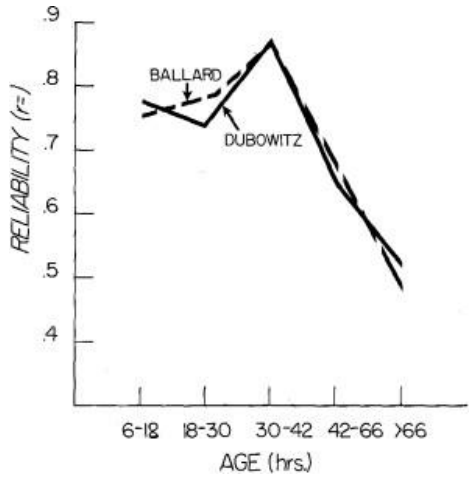


Fig 2: Reliability of both scores related to neonatal age at examination time. Both scores are most accurate at 30 to 42 hours of life

NEW BALLARD SCORE; including extreme preterm neonates as per Ballard et al :

The New Ballard Maturational Score was enhanced to encompass extremely preterm neonates and to increase accuracy. According to Ballard et al. [43], age of gestation is the best predictor of survival and provides a precise method for assessing age of gestation in neonates with VLBW. In order to check the new tool, assess its inter-rater reliability, and define the proper postnatal ages for gestation evaluation of extreme preterm neonates and of overall neonate population, the new Ballard scoring was implemented and researched in 578 neonates. Flexibility at the wrist joint and passive flexor tone at the main joints such the knee, shoulder, and hip were observed as neurologic and physical traits that may distinguish extreme preterm neonates from term neonates. By adding a score of -1, this information enabled the expansion of four of the neuromuscular criteria. The extreme preterm neonates were observed having transparent, sticky skin without lanugo, negligible breast marks, nearly undifferentiated genitalia upon physical examination. Based on these observations, the appropriate physical items was expanded and given a score of -1. The existing score's for "plantar surface" and "ear" physical maturational criteria were both expanded. Streeter[44] and Hem[45] both shown the correlation between length of foot and gestation age. Since the gestation age determined by the last menstrual period is equal to zero, accuracy is stated as the mean difference of the gestation ages determined by the New Ballard Score and the confirmed (GLMP') methods. For extreme premature neonates, the newly expanded NBS offers a reliable and precise estimation of gestation age. At gestational ages of less than 37 weeks, the NBS exaggerates weeks of gestation by 0.3 to 0.6 weeks (2 to 4 days). Because these newborns may have endured intrauterine pressures that hastened foetal maturation,[44,45] resulting in higher maturational

scores, this discrepancy is significant statistically for validation and accuracy at GA between 32 and 37 weeks.

The Ballard score can be applied up to four days after delivery and is dependent on the neonate's maturity as of physical and neuromuscular factors (practically, in first 24 hours of life it is used). The physical components mature quickly after birth, whereas the neuromuscular components are more stable over a period.

The Ballard score is used to determine gestational age.

- Six physical and six neuromuscular signs of maturity are graded. The scores for each might be between -1 and 5. (Figure 3)
- The gestational age of the neonate is determined using the sum of the scores. The final score could range from -10 to 50..
- Low ratings are given to premature newborns. Late-born children do well academically.

Physical Maturity

The physical assessment includes following characteristics examination

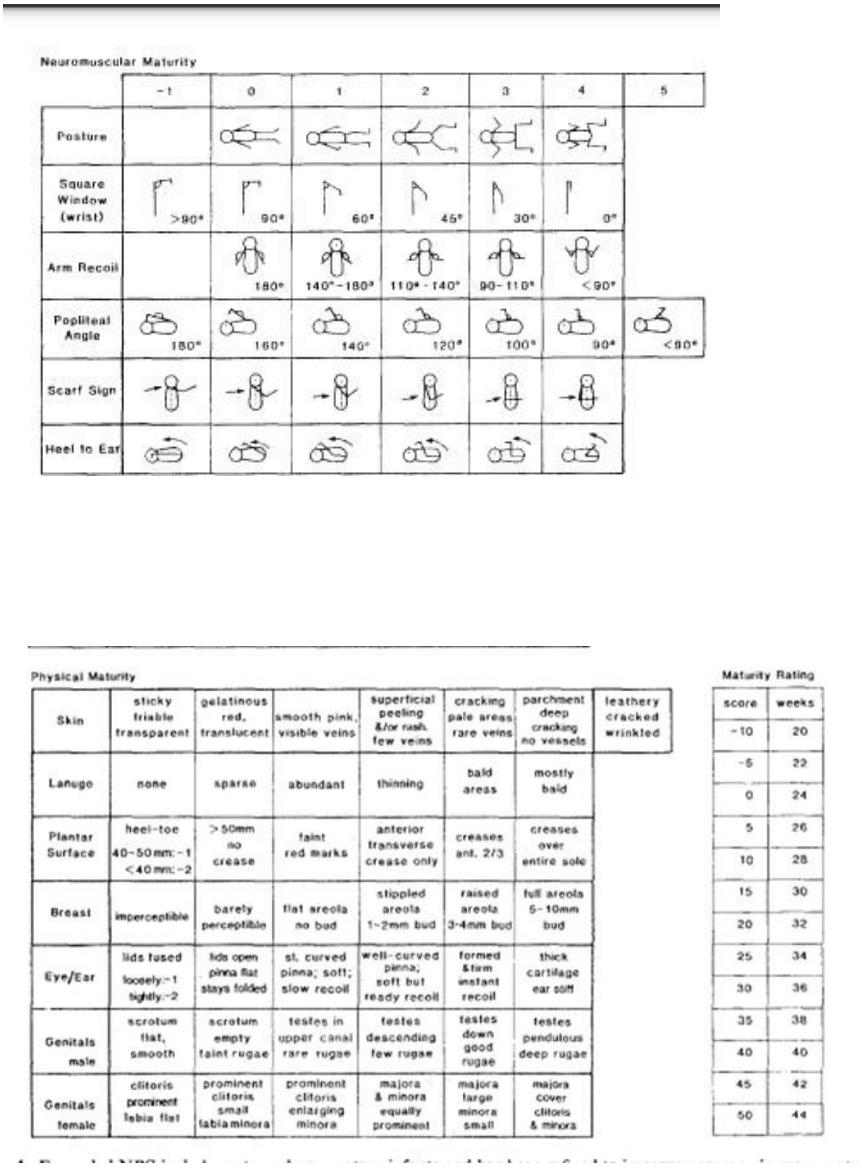
- **Skin texture:** Skin is sticky, translucent , or peeling.
- **Lanugo :** Soft downy hair on a neonates body; usually absent in neonates born early but not in babies born late.
- **Plantar creases :** Lines on the soles of the foot. They can either be completely absent or completely covered..
- **Breast** : The areola (the darkened region surrounding each nipple) characteristic and breast tissue size are measured.

- **Ears And Eyes** Checking whether the eyelids are open or fused shut (more likely in a premature baby). Additionally noted are the quantity of cartilage and the ear tissue's stiffness.
- **Male Genitali**a. To look for testes and that the scrotum is both smooth and wrinkled.
- **Female Genitali**a. It is noted how the clitoris and the labia look and measure.

Neuromuscular Assessment

The neuromuscular assessment includes characteristics as follows for examination

- **Posture:** Position of ease of the neonates all 4 limbs at rest . Reflects muscle tone
- **Square window**: Ease of flex neonates hand in the direction of the wrist. Assess flexibility of wrist and resistance to extensor stretching.
- **Arm recoil.** How quickly the neonates' arms can flex back into place. Assess passive flexor tone of biceps followed by brief extension of upper extremity.
- **The popliteal angle** the neonates' knees' ability to bend and straighten. Assess knee passive extensor muscles tone and resistance to extension
- **Scarf sign.** how much room there is between the elbows and the neonate's chest. Assess tone of flexors around shoulder gridle passively.
- **Heel to ear**: How close the neonates heel may come to their ear. Assess neonates hip flexor muscle passive tone.



Neuromuscular Maturity

	-1	0	1	2	3	4	5
Posture							
Square Window (wrist)	>90°	90°	60°	45°	30°	0°	
Arm Recoil		180°	140°–180°	110°–140°	90–110°	<90°	
Popliteal Angle	180°	160°	140°	120°	100°	90°	<90°
Scarf Sign							
Heel to Ear							

Physical Maturity

	sticky friable transparent	gelatinous red, translucent	smooth pink, visible veins	superficial peeling &/or rash, few veins	cracking pale areas, rare veins	parchment deep cracking no vessels	leathery cracked wrinkled
Skin							
Lanugo	none	sparse	abundant	thinning	bald areas	mostly bald	
Plantar Surface	heel–toe 40–50 mm: –1 <40 mm: –2	>50mm no crease	faint red marks	anterior transverse crease only	creases ant. 2/3	creases over entire sole	
Breast	imperceptible	barely perceptible	flat areola no bud	stippled areola 1–2mm bud	raised areola 3–4mm bud	full areola 5–10mm bud	
Eye/Ear	lids fused loosely:–1 tightly:–2	lids open pinna flat stays folded	sl. curved pinna; soft; slow recoil	well–curved pinna; soft but ready recoil	formed & firm instant recoil	thick cartilage ear stiff	
Genitals male	scrotum flat, smooth	scrotum empty faint rugae	testes in upper canal rare rugae	testes descending few rugae	testes down good rugae	testes pendulous deep rugae	
Genitals female	clitoris prominent labia flat	prominent clitoris small labia minora	prominent clitoris enlarging minora	majora & minora equally prominent	majora large minora small	majora cover clitoris & minora	

Maturity Rating

score	weeks
-10	20
-5	22
0	24
5	26
10	28
15	30
20	32
25	34
30	36
35	38
40	40
45	42
50	44

Fig 3: The New Ballard Score

SCORING SYSTEMS FOR NEONATES

CRIB

The Clinical Risk Index for Babies (CRIB) score was developed to forecast the death of neonates who were lesser than 32 weeks gestational age at birth. Neonates who were hospitalised to four tertiary neonatal facilities in the UK between 1988 and 1990 were the source of the data.[27] The cohort included 812 babies with VLBW, and 25% of them expired. The six variables that were most effective at predicting death were determined by the authors using logistic regression. Six factors make up the score, including a birth and clinical features components . It's important to remember that CRIB encompasses congenital problems that are not fatal and fall into the general categories of (1) not present, (2) not immediately life-threatening and (3) immediately life-threatening. This include comorbidity adjustment in the score, to put it another way. The CRIB clarifies population underlying risk in a way that systems using solely physiological indicators do not. This manoeuvre aids in highlighting variations in results received through the score (For instance, individuals who have cardiac problems are at a different risk than those who do not, depending on their infant's oxygen needs or blood gas readings).

Because it takes less time to complete, includes birth anomalies, and is still more accurate than birth weight alone, the CRIB may have some advantages over other early scores. When determining the severity of the sickness, GA of less than 31 weeks neonates and those with birth weights under 1,500 g are recognised as mortality indicator in neonates with LBW.

CRIB - variables

BW
Gestation
Congenital malformation
Maximum base deficit in first 12 h
Minimum appropriate FiO2 in first 12 h
Maximum appropriate FiO2 in first 12 h

CRIB II

Parry et al[14] updated the CRIB by publishing the CRIB II in 2003. Data from a cohort study in UK of neonates born during 1998 and 1999 was acquired[28]. The authors hypothesised that prenatal steroids and surfactant were the norm in the original sample, potentially increasing results and modifying risk of death. The most recent CRIB II is on information gathered in the initial hour of life and does not account for the likelihood of birth abnormalities. Despite the lack of comorbidity correction .It was discovered that CRIB II had better distinction than the initial CRIB score. To assess initial mortality risk, factors like BW, gestation age, temperature, base excess , and sex are taken into consideration.[10]

CRIB II varied from 0 to 27, (Figure 4), lower scores yielding better outcome of neonate and a score of one yielding the most favourable outcomes. The maximum score for BW and GA is 15, seen in male neonate who born at 22 weeks and birthweight of 501g.

CRIB II- Scoring system variables

Parameters
1. BW
2. POG
3. Sex
4. Temperature
5. Base deficit in ABG in first 12 hours

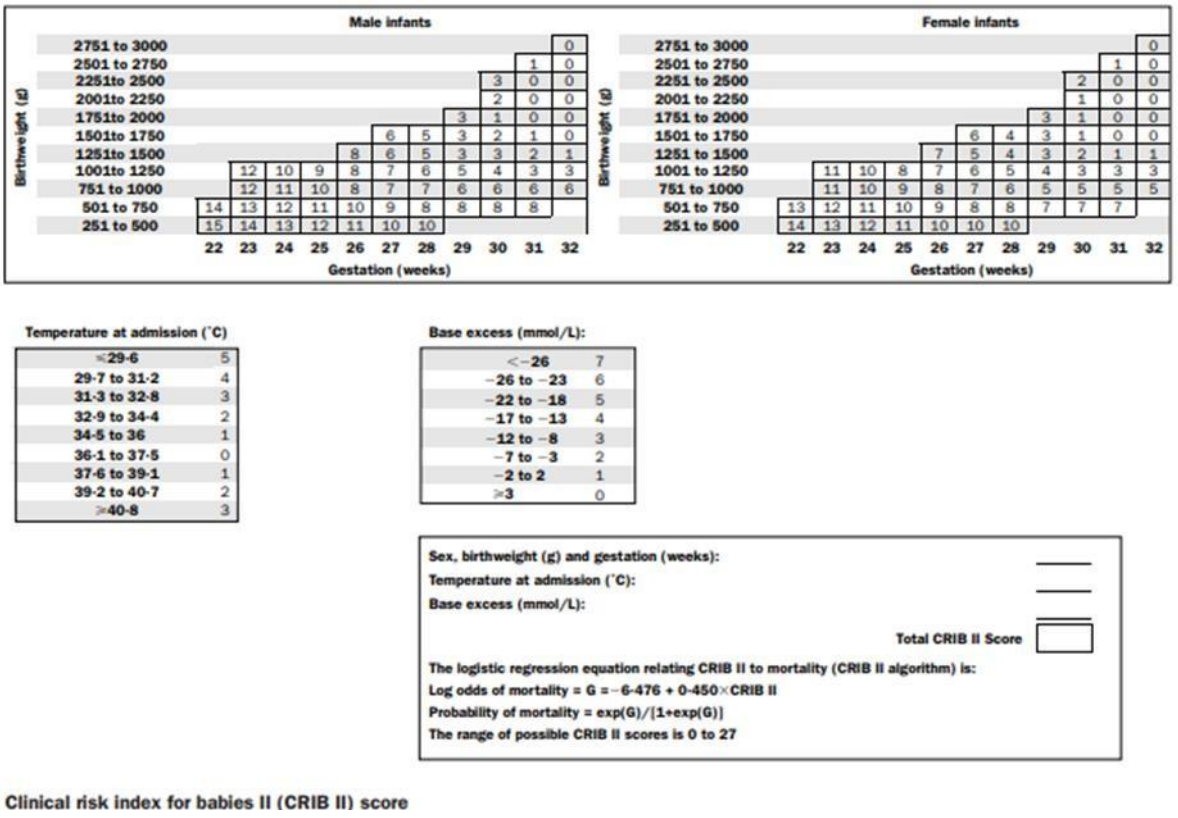


Fig 4 : CRIB II- Scoring system

The range of the overall CRIB II score is 0 to 27. The scores have also been divided into the following four levels.:

Level 1 - O to 5.

Level 2 - 6 to 10.

Level 3 - 11 to 15.

Level 4 - Above 15.

The prognosis becomes worse as the score increases, with levels 3 and 4 having the poorest prognosis. According to earlier research, the ideal cutoff point for receiver operating characteristic is at 4.

SNAP & SNAPPE

Richardson et al. released SNAP for the first time in 1993. [29] The Acute Physiology and Chronic Health Evaluation in critically sick people and the Physiology Stability Index served as models for the design of the SNAP. The SNAP components use the least favourable physiologic measurement among a number that takes place in a span of the 24 hours of admission (e.g., blood gas ,pH, MAP). Three Boston NICUs used a cohort of infants born in 1989 and 1990 to create the score. For neonates of all birthweights, SNAP comprises 26 clinical and vital variables, and for assessment it takes 5 to 15 minutes per patient to complete (depending on patient complexity). Strong accuracy was observed in the score's ability to predict neonatal in-hospital death. Birthweight, a 5-minute APGAR score, and SGA (5th percentile) are added to the physiologic variables of the SNAPPE, which also includes physiologic variable data from SNAP.[30] Compared to birthweight alone, SNAP and SNAP-PE clearly offered benefits and superiority. Their primary flaw was intensive the data collection process .

SNAP- Scoring system variables

• BP
• HR
• RR
• Temperature
• PaO2
• PaO2/FiO2 ratio
• PaCO2
• OI

• PCV
• WBC
• ITR
• ANC
• Platelet count
• BUN
• Creatinine
• UO
• Indirect bilirubin.
• Direct bilirubin.
• Na^{+}
• K^{+}
• Ca^{2+} (ionised)
• Ca^{2+} (total)
• Glucose
• Serum bicarbonate
• Serum pH
• Seizure
• Apnea
• Stool guaiac

SNAP PE- Scoring system variables

SNAP score plus

• BW.
• APGAR score,7 at 5 min
• SGA

SNAP II SNAPPE II

The SNAP and SNAP-PE were both updated by Richardson et al. in 2001. Their revised scores, SNAP II and SNAP-PE II, attempted to provide a more efficient strategy.[31] To create and validate their scores, the authors used a sizable group of newborns born in 1996 and 1997 in New England, California, and Canada. The SNAP's components were edited down to 6 elements (MBP , lowest recorded temperature, PaO2 / FiO2 ratio, serum pH, multiple convulsions, and UO), which made it easier for data abstractors to score tests in 4 minutes or less. Additionally, data were gathered 12 hours after admission rather than 24 hours later to minimize the initial treatment impact on scoring. Similar to the initial SNAP score, SNAP II was also extended to create the SNAPPE- II by including the perinatal extension factors. The improved SNAPPE II scores were accurate at predicting neonate morality and mortality in both high- and low-risk populations.

SNAP II Scoring system variables [30]

• MBP
• Lowest temperature.
• paO2/ FiO2 ratio.
• Serum pH
• Multiple seizures
• UO

SNAPE PEII- Scoring system variables

SNAP II score plus:

• BW.
• Apgar at 5 min.
• Congenital malformation.
• SGA.

SNAPPE II - Scoring variable with scores

Variables	Measures	Score
Lowest MBP	**>29mmHg**	**0**
	<29mmHg	**9**
Lowest temperature	**>35.6C**	**0**
	35-35.5C	**8**
	<35C	**15**
PaO2/FiO2	**>2.49**	**0**
	1.0-2.49	**5**
	0.3-0.99	**16**
	<0.3	**28**
Lowest Ph	**>7.19**	**0**
	7.10-7.19	**7**
	<7.10	**16**

Seizures	**None**	**0**
	Yes	**5**
Urine Output	**>0.9ml/kg/h**	**0**
	0.1-0.9ml/kg/h	**5**
	<0.1ml/kg/h	**18**
Birth weight	**>999g**	**0**
	750 – 999g	**10**
	<750g	**17**
Small for gestational age	**<3rd percentile**	**0**
	<3rd percentile	**12**
APGAR score at 5 minutes	**>7**	**0**
	<7	**18**

ARTERIAL BLOOD GAS ANALYSIS.

The norm for determining the neonate's oxygenation, ventilation, and acid-base status is arterial blood gas monitoring. Blood gas analysis is a used as diagnostic tool for assessing acid base features and partial pressure of gases. An oxygen (PaCO2) and carbon dioxide partial pressure (PaCO2) analysis is performed on newborns. Information on the status of oxygenation and ventilation is provided by PaO2 and PaCO2.

Acid-base status, hypoventilation (slow or shallow breathing), and hyperventilation (quick or deep breathing) have impact on PaCO2. Pulse oximetry and end-tidal CO_2 monitoring are non-invasive evaluation of oxygenation and ventilation, ABG analysis is the gold standard method.[46]

Oxygenation

Central cyanosis serves as the primary indication for the administration of oxygen. Acrocyanosis without central cyanosis does not warrant the delivery of oxygen. Instead of flow per minute, oxygen delivery should be dependent on a percentage of inspired oxygen (FiO2). In contrast to hyperoxia, which can harm preterm neonates' eyes, hypoxia can cause mortality and brain damage. Based on arterial oxygen tension, target oxygen is adjusted (PaO2) Arterial oxygen tension in children should be between 70 and 100 mm Hg, and between 50 and 70 mm Hg in term newborns. False hypoxia may be identified in individuals who have polycythemia, processing issues, venous blood, or who are deliriously ill. PaO2 monitoring has been proven to have flaws despite being widely used. When blood gas samples are taken with indwelling catheters in a quiet environment, the results are most accurate..

For collection of Samples : Radial or umbilical arteries are the best options for neonatal artery sampling. Before piercing the radial artery, "Allen Test" should be performed to verify collateral blood flow in the ulnar artery. A sample from an umbilical artery catheter (UAC), should ensure that blood is flowing freely and remove three to four times the volume of dead space. Indwelling arterial lines should only be implanted if 24-hour ABG estimation facilities are available since they represent a serious risk of infection.

A "blood gas analysis" usually can be performed by collection of blood either from artery, vein or capillary but arterial sampling explicities other samples in circulation.

Arterialized capillary samples are comparable to arterial blood. It is necessary to collect a capillary sample (100–150 microliters) from the warmed heel and to wait for the capillary to fill up with blood at the tissue site. Do not squeeze or draw the initial drop of blood. To combine the anticoagulant and the blood, rotate the capillary in your hand. Make that the capillary is free of air bubbles. While venous blood is ineffective for determining pH, pCO2, and pO2, it is effective in determining HCO3.. A tourniquet should not be used, the artery should not be squeezed, and the sample should not be extracted with the blood flowing toward the heart.

Comparison of Blood Gas Analysis at different sites

	Arterial	Capillary	Venous
pH	Same	----------	Lower
pO2	Higher	→	**Lower**
pCO2	Lower	→	Higher
HCO3	Same	----------	Same
Recommendation	Good	Fair	Bad

Precautions for collection of blood sample

(1) Heparin reduces pH as it is acidic. Use heplock solution or a weaker form of heparin (1000 units per ml as opposed to 5000 units per ml).

(2) Use a tiny amount of heparinized saline to lubricate the plunger and syringe alone. Dissolved oxygen in heparinized saline may raise pO2 if volume is greater.

(3) Prevent air bubbles and allow the syringe to fill naturally.

(4) Glass syringes are preferable since plastic syringes allow air to pass through them.

To lessen the chance of inaccurate results, the sample should be processed instantly. Arterial blood should be collected, kept on slush of ice, and then promptly analysed. Being a biological medium cells in blood use oxygen and release CO2 as byproducts. Initial pO2 determines how much pO2 drops. The latter could experience a big drop if it is quite high. Before inserting the sample into the machine, it should be agitated and homogenised.. Blood gas samples are frequently analysed using automated devices that produce results in 10 to 15 minutes.

Automated blood gas analysers measure particular arterial blood gas sample constituents both directly and inferentially.

Normal Neonatal ABG values

pH 7.35 – 7.45mmHg

pCO2 35 – 45 mm Hg

pO2 50 – 70 mm Hg

HCO3 20 – 24 mEq/L

BE ± 5.

Target blood gas values of a neonate

	<28 wks	28-40wks
paO2	**45-65**	**50-70**
pCO2	**40-50**	**40-60**
pH	**>7.25**	**>7.25**

Base excess (BE) : Neonates have a buffer base (BB) concentration of 48–49 mmol/L total. HCO3 accounts for 50% of this, followed by haemoglobin buffers at 25%, and protein, sulphate, and phosphate buffers at 25%. A BE score of less than five is regarded as normal. Abnormal pH with BE> -5 (base deficit >5) with imbalance needs intervention. Basic supportive care and specific therapies intended to address the underlying cause are used to treat neonatal metabolic acidosis. Metabolic acidosis caused on by asphyxia or inadequate tissue perfusion is typically corrected by treating hypothermia, hypovolemia, (anaemia, hypoxia, and electrolyte abnormalities). If sepsis is suspected, antibiotics should be administered. A significant number of infants need ventilator support. [46]

Interpretation

It is optimal to approach the arterial blood gases methodically. identifying the degree or severity of aberrations, their duration either acute vs chronic, and if the underlying problem is respiratory or metabolic in nature.

The first step is to check the pH to see whether there is acidemia (pH 7.35) or alkalemia (pH > 7.45). Normal pH is between 7.3 and 7.45, use a cut off value of 7.40. In other words, a pH of 7.37 is considered acidosis, whereas a alkalemia is when pH of 7.42. To ascertain the components of respiratory and metabolic analyse the ABG's , PaCO2 and HCO3 data. The paCO2 indicates a respiratory or metabolic acidosis or alkalosis is the main cause of the acidosis or alkalemia. Respiratory alkalosis is indicated by PaCO2 40 and pH > 7.4, whereas respiratory acidosis is indicated by PaCO2 > 40 and pH > 7.4. (however this is frequently caused by anxiety-induced hyperventilation or compensatory hypoxia).

Next, determine whether a number (PaCO2 or HCO3) that deviates from pH is indicative of compensatory acidosis or alkalosis. Once again check the PaO2 for any abnormalities in oxygenation.

Oxygen Saturation:

The normal ranges for arterial oxygen tension in children are 70-100 mm Hg and 50-70 mm Hg in term infants. Pseudo hypoxia may be detected in cases of polycythemia, processing delays, venous blood, or in patients who are feverish. Despite being widely utilised, paO2 monitoring has been found to have shortcomings. When blood gas samples from indwelling catheters are taken under peaceful, resting conditions, the validity of the values is maximised.

Hemoglobin saturation is calculated as the ratio of the amount of oxygen bound to haemoglobin to the maximum amount of oxygen that can be bound to haemoglobin. Pulse oximetry is useful for observing oxygenation trends. Compared to TcPO2 monitors, this technology is less complicated and does not require the same level of user expertise or calibration. It gauges peripheral haemoglobin O2 saturation (SaO2). Sometimes, movement artefacts might severely restrict the use of these techniques. High-intensity light, >50% foetal Hb, and other conditions can also cause saturation measurement errors. Since pulse oximetry does not measure paO2, it is comparatively insensitive to the presence of hyperoxemia. This is especially crucial for little preterm babies. The ideal haemoglobin saturation level for acute lung disease is 88 to 93% as determined by the pulse oximeter. 95–98% saturation is typical. If saturation falls below 75%, clinical cyanosis becomes obvious. Hemoglobin A is 75% saturated at paO2 of 40 mmHg, 50% saturated at paO2 of 27 mmHg (P50), and 90% saturated at paO2 of 60 mmHg. [46] (Figures 5, 6)

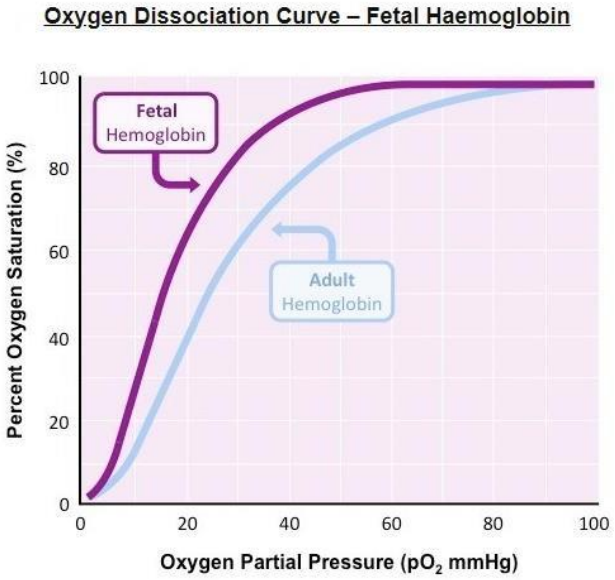
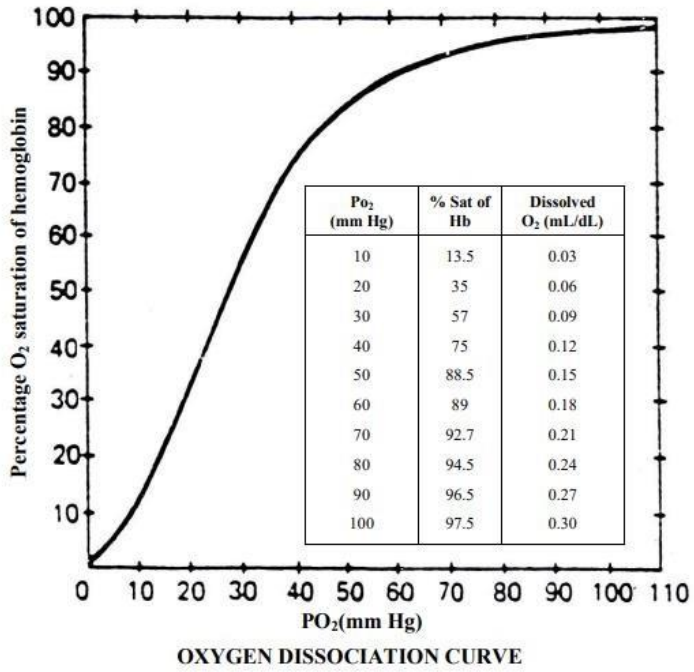


FIG :5: Oxygen Dissociation Curve – Fetal Hemoglobin v/s Adult Hemoglobin



Po_2 (mm Hg)	% Sat of Hb	Dissolved O_2 (mL/dL)
10	13.5	0.03
20	35	0.06
30	57	0.09
40	75	0.12
50	88.5	0.15
60	89	0.18
70	92.7	0.21
80	94.5	0.24
90	96.5	0.27
100	97.5	0.30

Figure 6: Oxygen Dissociation Curve of Neonate

Effect of temperature and pH on Oxygen Dissociation Curve

The oxygen dissociation curve is a sigmoid shape curve which plateaus at pO2 > 70 mm Hg. A patient with a very high paO2 usually has saturation of 97–99%. (Figure II). Changes in the haemoglobin type , pH, temperature and 2,3-diphosphoglycerate concentrations all have an impact on where the oxy-hemoglobin dissociation curve is located (2,3-DPG). Fetal haemoglobin has stronger affinity for oxygen binding than adult haemoglobin, which causes it to push the curve to the left. The paO2 at which haemoglobin is 50% saturated (P50) decreases as a result. The foetus benefits from this change because it favours O_2 utilization at the placenta's low O_2 tensions. During the initial few months of life , the oxy-hemoglobin dissociation curve shift to the right, reaching adult values by 4 and 6 months of age. (Figure7)

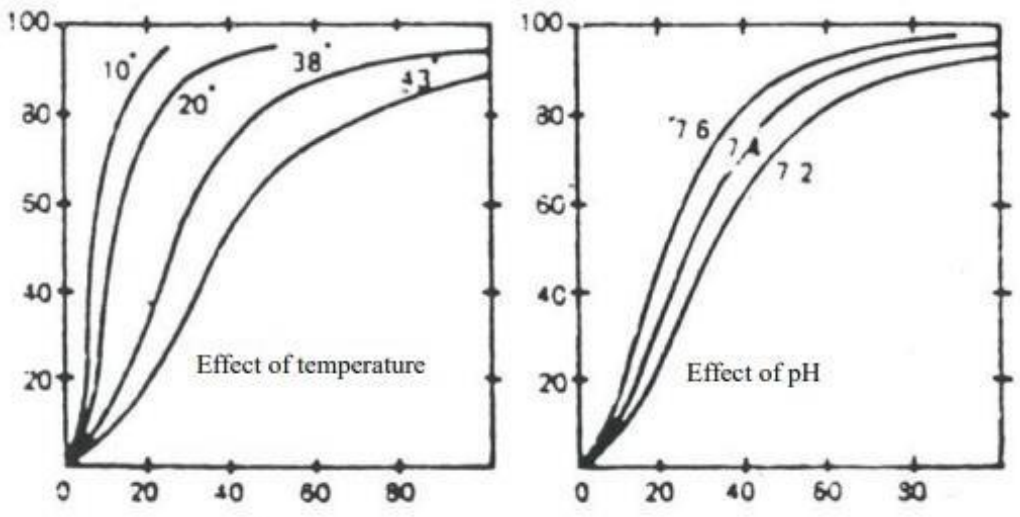


Figure 7: Effect of temperature and pH on Oxygen Dissociation Curve

APGAR for Neonatal Resuscitation

Dr Virginia Apgar created a scoring system in 1952 as a quick way to determine the neonates clinical condition at one minute of age and the need for immediate intervention to establish breathing.[48] A scoring system gave newborns a consistent evaluation following delivery. The Apgar score (Figure 8) is made from of 5 parameters: (1) color; (2) heart rate; (3) reflexes; (4) muscle tone; and (5) respiration.[48] A score of 0, 1, or 2 is assigned to each of these factors. The Apgar score measures the clinical signs of neonatal depression, including appearance , heart rate , a reflex response to stimuli, tone , and respirations.

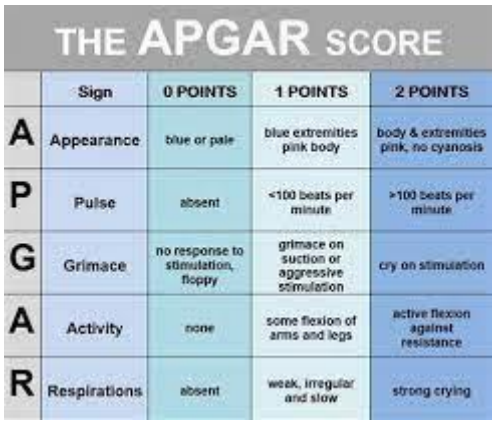


FIG 8 : APGAR score with parameters and scores

At 1 and 5 minutes after birth, the score is recorded for every neonate. Scores for babies with scores between 7, are provided every five minutes from then on until twenty minutes. The Apgar score is a recognised and practical way to report on the neonate baby's condition just after birth and their reaction to resuscitation. According to the 2011 Neonatal Resuscitation Program recommendations, stopping resuscitative measures "may be reasonable if you can determine that no heart rhythm has been observed for at least 10 minutes."

According to the Neonatal Encephalopathy and Neurologic Outcome report, a APGAR score of 7 to 10 is regarded as positive at 5 minutes of life , a score of 4 to 6 as abnormal, and a score of 0 to 3 as low in term and near term neonates. A non-specific symptom that "may be

one of the early indicators of encephalopathy" is Apgar score of 0 to 3 at 5 minutes or more of life.[50] According to the definition of asphyxia, it is the significant disruption of gas exchange that, if left untreated, results in progressive hypoxemia, hypercapnia, and significant metabolic acidosis. A useful indicator of a neonate response to resuscitation is the APGAR score at 5 minutes more specifically, ia change in the score between 1 and 5 minutes of life .

TEMPERATURE

The infant's mortality and morbidity may be severely affected by hypothermia and hyperthermia. The onset of haemorrhagic processes is brought on by hypothermia, which also alters glucose homeostasis and increases oxygen consumption. Dehydration, hypernatremia, and eventual death can all result from hyperthermia, as potentially cause cerebral damage. Neonatal should be dried and placed under radiant heat as soon as possible after delivery.

Assessment of temperature: Skin temperature

A thermistor probe is softly taped to the skin to record it. The skin on the trunk has a greater central skin temperature than the skin on the rest of the body. The skin's core temperature is more constant. In term neonates , the typical abdomen temperature ranges from 36±0.5 C. Due to insufficient subcutaneous tissue, the skin temperatures of premature newborns range from 36.6 ± 0.6 C , which is near to the core temperature. Infants who are in shock or who are collapsing will have a differential in skin temperature between their centre and periphery. Suspect sepsis if the difference is more than 1.5 C. Abnormal temperature readings are the result of attaching skin probes to skin that has been burned or injured.

Definition of temperature variations in neonates

Hyperthermia when temperature is > 37.5 ºC.

Normal temperature from 37±0.5 ºC .

Cold stress is temperature 36.2±0.2 ºC.

Moderate hypothermia 34.2±2.2ºC.

Severe hypothermia - < 32 ºC.

SHOCK

Shock is a pathophysiologic state of inadequate tissue perfusion. This effects is reversible initially, but prolonged hypoperfusion and tissue hypoxia can disrupt critical biochemical processes, which if not addressed, result in cell death, end-organ failure, and, possibly, death. In neonatal critical care units, perfusion disorders in neonates are frequently seen. The majority of the existing assessment techniques are based on clinical indicators. Capillary refilling time, urine output, heart rate, peripheral colour, base excess in ABG, lactate concentration, and blood pressure are examples of commonly recommended symptoms. Each measurement's permissible limits are embedded in practise, but they all take end-organ perfusion into account [51]

HYPOTENSION:

According to reports, 16 to 52% [51,52] of premature neonate's experience hypotension. Because there is a chance of negative short- and long-term prognoses, it is crucial to identify and treat hypotension in preterm newborns. Preterm infants' blood pressure can be tested noninvasively and invasively, using intra-arterial catheters. The standard of care is invasive blood pressure measurement. The pressure required to enable appropriate organ perfusion should be used to define normal BP. Depending on GA, birth weight, and postnatal age, the typical values will vary. 73% of units across the 38 nations studies the diagnosis of hypotension in neonates with extraordinarily low gestational ages was made when the mean blood pressure recorded was less than the gestational age as the criterion. All of these have a minimal impact on mean blood pressure, making it dependable even in the context of a damped trace. It reflects the perfusion pressure and is derived from the systolic and diastolic pressures.[52]

Cunningham et al [53] has analysed on a large cohort of patients during initial seven days of life in VLBW neonates excluding infants on inotropic support and IVH. He said hypotension is less than the 10th centile for BW (Figure 9) and postnatal age. Hypotension affects perfusion to all organs leading to multiorgan dysfunction mainly affecting cerebral blood flow .

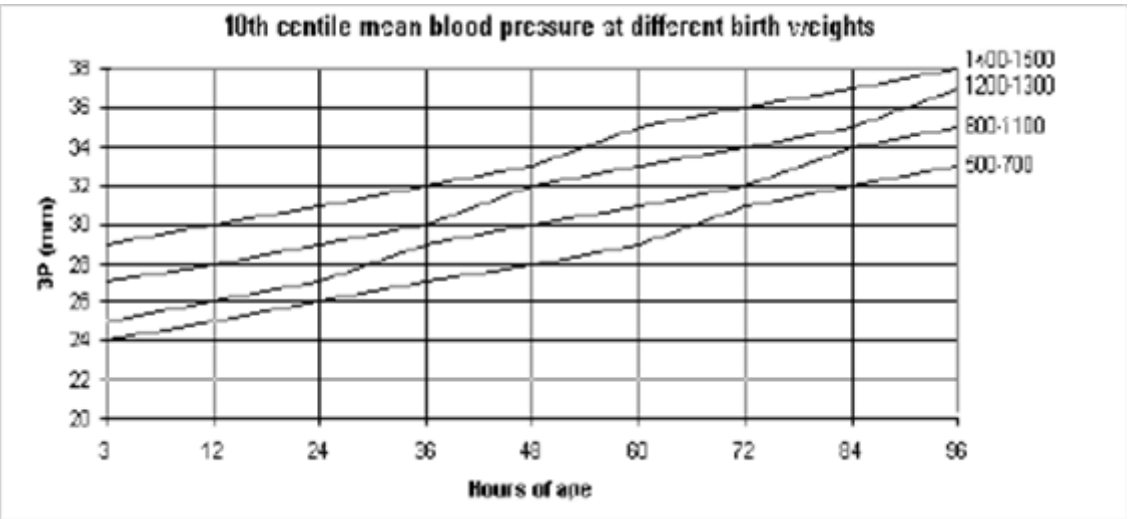


Fig 9 : Mean Arterial Pressure at different Birthweight – 10th percentile

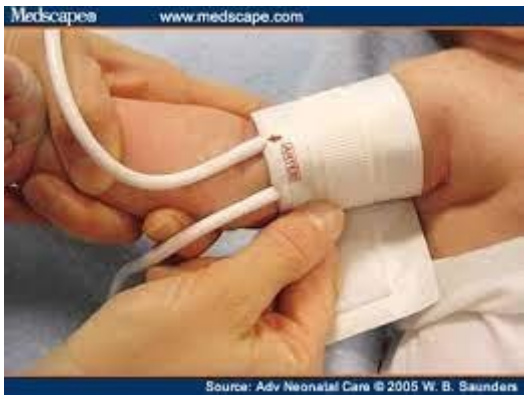


Fig 10 : NIBP measured in neonate

British Association of Perinatal Medicine experts recommended and proposed a guidelines on mean blood pressure (MBP) implementation in management of respiratory distress syndrome neonates as the value of mean blood pressure less than the gestational age neonates 31 weeks gestation were reported to have serious haemorrhage, ischemic brain lesions, or die within 48 hours if their mean blood pressure was 30 mm Hg for 1 hour. A thorough evaluation of perfusion provides more useful information than merely using mean blood pressure. More often, measures of systolic and diastolic blood pressure that reflect cardiac function and systemic vascular resistance should be utilised to guide therapy.

URINE OUTPUT

UO demonstrated good in-hospital mortality prediction performance. Patients with lower UO had higher SNAPPE-II scores and greater perinatal asphyxia at NICU admission. Additionally, these patients exhibited higher levels of metabolic issues (acidosis and hyperkalaemia), which are risk factors for AKI (perinatal asphyxia). These characteristics imply that renal impairment was essentially present in patients with decreased UO. In individuals with limited UO, mechanical ventilation lasted longer. Because larger values indicate death in LBW neonates, LBW was a protective factor against lower UO. UO was a standalone mortality predictor in the multivariate study.

Other Scoring System

National Institute of Child Health And Human Development (NICHHD)

Using data from 1823 children born between 1987 and 1989, weighing 501–1500 g[34], who were admitted to seven United States neonatal intensive care, the NICHHD score was developed. The variables were chosen through the use of logistic regression, and another 1780 infants were utilised for validation. Since its creation, it has not been extensively utilised.

NICHHD- Scoring system variables

BW
Apgar score at 1 min
Race
SGA
Sex

Berlin Score

With 396 VLBW development neonates ,176 VLBW neonates validated between 1988 and 1991, this German score was created using logistic regression techniques. [30] Its incorporation of several arbitrary factors[35] causes problems. Because of the addition of these data points, it can no longer be used to compare units objectively.

Berlin Score- Scoring system variables

Birth weight
Respiratory Distress Syndrome grading
Artificial ventilation
APGAR score at 5 min
Base excess at admission

Neonatal Mortality Prognosis Index (NMPI)

To determine the predictive markers collected up to 12 hours after admission from 336 Mexican neonates in 1993[36], this score was created using logistic regression. A second cohort of 300 neonates was used to validate the model. It has not been utilised extensively.

NMPI- Scoring system variables [36]

BW
GA
Cardiac arrest
PaO_2 / FiO_2 ratio
Major congenital malformations
Sepsis
Base excess

Vermont Oxford Network-Risk Adjustment and Revalidation of SNAP II/SNAP-PE II

The Vermont Oxford Network compares results among its 500 centres using a unique method of risk adjustment called VON-RA. Zupancic et al.[37] Initial study that introduced the VON-RA was released in 2007. This study was based on information gathered in 2002, when 58 participating centres attempted SNAP II and SNAP-PE II must be revalidated. The researchers also intended to assess the VON-RA's performance in relation to these scores and ascertain the relative impact of birth abnormalities on the VON-RA performance. Importantly, this research discovered that the performance of the SNAP-PE II score was greatly enhanced by the inclusion of birth abnormalities. The research also revealed similarly results to the SNAP-PE II plus birth defects .

Application of predictive scores:

For comparison of performances among varied neonatal intensive care units, it is widely accepted that outcomes results must be appropriately adjusted for case mix variations (risk adjustment).[38] One would anticipate a high percentage of "good" results from a unit that tends to solely serve patients with favourable prognoses. Conversely, those who care for patients with poor prognoses should anticipate more "bad" results. In these scenarios, The neonatal morbidity at the time of its arrival into the charge of the unit should be assessed. In order to compare healthcare professionals and units, illness severity scores are now widely recognised as crucial instruments. The rates of medication use, blood transfusions, and other outcomes have all been examined using illness severity scores. The other situations where predictive scores find their application are determining the trends in results over time and giving prognostic information to individual children.[5]

Performance Of Illness Severity Scores:

The score had superior discriminatory capacity than birth weight alone (Az = 0.78) in the original study that led to the establishment of CRIB (area under the ROC curve: Az = 0.90).[27] Although CRIB was a better predictor of hospital mortality than BW alone, its relation with morbidity was undefined clearly . The appropriateness of CRIB with contemporary data was reconsidered, as score might be poorly calibrated to mortality following NICU, as BW and GA alone were poor predictors than this score. CRIB included data up to 12 hours after admission, introducing a treatment bias. When compared to other more complex scores, such as SNAP and SNAP-PE, the CRIB's data acquisition is significantly more simple, with each neonates calculation taking only five minutes as contrasted to 20 to 30 minutes.[5]

The recalibrated and streamlined scoring system offered by CRIB II does deal with any potential issues that could arise from using FiO2 and data collected up to 12 hours after admission. The findings of Patrick et al. regarding decreasing hospital mortality since 1988 were in accordance with those of other studies[30]. This decline might be explained by improved clinical judgement, the introduction of surfactant therapy in the late 1980s, and the rise in prenatal steroid use in the early 1990s. The creators of CRIB-2 recommended more research to determine the long-term effects of greater clinical abilities, increased uptake of efficient treatments, and improved service organisation on health outcomes. Before assessing declining mortality as a health gain, they also advocated for routine evaluation of the long-term health of neonatal intensive care survivors.

In Richardson's comparison, SNAP-PE was even more accurate for predicting death than birthweight alone (Az 0.87 v 0.77). (Az 0.93). [30] Due to the quantity and complexity of the elements, SNAP proved problematic to use as a first-generation neonatal illness severity index score.

The authors of SNAPPE II have outlined a number of justifications for their conclusions, some of which are listed below.[31] GA was chosen over BW in perinatal extension as it was more physiological and acceptable to the population norm. That decision was made due to limitations on the gestational age's accuracy and availability. Pao2 / Fio2 was chosen over other alveolar ratio with arterial oxygen or difference as it require any additional parameters like mean airway pressure or concurrent carbon dioxide tension . They made an effort to get rid off with the UO because it calls for risky bedside calculations and is susceptible to inaccurate measurement. Even among infants with very low birth weights, it continued to be consistently highly predictive, and it is a significant predictor in babies with greater birthweights. The data collecting window was lowered from the period of 24 hours to 12 hours. Thus, the impacts of treatment bias are lessened. Even if it was possible, reducing the data collecting window to less than 12 hours might have led to deteriorating data quality and decreased predictive power. In SNAPPE- II, the physiological parameters were differentiated from the additional risk that was posed by birth weight, SGA, and Apgar scores. This was done in order to give academics and medical professionals a mechanism to account for mortality risk factor against birthweight ranges while still comparing basic physiological abnormalities within constrained birth weight strata. In contrast to the CRIB, ratings in adult and paediatric intensive care units distinguish physiologic variations from other risk factors. The scientists also believed that as intensive care advances, the relative proportions of illness severity and birth weight may change over time with reference to mortality.

Because the physiologic variables for SNAP-II were calculated from mortality risk, they were extremely wide. In the original SNAP, they did not retain a wide variety of sublethal physiologic derangements. They propose that SNAP might still be a more effective tool for research on the treatment of individuals who are just mildly unwell, such as neonatal triage. The SNAPPE - II score at admission describes the risk of neonatal mortality during the first 12 hours. It is not intended to be used as a sequential score over a period of time. Richardson et al. optimised

the calibration separately after first elaborating the SNAP- II and SNAPPE -II scores. This made it possible for the two scores to continue to be simple additive sums while also allowing us to include sophisticated higher order and interacting terms to improve the fit.

Critical Review Of Scoring Systems.

A cut-off of 27.5 for SNAPPE II was reported , with 84% sensitivity and 79% specificity, and reported accuracy of 0.887 (CI 95%:0.847-0.927) (P0.05). Dalili et al. evaluated CRIB II and SNAP PE II for predicting mortality in preterm (32 weeks) or LBW (1500 g) admitted to NICU in Iran. The cut off of 27.5 to 29.5 and Youden's index was 0.64. The SNAPPE-II found that at a cut-off point of 27, prognostic sensitivity of 84.44% and specificity 79.05%.[5] Additionally, these comparable results were 82.22% (CI 95%: 82.222 - 82.223) and 81.42% (CI 95% : 81.422 - 8.423) at the cut-off point of 29.5. According to same study, the CRIB II method has a cut-off point of 8.5 with sensitivity and specificity of 74.4% and 78.65%, respectively. For a one-unit rise in SNAPPE-II and a one level in CRIB-II, respectively, the chances of neonatal mortality increased by 1.05 (CI 95%: 1.02-1.1102) and 2.696 (CI 95%: 1.59-4.72) respectively. These conclusions were reached after taking into account factors like IVH, head circumference, length of hospital stay, weight, height, and height.

Timothy et al assessed SNAPPE II as a predictor of neonatal mortality in a general hospital's NICU, Indonesia reported a strong association between SNAPPE II and mortality and recommended a cut-off of 51. This study also demonstrated great calibration using the Hosmer-Lemeshow goodness-of-fit and excellent discrimination (AUC 0.933, 95% CI- 0.843-1). A higher cut-off indicates that the centre’s neonates have higher survival rates. Patrick et al evaluation .'s of 10 distinct risk adjustment scores for neonates mortality highlighted the necessity for risk adjustment to alter as clinical population demands and conditions change and the need for additional research for extrapolation people in other developed countries and to developing country population settings.[4]

The cut-off score point for neonatal mortality prediction was 38, with a sensitivity of 84.4% and specificity of 91%, according to Muktan et al prospective observational study carried

out in Nepal to evaluate the reliability of the SNAPPE- II score as a predictor of neonatal mortality and length of stay in NICU.[9] The babies who passed away had significantly higher median (IQR) SNAPPE II scores [57 (42-64) vs. 22(14-32), P 0.001] than the surviving children. The area under the curve (AUC) for the ROC curve was 0.917 [95% CI 0.854-0.980]. The most reliable method for predicting overall mortality was the SNAPPE II cut-off score of 38. The sensitivity, specificity, positive predictive value, and negative predictive value of the overall mortality estimate are 84.4, 91, 66.7, and 96.5%, respectively, for estimating overall mortality.

The CRIB II score was found to be a reliable tool for initial risk assessment in LBW in a prospective study by Eldin from Egypt, with a cutoff point of 11 being highly sensitive (94.9%) and reasonably good specificity (82.4%)7. Eldin's study also indicates that mortality increased steadily as CRIB II score levels increased; mortality was (0%), (4.8%), (68.3%) and (100%) in level I, level II, level III, and level IV of CRIB II, respectively. For CRIB II, GA and BW, the areas under the curve (AUC) were 0.968 (95% CI=0.940-0.996), 0.900 (95% CI=0.844-0.957), and 0.834 (95% CI=0.753-0.914), respectively. Additionally, ROC curve analysis showed that the cut-off points of 11 for CRIB II score, 28 for gestational age, and 1100 for birthweight had the best sensitivity and specificity for predicting death. The CRIB II score (86.7%) was shown to have the highest accuracy (the percentage of genuine outcomes, including true positives and true negatives), followed by gestational age (81.4%) and birthweight (72.5%).

SNAP PE-II and CRIB-II illness severity scores were used in another prospective multicentric study in the Indian population by Vardhelli et al. to predict neonatal mortality and morbidities in 32 weeks POG . Both scores had better predictive ability in hospital mortality, namely CRIB-II (AUC 0.795) and SNAPPE II (AUC: 0.78).[39] CRIB II and SNAPPE II had comparable AUCs for mortality predictivity, with CRIB-II's AUC .of 0.79 (95% confidence interval (CI) : 0.73-0.86) and SNAPPE-AUC II's of 0.78 (95% CI: 0.69-0.86) showing no statistically significant difference between them (difference: 0.016, 95% CI: 0.09 to 0.06, P-

value: 0.6) The discriminatory power of the two scoring systems was comparable (SNAPPE-II: HL 2 = 2.157, 6 degrees of freedom (d.f.); p = 0.905; CRIB-II HL 2 = 6.579, 8 d.f.; p = 0.583). With AUCs of 0.83 vs 0.70 and 0.85 vs 0.74, respectively, CRIB-II beat SNAPPE-II in its ability to predict important morbidities and their combined unfavourable result. AUC was similar to CRIB II in terms of mortality prediction (0.78 vs 0.79), however SNAPPE-II showed higher accuracy (73.7% vs. 60%). The mortality and morbidities increased along with the rise in SNAPPE-II and CRIB-II scores, with the exception of SNAPPE-ability II's to predict Retinopathy of Prematurity (ROP) requiring treatment.

According to a Harsha and Archana, a SNAPPE-II score of 37 or above was linked to a greater mortality rate. [8] In term neonates, the mean SNAPPE-II score was 24.1 (15) for children who survived and 52.8 (15) for children who died, but in preterm neonate, the scores were 14.87 (13), 31.7 (16), and 14.87 (13), respectively, for children who survived and died. Regardless of gestational age, SNAPPE-II demonstrated a high association with the result in terms of mortality. In this study, increased mortality was linked to SNAPPE-II scores of 37 and above.

Gagliardi *et al* a VLBW neonates in 12 NICUs of local network study was conducted in Italy between 1999 and 2001, it assessed the effectiveness of CRIB, CRIB-II, and SNAPPE-II to evaluate in-hospital mortality. CRIB and CRIB-II showed greater variation than SNAPPE-II. (AUC 0.90 and 0.91 compared to 0.84) They suggested that a few variables needed for the SNAPPE-II computation may not have been of high quality, such as urine production in VLBW neonates. None of the ratings offered a reliable prediction of the likelihood of death because multiple additional variables that were closely connected with survival in several logistic regression models were included in addition to the scores. Antenatal steroid treatment, caesarean section, singleton delivery, APGAR score of greater than seven at 5 minutes, lack of SGA , absence of any congenital abnormality were tended to be significantly correlated to longer survival among VLBW neonate.

Dorling et al. performed a thorough analysis of the benefits and drawbacks of illness severity score algorithms. The review brought attention to the SNAP scores' diminished ability to distinguish between the most preterm infants.[5] Neonates with either BW and GA are eligible to use SNAPPE - II, which was created and is largely applied in the western developed places like US , Canada, whereas neonates with VLBW neonate are only eligible to use CRIB[7], which was created in the United Kingdom and is primarily in Europe.

A prospective study by Maliheh Kadivar and colleagues was carried out in Tehran, Iran, from September 1, 2003, to August 28, 2004, and published in 2007. In this study, 213 neonates who had been admitted to the NICU were given the SNAPPE II score. 119 (60.1%) of the patients who underwent evaluation were male, with a mean age and SD of 7.6(0.5) days. The mean (SD) for birthweight was 2479.8 (29.4) grams, SNAPPE II score 21.6 (1.1), and Apgar scores at 1 minute were 7.47 (0.08) and 7.71 (0.06) at 5 minutes, respectively. The mean (SD) gestational age was 35.8 (0.2) weeks. The Chi-square test revealed that the gestational age (P=0.03) and birthweight (P=0.02) were very significant. Only SNAP and Apgar at 5 minutes may significantly predict neonatal mortality, according to an analysis using regression of logistics to determine the predictive value of these indicators for mortality. 42.1% of neonates who died had an Apgar score of less than 7 at 5 minutes. The neonatal mortality rate was 19.4% with a SNAPPE II score of greater than 19 points.

Another study was conducted on 191 neonates in Tehran, Iran, by Mitra Radfar et al. to determine the usefulness of the SNAP II and SNAPPE II scoring systems as indicators of the neonatal death rate, the current study was done. The difference between the mean age at admission (P = 0.037) and gestational age (P- 0.001) was statistically significant to 23. With the exception of the presence of seizures, all SNAP and SNAP II PE factors demonstrated a significant connection with neonates' survival (p 0.001). According to the study, SNAP II has an

AUC of 0.992 and SNAPPE II has an AUC of 0.994, both of which have a very high predictive value for survival. The two methods had no statistically significant difference

Dhruba Shrestha performed a observational prospective research in Kathmandu , Nepal, where physiological information for the SNAP II and SNAPPE II score were gathered within 12 hours after admission. In a Nepal NICU with minimal resources, the goal of this study is to determine their effective use in predicting mortality . 29 (23.9%) of the 126 newborns involved in the study died. When SNAP II was >40, mortality was 83% (5/6) and 66.7% (6/9) when SNAPPE II was more than 50. For predicting mortality, a SNAP II score as 12 had a sensitivity and a specificity of 75.9% and 73.2% respectively , while a SNAPPE II score of 14 had a sensitivity of 82.8% and a specificity of 67.0%.

Data from emerging nations like India are scarce for CRIB II and SNAPPE II score validation. There is a need to evaluate the validity of these scores to predict mortality in diverse resource situations because the neonates clinical profile and their outcomes may vary in our scenario. This may facilitate prioritising neonates with illnesses and providing their parents with information about the severity of their conditions..

Methods and Materials

Study design: It is a prospective observational study.

Study setting: The study was done in the Department of Paediatrics, Shri B.M.Patil Medical College Hospital And Research Centre, Vijayapura.

Study participants: All neonates admitted to LEVEL III A Neonatal Intensive Care Unit (NICU), BLDE (Deemed to be University), Shri B. M. PATIL MEDICAL COLLEGE HOSPITAL AND RESEARCH CENTRE, VIJAYAPUR, KARNATAKA who met inclusion criteria for a period from Jan 2021 to June 2022.

Inclusion criteria:

Preterm neonates

i)Gestational ages between 26 to 34weeks.

ii)Birth weights from 500 to 2499 grams.

Exclusion criteria:

i) Gross congenital anomaly detected in the antenatal scan

ii) Neonates who were out of the hospital before the data collection was finished.

Number of groups to be studied: Two

Group 1 – Newborns who survived

Group 2 – Newborns who did not survive

Method of collection of Data

Low birth weight neonates admitted to NICU were enrolled to the study. Neonatal data including birth weight, gestational age, gender, temperature at admission were documented. The neonates were assessed at birth by APGAR @ 1 minute and 5 minutes, need for resuscitation at birth. The neonates admitted were monitored for temperature, blood pressure (MBP), seizures and urine output. Arterial blood gas analysis was done for all neonates enrolled and parameters were assessed. Need for inotropic support were assessed depending on vital parameters like heart rate, mean arterial pressure, ECHO findings. Neonatal outcomes at the time of discharge were assessed.

Scoring Parameter:

CRIB II scoring[28]

- BW
- GA
- Gender
- Base Excess
- Temperature

SNAPPE-II scoring system [31]

- MBP.
- Temperature.
- Serum pH.
- PaO2/FiO2 ratio.
- UO.
- Seizures.
- BW.
- GA.
- 5 minute Apgar score.

In this study, information like the Apgar score and history were recorded. Digital scales are used to assess the weight of neonates. A temperature at admission was measured and recorded. Neonates required oxygen via a hood, ventilators , or Continuous Positive Airway Pressure machines were documented and FiO2 was noted which was necessary to maintain a normal SpO2. Neonatal specialists examine neonates within the first 12 hours following birth to check for congenital abnormalities.

Data analysis:

Sample size calculation

Assuming the anticipated population standard deviation to be 16.46, and applying t-distribution to predicted sample size, the study employed a sample size of 264.To estimate a mean with 95% confidence and a precision of 2. [54]

Formula used : $n = \frac{z2\ S2}{d2}$

Where Z= Z statistic at α level of significance

d2= Absolute error

P= Proportion rate

q= 100-p

Statistical Analysis

- The data obtained was entered in a Microsoft Excel sheet, and statistical analysis was estimated using a statistical package for the social sciences (Version 23).
- Results are presented as Mean (Median) ±SD, counts and percentages and diagrams.
- Categorical variables are compared using the Chi-square test. Odd's ratio (95% CI) is applied.
- ROC curve analysis, Yuden Index, predictive values were calculated.
- $P < 0.05$ is considered statistically significant.

THE WORK FLOW OF THE STUDY

Neonates admitted to NICU

⇩

Informed written consent was obtained from parent /attenders

⇩

Demographic details collected

⇩

History & Clinical assessment

⇩

Blood sampling and calculation of parameters

⇩

CRIB II scoring and SNAPPE II scoring

⇩

Additional laboratory investigations

⇩

Clinical outcome recorded (death / discharge)

RESULT

A total of 324 neonates were recruited in the study. The average birth weight of newborns admitted to NICU was 1760+/- 140 grams and the average gestation age was 32+/- 1 week (Table 1a).

Gestational of the neonates were divided into three groups 26 – 28 weeks, >28 -32 weeks, >32 – 34 weeks. Among 283 survived neonates, maximum neonates was seen in groups between 28 – 32 (46.8%) weeks and 32 – 34(48.8%) weeks of gestation (Table 1b).

Neonates admitted in NICU were divided into 3 birthweight group. Among the 283 survived maximum survival was among LBW neonates (Table 1c).

Table 1a : Birthweight and Gestational age of neonates admitted to NICU

	N	Mean	Std. Deviation
Birth Weight	324	1757.08	1405.91
Gestation period	324	31.77	1.94

Table 1 b: Gestation Age of neonates admitted to NICU

POG	Not Survived (%) N (33)	Survived (%) N (283)
26 – 28	9 (27.3%)	11 (3.9%)
>28 – 32	18(54.5%)	134(46.8%)
>32 – 34	6(18.2%)	138(48.8%)

Figure 11 : Gestation Age of neonates admitted to NICU

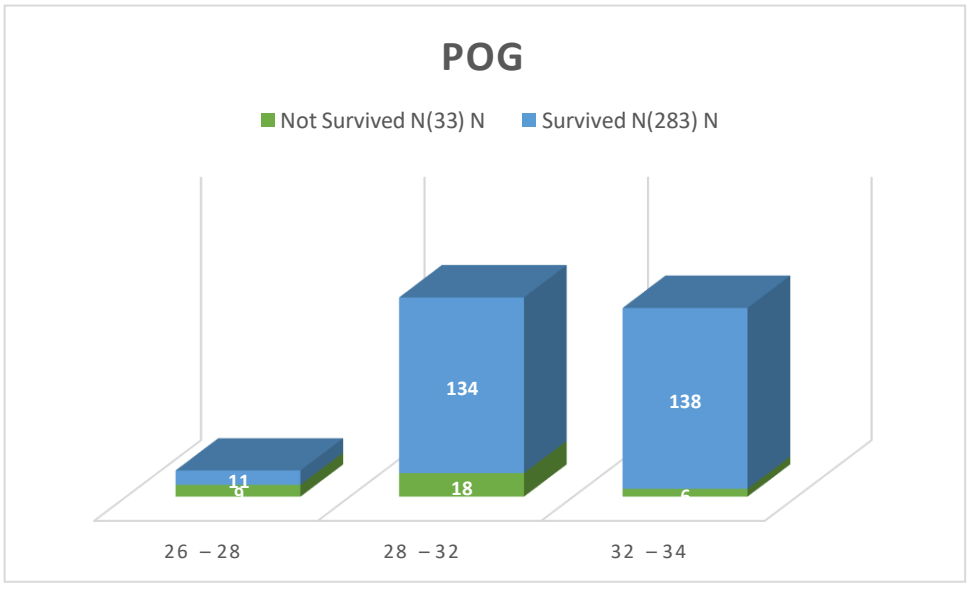


Table 1c : Birthweight of neonates admitted to NICU

Weight	Not Survived (%) (N=33)	Survived (%) (N=283)
ELBW	13(39.3%)	13(4.6%)
VLBW	11(33.3%)	94(33.2%)
LBW	9(27.2%)	176(62.1%)

Figure 11 b : Birthweight of neonates admitted to NICU

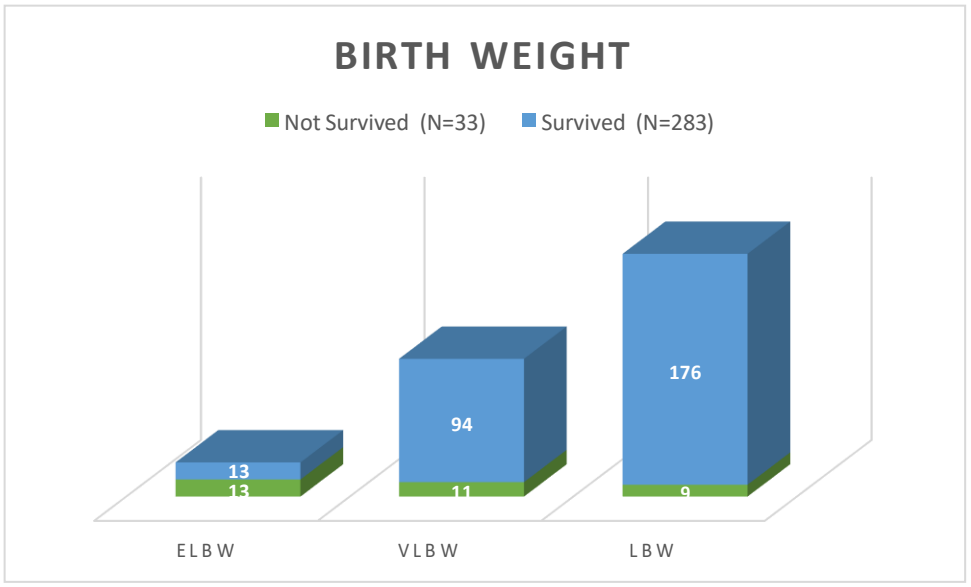


Table 1d : Sex distribution of Neonates admitted to NICU

		Neonatal Outcome	
		Not survived (%) (N – 33)	Survived (%) (N=283)
Gender	Female	11 (33.4%)	130 (46.4%)
	Male	22(66.6%)	153(54%)

Figure 11c : Sex distribution of the neonates admitted to NICU

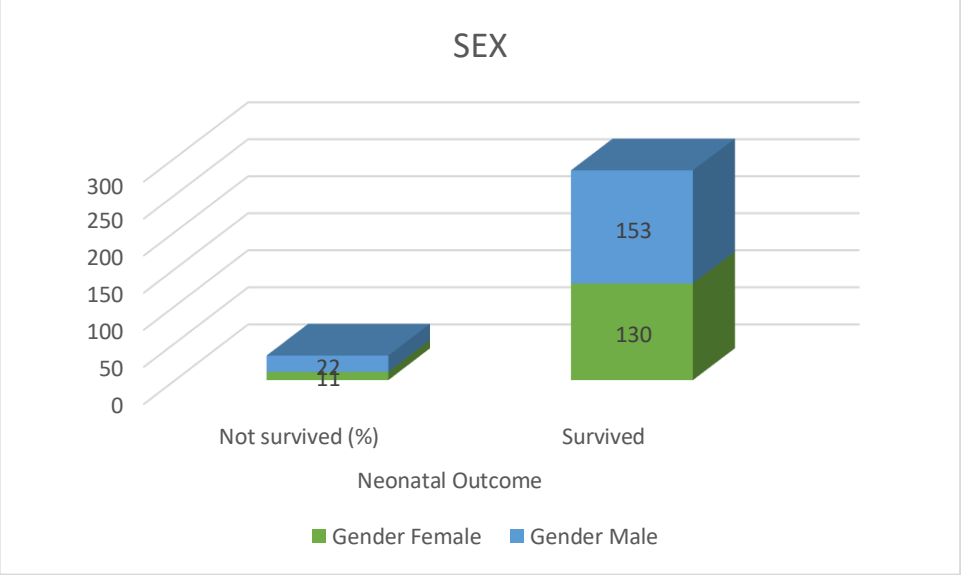
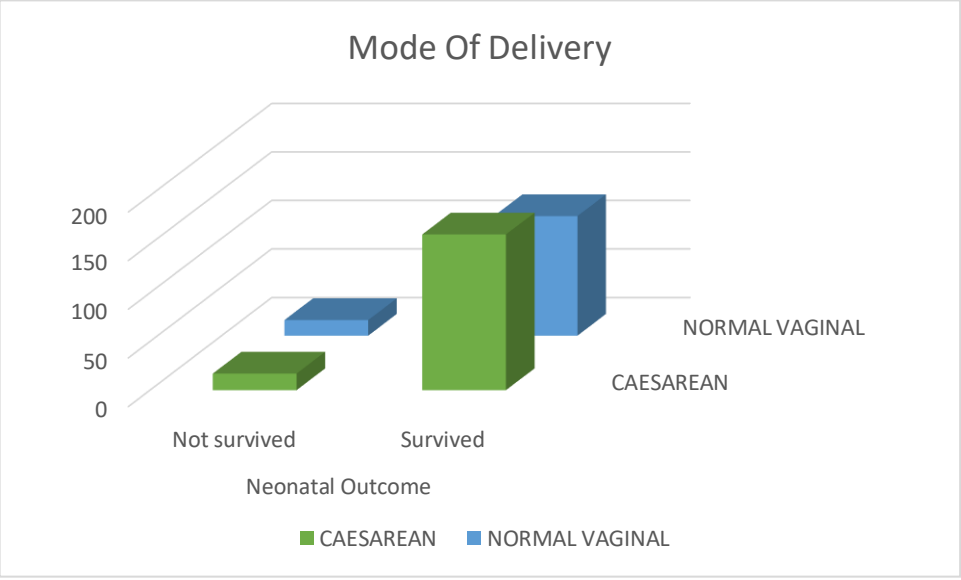


Table 2 : Mode of Delivery

		Neonatal Outcome		Total
		Not survived	Survived	
MODE OF DELIVERY	CAESAREAN	17	160	177
	NORMAL VAGINAL	16	123	139

Figure 12 : Mode of delivery of the study group



The various maternal factors influencing the neonatal outcomes are summarized from **Table 2 and Table 3**. There was no significant difference between the neonates who survived and those who did not survive with respect to baseline maternal factors (Obstetric score, Gestational Diabetes Mellitus, Premature Rupture of Membranes (PROM), Maternal Thrombocytopenia, Maternal Fever, Maternal H/o Urinary Tract Infection, Maternal H/o Vaginitis or the mode of delivery) except for maternal PIH **(Table 3)**. Similar observations were noted when neonates were stratified by different weight groups [<1000g, 1000-1500g, 1500-2000g, 2000-2499g].

Table 3: Baseline maternal factors between the neonatal groups

		Neonatal Outcome				
		Not Survived		Survived		
		Count	N %	Count	N %	P value
Gravida						
	->5	2	6.1%	7	2.5%	0.343
	1	15	45.5%	123	43.5%	0.528
	2	10	30.3%	70	24.7%	0.465
	3	4	12.1%	50	17.7%	0.312
	4	2	6.1%	24	8.5%	0.579
GDM status	No	33	100.0%	273	96.5%	0.607
	YES	0	0.0%	10	3.5%	
PROM status	No	26	78.8%	226	79.9%	0.822
	YES	7	21.2%	57	20.1%	
Maternal Thrombocytopenia	NO	33	100.0%	278	98.2%	0.974
	YES	0	0.0%	5	1.8%	
Maternal Fever	NO	32	97.0%	271	95.8%	1
	YES	1	3.0%	12	4.2%	
Maternal H/O UTI	No	33	100.0%	279	98.6%	0.902
	YES	0	0.0%	4	1.4%	
Maternal Chorioamnionitis	No	33	100.0%	281	99.3%	0.892
	YES	0	0.0%	2	.7%	
Maternal H/O Vaginitis	No	33	100.0%	277	97.9%	0.865

	YES	0	0.0%	6	2.1%	
PIH	No	15	45%	202	71%	**0.005**
	yes	18	55%	81	29%	

Figure13a : Maternal gravida status in the study group

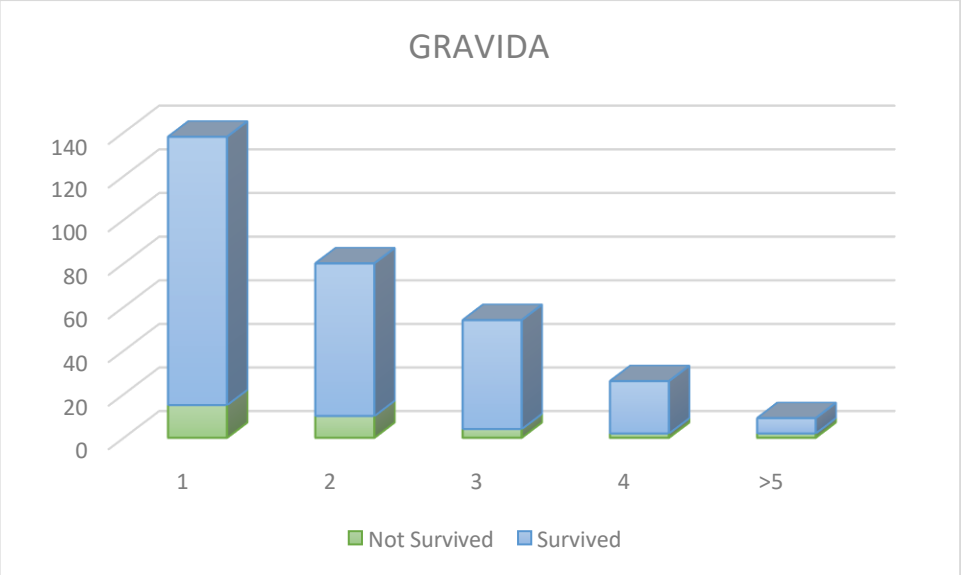
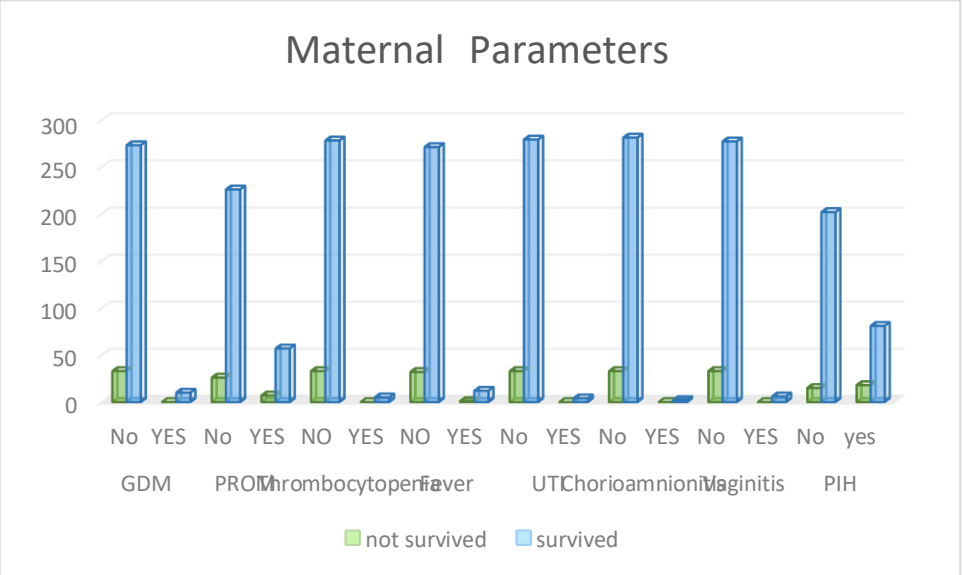


Figure 13b: Baseline maternal characteristics between neonatal group



Amongst neonates in NICU the average scores of APGAR at 1 min and 5 min were 6 & 8 respectively, CRIB II score was 5.1 and SNAPPE score was 12.7 as shown in **Table 4**.

Table 4: Summary Characteristics of neonates.

	N	Mean	Std. Deviation
APGAR SCORE : 1 minute	324	6.694	.9777
APGAR SCORE : 5 minute	324	8.648	.6534
SNAPPE – II	324	12.975	8.9442
CRIB – II	324	5.105	2.7465

Table 5 compares the important neonatal variable like birth weight, gestation period, APGAR score 1 and 5 minute, between those neonates who survived compared to those who didn't **(6.8 vs 5.9 & 8.7 vs 8.2)**. The MAP recorded differed significantly between the two groups.

Table 5: Comparison of various neonatal variables between the two groups

	Neonatal outcomes						
	Not Survived			Survived			P Value
	Mean	N	Std. Deviation	Mean	N	Std. Deviation	
Birth Weight (grams)	1213.91	33.00	392.89	1830.48	283.00	1483.43	0.018
Gestation period	30.00	33.00	2.32	31.99	283.00	1.80	<0.001
APGAR SCORE : 1 minute	5.91	33.00	1.23	6.79	283.00	.90	<0.001
APGAR SCORE : 5 minute	8.27	33.00	.88	8.70	283.00	.60	<0.001
Blood pressure*(MAP)	31.45	33.00	2.40	33.10	283.00	2.07	**<0.01**
Urine output	5.92	33.00	29.46	2.77	283.00	15.56	0.550
Body Temperature	34.63	33.00	1.24	35.24	283.00	4.37	0.071

Table 6a : Comparison of birthweight between different groups

Weight		N	Mean	Std Deviation	P
ELBW	NS	13	883	140	0.126
	S	13	1023	279	
VLBW	NS	12	1258	220	0.255
	S	89	1415	1146	
LBW	NS	9	1910	1861	**0.038**
	S	176	1980	1753	

Table 6b: Comparison of POG between different groups

POG (weeks)		N	Mean	Std Deviation	P
26 – 28	NS	9	27.22	0.972	0.539
	S	11	27.45	0.688	
>28-32	NS	18	30.22	1.06	0.041
	S	134	30.80	1.01	
>32 - 34	NS	6	33.50	0.548	0.952
	S	138	33.51	0.502	

Neonates in LBW group had statistically significant difference between survived and not survived neonates in the study group (Table 6a)

In the study group 28 – 32 weeks neonates had better survival then 26 – 28 weeks. Statistically significant p value was seen in 28 – 32 weeks neonates in comparison to 32 -34 weeks neonates.(Table 6b)

Table 6c : Outcome of neonates by gender

Gender		N	Mean	Std. Deviation	P
SNAPPE II	Female	144	13.0	9.1	0.975
	Male	180	13.0	8.9	
CRIB II	Female	144	4.9	2.3	0.165
	Male	180	5.3	3.0	

With regard to scoring systems for the neonates admitted to NICU **Table 6c, 7** presents the CRIB II score and SNAPPE II score of the neonates who did not survive and who survived. As can be seen from the table the scores were significantly differed between the two groups. Table 5c showed no difference outcome between male and female sex. The average CRIB II score in those who survived was **4.8 (** vs not survived **7.2)** The average SNAPPE II score in those who survived was **11.2 (**vs not survived **25.4).**

Table 7 : Comparison of CRIB II and SNAPPEII scores between the two groups

	Neonatal Outcome						
	Not survived			Survived			P Values
	Mean	N	Std. Deviation	Mean	N	Std. Deviation	
SNAPPE II*	25.4	33.0	9.2	11.2	283.0	7.4	<0.0001
CRIB II*	7.2	33.0	3.5	4.8	283.0	2.6	<0.0001

*p<0.0001

There was no significant difference between the two groups with respect to other parameters pH, pO2, pCO2, bicarbonate levels, White blood cells, platelets, urine output and use of an inotrope **(Table 8)**. However base excess values differed significantly between the groups. The results of various neonatal and maternal factors between the two groups were similar to the tables above when stratified by different weights.

Table 8 Comparisons of clinical and laboratory parameters between the two groups

Parameters	Not survived			Survived			P value
	Mean	N	SD	Mean	N	SD	
White Blood Cells	10937.9	33.0	6414.6	11608.0	283.0	7668.4	0.581
Platelets	211884.4	32.0	87792.4	249862.5	283.0	149138.2	0.159
pH	7.3	33.0	.1	7.8	283.0	5.6	0.101
pCO2	32.1	33.0	13.3	32.0	283.0	23.1	0.955
pO2	138.5	33.0	48.0	130.9	283.0	41.7	0.389
HCO3	13.8	33.0	3.8	16.2	283.0	11.7	0.247
Lactate	9.6	33.0	29.2	4.5	283.0	3.3	0.451
Base excess*	10.2	33.0	4.0	8.2	283.0	4.3	**0.010**
NPO	41.5	33.0	19.7	45.4	283.0	23.2	0.210

Comparison between groups following Stratification by birthweight

The neonatal factors birthweight, gestation, APGAR scores (1 & 5 min), CRIB II and SNAPPE II were compared between the two groups stratified by different categories of birth weight. Category A <1000g, Category B – 1001-1500g, Category C-1501-2000g and Category D- 2001 -2499g.

Table 9A compares the scores in those neonates who weighed <1000 g. SNAPPE II scores differed significantly between the two groups. For other scores there was no significant difference between those who survived vs those who didn't. Table 9 B depicts the scores in those neonates weighing 1001-1500g. Again, the only score to differ between the groups was SNAPPE - II while rest all the scores were not statistically significant between the two groups. Table 9C shows the scores of neonates weighing 1501-2000g. SNAPPE - II differed between the two groups (p=0.012) while other scores did show any statistically significant difference between the groups. For neonates weighing 2001-2499g none of the scores differed between the groups.

Table 9 A: Comparison of scores for Birth weight <1000grams.

Out come status		N	Mean	Std. Deviation	P value
Birthweight	Not Survived	13	883.615	140.3624	0.126
	Survived	13	1022.923	279.1235	
Gestation period	Not Survived	13	28.77	2.088	0.514
	Survived	13	28.69	1.750	
APGAR SCORE : 1 minute	Not Survived	13	5.846	1.1435	0.417
	Survived	13	6.462	.7763	
APGAR SCORE : 5 minute	Not Survived	13	8.077	.9541	0.184
	Survived	13	8.538	.6602	
SNAPPE II*	Not Survived	13	31.385	5.6795	**<0.001**
	Survived	13	16.846	6.6061	
CRIB II	Not Survived	13	9.462	3.2046	0.503
	Survived	13	8.769	1.7867	

* $p<0.0001$

Table 9 B: Comparison of scores for Birth weight = 1001 to 1500grams.

Out come status		N	Mean	Std. Deviation	P value
Birthweight (grams)	Not Survived	12	1258.667	220.6920	0.255
	Survived	89	1415.933	1146.0994	
Gestation period	Not Survived	12	29.42	1.379	**0.004**
	Survived	89	30.89	1.563	
APGAR SCORE : 1 minute	Not Survived	12	6.000	.9535	0.08
	Survived	89	6.551	.9172	
APGAR SCORE : 5 minute	Not Survived	12	8.417	.6686	0.09
	Survived	89	8.528	.6923	
SNAPPE II*	Not Survived	12	23.250	8.9048	**0.002**
	Survived	89	12.798	8.2987	
CRIB II	Not Survived	12	7.083	2.8110	0.162
	Survived	89	5.809	2.8118	

* $p<0.0001$

Table 9 C: Comparison of scores for Birth weight = 1501 to 2000grams.

Out come status		N	Mean	Std. Deviation	P value
Birthweight (grams)	Not Survived	7	1566.857	182.1789	0.559
	Survived	112	1891.214	1456.2790	
Gestation period	Not Survived	7	32.71	1.113	0.600
	Survived	112	32.47	1.329	
APGAR SCORE : 1 minute	Not Survived	7	5.857	1.9518	0.188
	Survived	112	6.955	.7400	
APGAR SCORE : 5 minute	Not Survived	7	8.429	1.1339	0.407
	Survived	112	8.813	.4938	
SNAPPE II*	Not Survived	7	17.143	8.0711	**0.012**
	Survived	112	10.455	6.6304	
CRIB II	Not Survived	7	3.714	1.6036	0.567
	Survived	112	4.196	2.1803	

* $p<0.05$

Table 9 D: Comparison of scores for Birthweight = 2001 to 2499 grams .

Out come status		N	Mean	Std. Deviation	P value
Birthweight (grams)	Not Survived	1	2500.000		0.973
	Survived	64	2435.063	1867.7631	
Gestation period	Not Survived	1	34.00		0.514
	Survived	64	33.30	1.064	
APGAR SCORE : 1 minute	Not Survived	1	6.000		0.417
	Survived	64	6.875	1.0616	
APGAR SCORE : 5 minute	Not Survived	1	8.000		0.184
	Survived	64	8.781	.5765	
SNAPPE II	Not Survived	1	31.000		**0.002**
	Survived	64	9.063	6.8264	
CRIB II	Not Survived	1	5.000		0.510
	Survived	64	3.859	1.7078	

P value : < 0.05

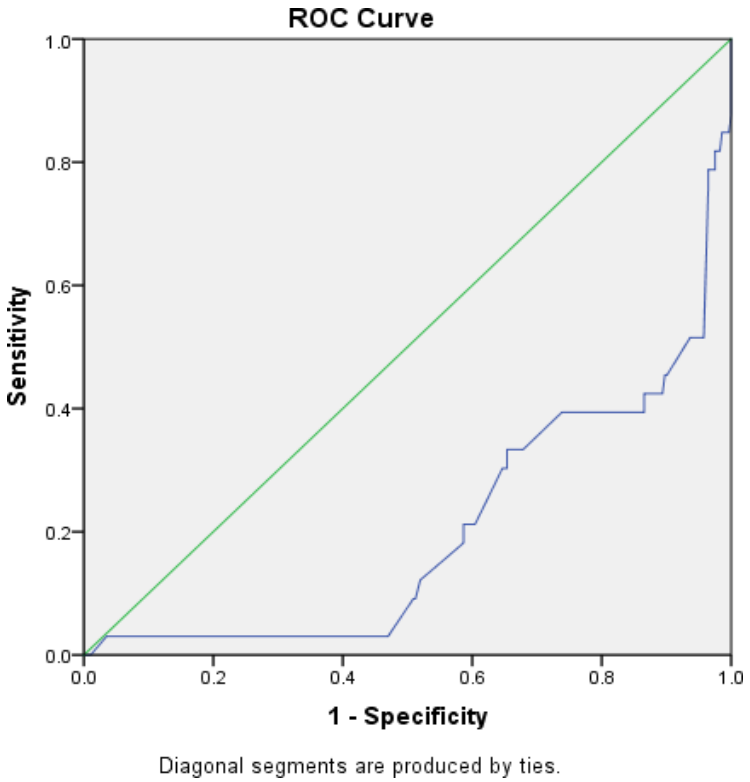
Gestation Age, Birth Weight as a predictor of mortality

Considering the study population birthweight and gestational age individually were poor predictor of mortality (AUC 0.2 & 0.25 respectively). The lower limit of the confidence interval for the both parameters is around 0.1 signifying poor predictive ability of these parameters. **(Tables 10 & 11, Figures 1 & 2)**

Table 10: Area Under the Curve – Birth Weight

Test Result Variable(s):	Birth Weight		
Area	Std. Error[a]	Asymptotic 95% Confidence Interval	
		Lower Bound	Upper Bound
.201	.042	.119	.283

Figure 14 – ROC Curve – Birth Weight

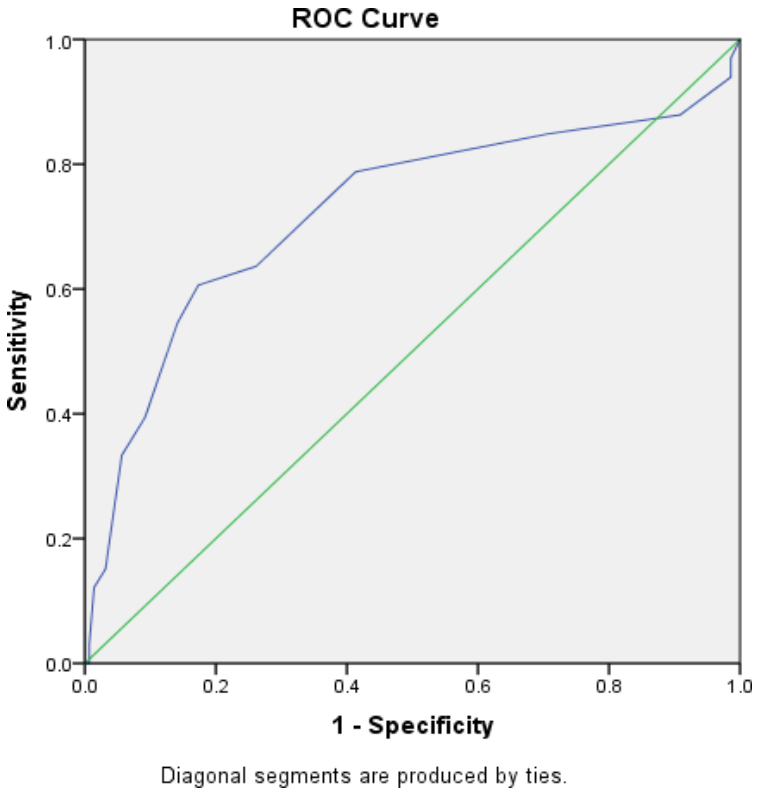


AUC:0.201

Table 11: Area Under Curve - Gestation

Test Result Variable(s):	Gestation period		
Area	Std. Error[a]	Asymptotic 95% Confidence Interval	
		Lower Bound	Upper Bound
.253	.049	.156	.350

Figure 15: ROC Curve - Gestation



AUC :0.253

CRIB – Predictor of Mortality

The CRIB score of the newborns that did not survive varied from 0 to 13, presenting an average score of 7.2 ± 3.4. The score of those that survived varied from 0 to 20, with an average of 4.8 ± 2.5. The difference between these scores was not statistically significant (p=0.69). Though the AUC for predicting mortality is 0.72 but the value of lower bound of the AUC is 0.61 implying poor predictive ability. The results stratified by birth weight categories are presented in the subsequent pages. The **table 12A & figure 16** shows that a cut off > 5.5 has 64% sensitivity and 74% specificity in predicting mortality.

Table 12: Area Under Curve – CRIB II

Test Result Variable(s):	CRIB 2		
Area	Std. Error[a]	Asymptotic 95% Confidence Interval	
		Lower Bound	Upper Bound
.725	.057	.614	.836

Table 12 A: Coordinates of the Curve

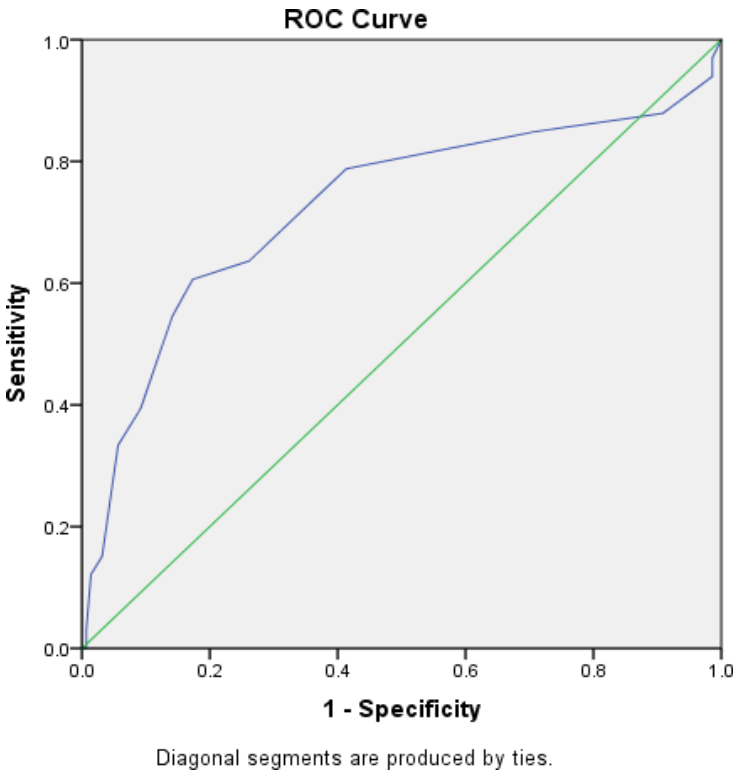
Test Result Variable(s):

Positive if Greater Than or Equal To[a]	Sensitivity	1 - Specificity
-1.000	1.000	1.000
.500	.970	.986
1.500	.939	.986
2.500	.879	.908
3.500	.848	.707
4.500	.788	.413

5.500	.636	.261
6.500	.606	.173
7.500	.545	.141
8.500	.394	.092
9.500	.333	.057
10.500	.152	.032
11.500	.121	.014
12.500	.030	.007
16.500	0.000	.007
21.000	0.000	0.000

The test result variable(s): CRIB II

Figure 16: ROC Curve – CRIB II



AUC 0.725

SNAPPE II as a predictor of mortality

The neonates that did not survive had SNAPPE II scores ranging from 5 to 45, with an average score of 25 ± 9. The score of those that survived varied from 0 to 32, with an average of 11 ± 7. The difference between these scores was statistically significant ($p<0.001$). Though the AUC for predicting mortality is 0.88 and width of the Confidence limits are narrow implying good predictive ability. The results stratified by birth weight categories are presented in the subsequent pages. The **table 13A & figure 17** shows that a cut off 17.5 and above has **78% sensitivity and 82% specificity** in predicting mortality in neonates born before the age of 34 weeks irrespective of birthweight status.

Table 13: Area Under Curve – SNAPPE II

Area	Std. Error[a]	Asymptotic 95% Confidence Interval	
		Lower Bound	Upper Bound
.879	.034	.813	.946

Table 13 A: Coordinates of the Curve

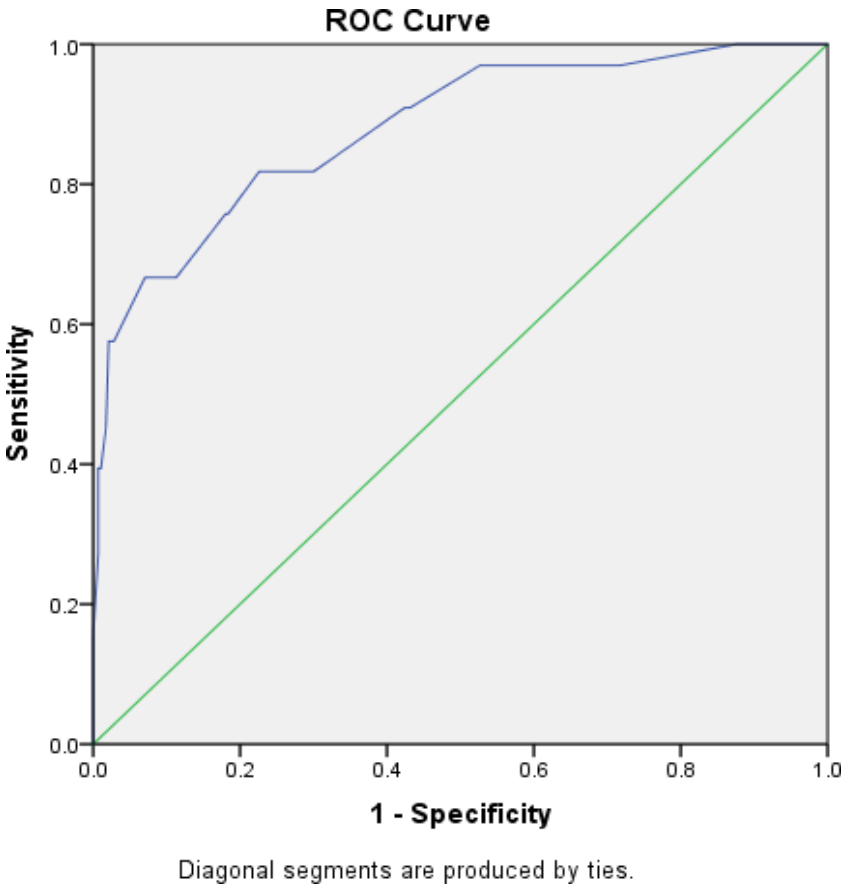
Test Result Variable(s):

Positive if Greater Than or Equal To[a]	Sensitivity	1 - Specificity
-1.000	1.000	1.000
1.000	1.000	.890
2.500	1.000	.887
3.500	1.000	.880
4.500	1.000	.876
5.500	.970	.717
6.500	.970	.707

7.500	.970	.693
8.500	.970	.565
9.500	.970	.527
11.000	.909	.431
12.500	.909	.424
14.000	.818	.300
15.500	.818	.251
16.500	.818	.237
17.500	.818	.226
18.500	.758	.184
19.500	.758	.180
20.500	.667	.113
22.000	.667	.106
23.500	.667	.074
24.500	.667	.071
25.500	.576	.028
26.500	.576	.021
27.500	.455	.018
28.500	.394	.011
29.500	.394	.007
30.500	.364	.007
31.500	.273	.007
33.000	.152	0.000
35.000	.121	0.000
36.500	.061	0.000
41.000	.030	0.000
46.000	0.000	0.000

The test result variable(s): SNAPPE II has at least one tie between the positive actual state group and the negative actual state group.

Figure 17: ROC Curve – SNAPPE II

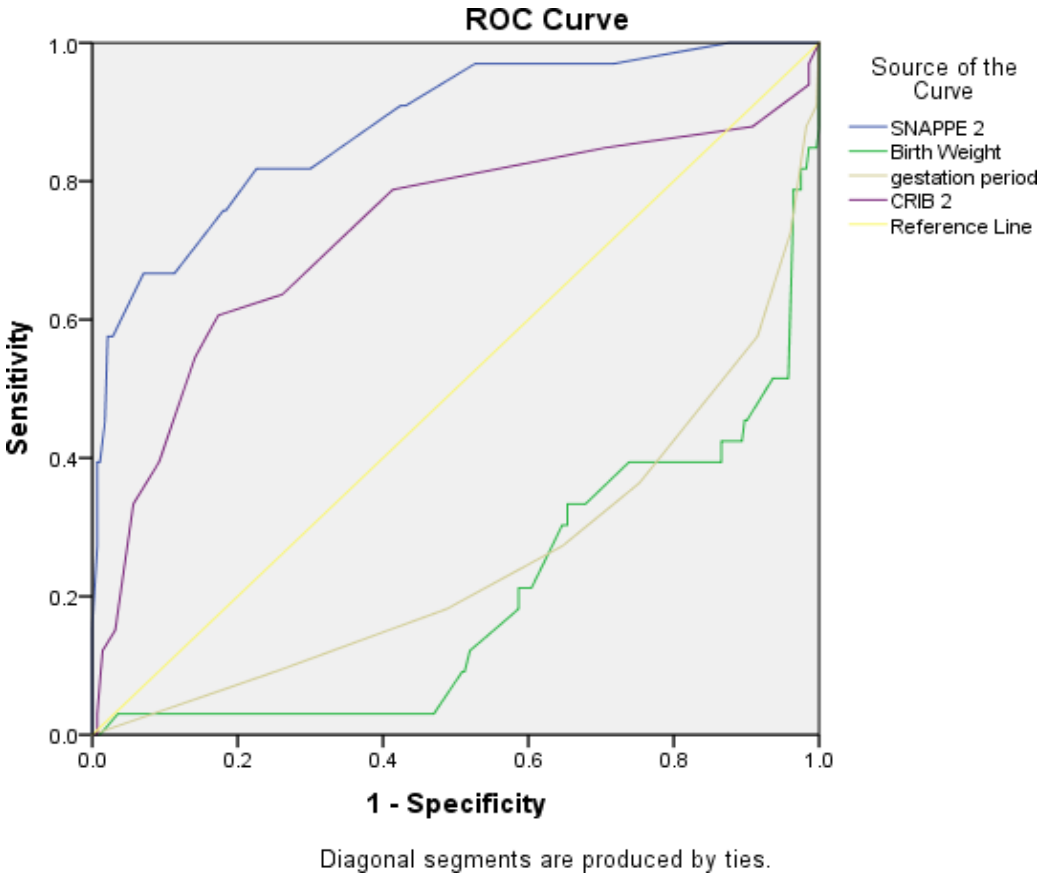


AUC :0.879

Comparing Gestation age, Birth weight, CRIB II and SNAPPE II.

The scoring systems and other factors are analysed using ROC curves.(figure 18). With a significant difference in AUCs, SNAPPE II had a higher AUC for predicting mortality than CRIB-II: 0.88 (95% confidence interval CI: 0.82 - 0.95) vs. 0.7 (95%. CI : 0.62. - 0.8). Better discriminatory ability was enabled by the SNAPPE II grading system. (Figure 18).

Figure 18: ROC Comparing all the parameters in the whole study population



Predictive role of Scoring systems in different weight categories

Very low birth neonates

When compared to CRIB-II, SNAPPE II showed a higher AUC in very low birth neonates, with a significant difference between the two AUCs of 0.8 (95% confidence interval CI: 0.68-0.93) vs. 0.7 (95% confidence interval CI: 0.5-0.8). SNAPPE II scoring system had better discriminatory ability **(Table 14 & Figure 19)**. A close look on coordinates from **table 14A & figure 19** shows that a CRIB II cut off score of **6.5** and above has **83% sensitivity and 73% specificity** in predicting mortality. While SNAP PE II cut off score of **17.5** and above has **75% sensitivity and 68%** specificity in predicting mortality in very low birth infants. As can be seen from the figure 6 both the gestation age and birth weight were poor predictors of mortality in sub group of neonates .

Table 14: Area Under the Curve- **(1001g- 1500g) SNAPPE II, Birth Weight, Gestation period, CRIB II**

Test Result Variable(s)	Area	Std. Error[b]	Asymptotic Sig.[c]	Asymptotic 95% Confidence Interval	
				Lower Bound	Upper Bound
SNAPPE II	.805	.065	.001	.677	.933
Birth Weight	.458	.115	.640	.232	.684
Gestation period	.245	.072	.004	.105	.385
CRIB II	.708	.091	.020	.531	.886

Figure 19: ROC Curve all the parameter in very low birth neonates.

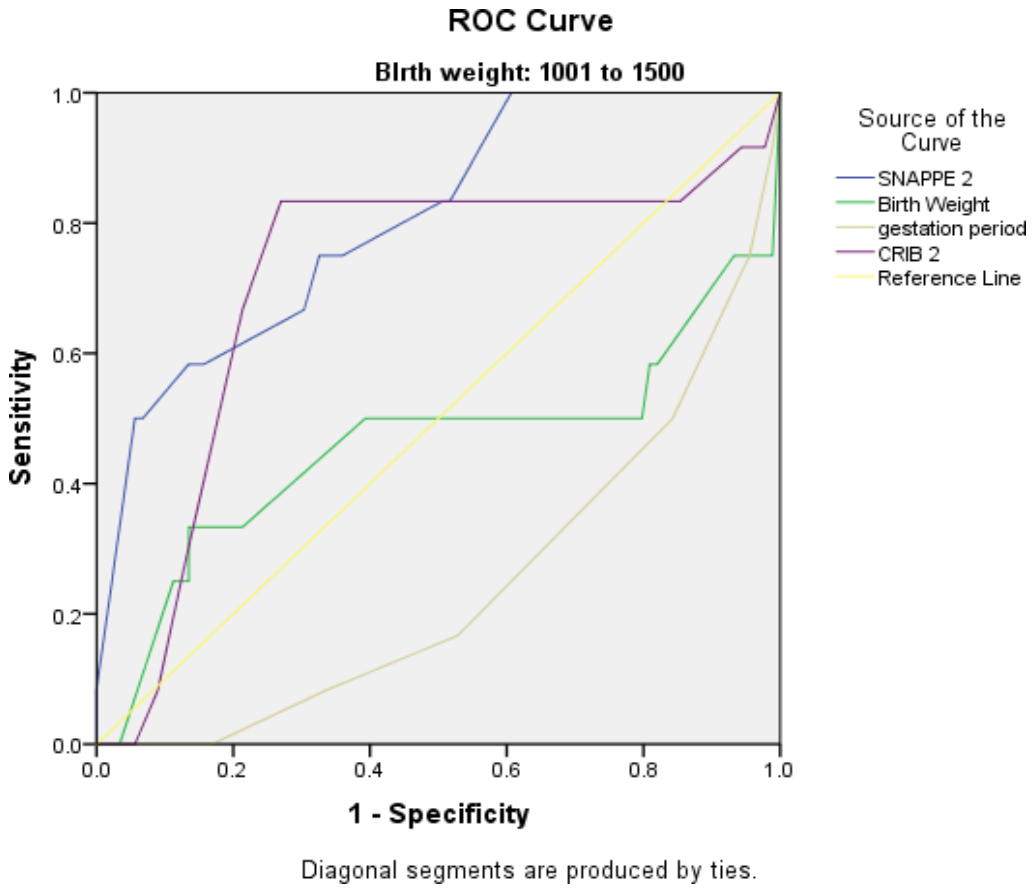


Table 14 A: Coordinates of the Curve[a]

Test Result Variable(s)	Positive if Greater Than or Equal To[b]	Sensitivity	1 - Specificity
SNAPPE II	-1.000	1.000	1.000
	1.000	1.000	.899
	2.500	1.000	.888
	4.000	1.000	.876
	5.500	1.000	.787
	6.500	1.000	.764
	7.500	1.000	.742
	8.500	1.000	.618
	9.500	1.000	.607
	11.000	.833	.517
	12.500	.833	.506
	14.000	.750	.360
	16.000	.750	.337

	17.500	.750	.326
	19.000	.667	.303
	20.500	.583	.157
	22.000	.583	.146
	24.000	.583	.135
	25.500	.500	.067
	26.500	.500	.056
	27.500	.417	.045
	30.000	.250	.022
	34.000	.083	0.000
	37.000	0.000	0.000
Birth Weight	999.000	1.000	1.000
	1026.500	.750	.989
	1056.500	.750	.978
	1062.000	.750	.966
	1067.000	.750	.955
	1075.000	.750	.944
	1090.000	.750	.933
	1105.000	.583	.820
	1115.000	.583	.809
	1130.000	.500	.798
	1145.000	.500	.775
	1155.000	.500	.753
	1165.000	.500	.719
	1185.000	.500	.697
	1219.500	.500	.596
	1239.500	.500	.584
	1270.000	.500	.573
	1310.000	.500	.483
	1335.000	.500	.472
	1355.000	.500	.438
	1375.000	.500	.427
	1392.500	.500	.404
	1397.500	.500	.393
	1407.000	.333	.213
	1424.500	.333	.202
	1442.500	.333	.191
	1455.000	.333	.157
	1472.000	.333	.135
	1487.000	.250	.135
	1495.000	.250	.112
	1538.000	0.000	.034
	1738.000	0.000	.022
	6951.000	0.000	.011
	12003.000	0.000	0.000
Gestation period	26.00	1.000	1.000
	27.50	.917	.989
	28.50	.750	.955

	29.50	.500	.843
	30.50	.167	.528
	31.50	.083	.337
	32.50	0.000	.169
	33.50	0.000	.067
	35.00	0.000	0.000
CRIB II	-1.000	1.000	1.000
	1.000	.917	.978
	2.500	.917	.944
	3.500	.833	.854
	4.500	.833	.685
	5.500	.833	.494
	6.500	.833	.270
	7.500	.667	.213
	8.500	.250	.124
	9.500	.083	.090
	10.500	0.000	.056
	11.500	0.000	.034
	16.000	0.000	.011
	21.000	0.000	0.000

The test result variable(s): SNAPPE II, Birth Weight, gestation period , CRIB II has at least one tie between the positive actual state group and the negative actual state group.[a]

a. BIrth weight = 1001 to 1500g

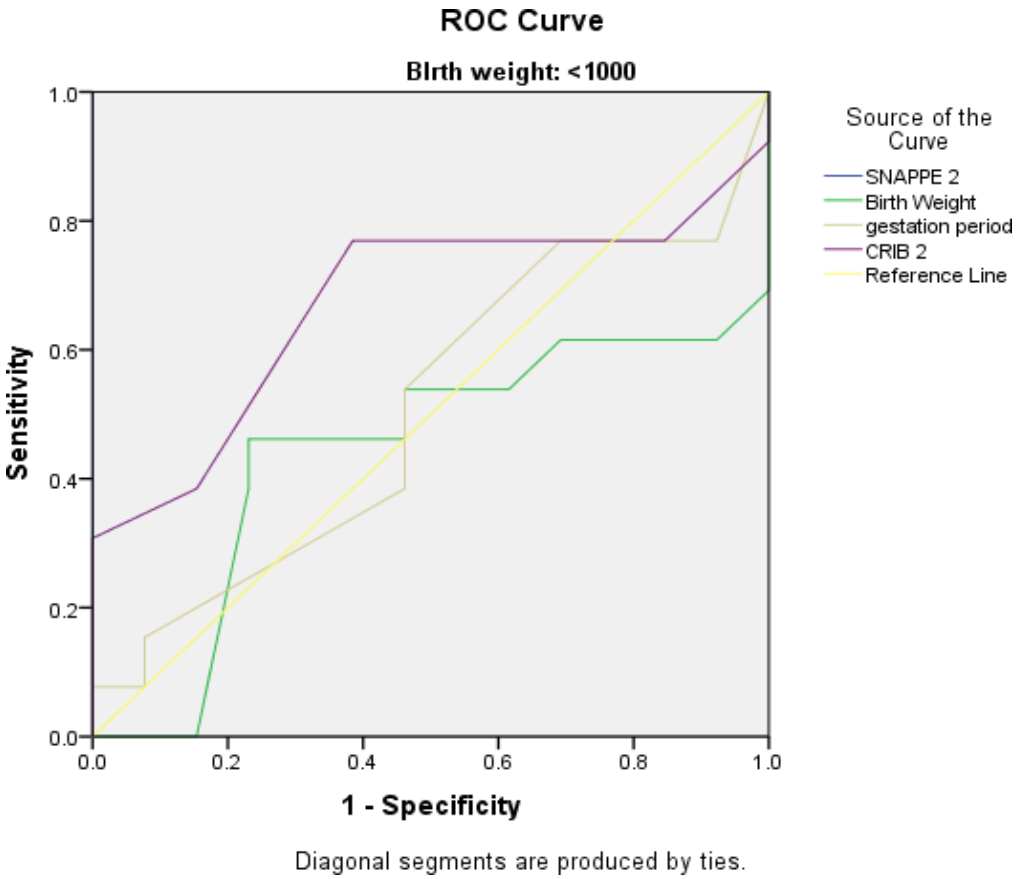
Extremely low birth weight neonate

In extremely low birth neonates only CRIB II had higher AUC compared with other parameters AUC: 0.6 (95% confidence interval CI: 0.45–0.89) having significant difference between AUCs. A close look on coordinates from **table 15 & figure 20** shows that a CRIB II cut off score of 9.5 and above has 77% sensitivity and 62% specificity in predicting mortality. As can be seen from the figure 7 both the gestation age and birthweight were poor predictors of mortality in sub group of neonates.

Table 15 : Area Under the Curve - (<1000g)SNAPPE II, Birth Weight, Gestation period, CRIB II.

Test Result Variable(s)	Area	Std. Error[b]	Asymptotic Sig.[c]	Asymptotic 95% Confidence Interval	
				Lower Bound	Upper Bound
SNAPPE II	1.000	0.000	.000	1.000	1.000
Birth Weight	.441	.120	.608	.205	.677
Gestation period	.506	.117	.959	.277	.735
CRIB II	.672	.113	.137	.450	.893

Figure 20: ROC curve all the parameters in extremely low birth weight neonates



Low birth weight neonates

For predicting mortality in low birthweight neonates SNAPPE II Scores provided better information compared to other parameters. (AUC – 0.75, CI: 0.5 to 0.90). The other parameters did not predict well. As can be seen from Figure 21, a SNAPPE II score of 11.5 resulted in a sensitivity of 85% and a specificity of 58%.

Table 16 : Area Under the Curve-(1501g- 2000g)SNAPPE II, Birth Weight, Gestation period, CRIB II.

Test Result Variable(s)	Area	Std. Error	Asymptotic Sig.	Asymptotic 95% Confidence Interval	
				Lower Bound	Upper Bound
SNAPPE II	.745	.099	.030	.551	.939
Birthweight	.232	.057	.018	.121	.343
Gestation period	.532	.108	.778	.321	.743
CRIB II	.509	.127	.937	.260	.757

Figure 21 : ROC curve all the parameters in low birth weight neonates (1501-20

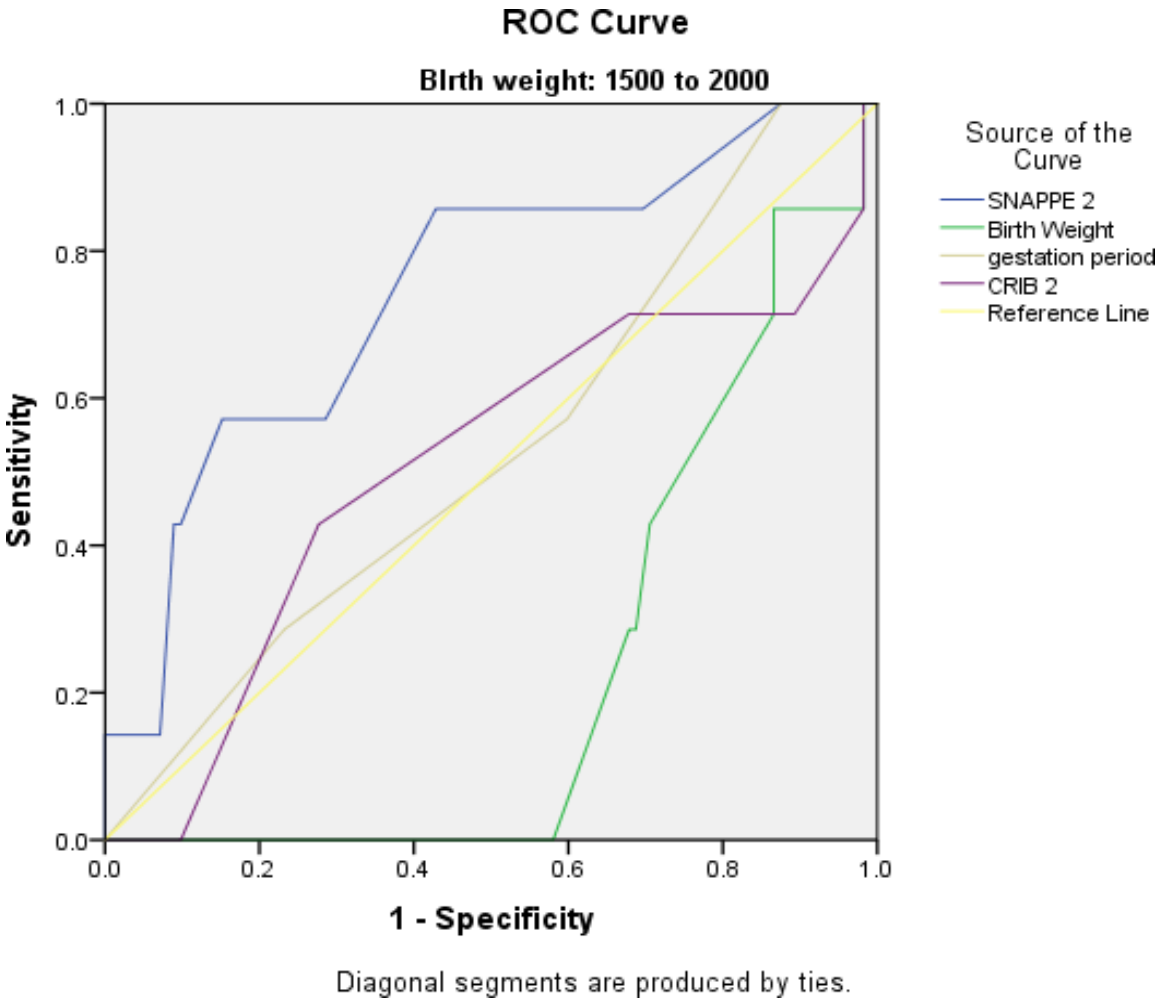


Table 17 : Comparison of Gestational age between CRIB II and SNAPPE II

POG	CRIB II			SNAPPE II		
Weeks	AUC	Sensitivity	Specificity	AUC	Sensitivity	Specificity
26 – 28	0.540	44%	64%	0.798	66%	**95%**
28 – 32	0.737	61%	**80%**	0.854	78%	**79%**
32 – 34	0.679	**80%**	**40%**	0.894	66%	**90%**

CRIB II score had good predictive ability for neonates with gestation age of 28 – 32 weeks with specificity of 80%, neonates with 32 -34 weeks had 80% sensitivity but specificity was 40% ; only as there is no standardized scoring system for neonates above 32 weeks in CRIB II scoring system.

SNAPPE II score had good predictive ability for neonates in all three subgroups. Sensitivity and specificity for 26 - 28 weeks was 66% and 95% , 28 -32 weeks 78% and 79% ,32 -34 weeks 66% and 90% respectively. Implying SNAPPE II had good predictivity in all preterm neonate category in the study.

Table 18 : Comparison on birth weight between CRIB II and SNAPPE II

Weight	CRIB II			SNAPPE II		
	AUC	Sensitivity	Specificity	AUC	Sensitivity	Specificity
ELBW	0.672	76%	62%	0.95	84%	**95%**
VLBW	0.708	66%	79%	0.805	75%	68%
LBW	0.509	72%	34%	0.745	85%	58%

Comparison of the two score CRIB II and SNAPPEII among birthweight categories showed good sensitivity and specificity in both the groups for ELBW (76%,62%) vs (84%,95%), VLBW (66% ,79%) vs (75%,68%) respectively, whereas in LBW neonates CRIB II sensitivity was 72% but specificity was low 34% but SNAPPE II had comparatively good sensitivity and specificity for this group of neonates too i.e 85% and 58% respectively.

DISCUSSION

The study evaluated predictive role of scorings systems CRIB-II and SNAP PE II in 324 pre term infants at tertiary care hospital from South India with a special focus on very low birthweight neonates.

The mean SNAP PE II scores were significantly higher in neonates who expired compared to those who survived (25.4 vs 11.2). The SNAP PE II score was noted to be high in neonates who died in Category B (BW 1001 to 1500g) and Category C (BW 1501 to 2000g) but not in Category A (BW) < 1000g) & Category D (BW 2001 to 2499g) which we attribute to the small number of neonates included from this group. Analysis of the ROC curve for SNAPPE II showed an area under the curve with moderate values for Category B (**Table 14, AUC - 0.8**).

The CRIB II scoring also showed a significant predictive ability only in Category B (BW) < 1000g]) [**Table 14, AUC -0.7]** and was not significant in other weight groups. In the ELBW neonates CRIB II was only scoring parameter which performed better compared to other variables **(Table 15, AUC – 0.67)**

The score had superior discriminatory capacity than birthweight alone (Az = 0.78) in the original study that led to the establishment of CRIB (area under the ROC curve: Az = 0.90).[27] In comparison the present study reports lower discriminatory ability for CRIB II scoring in both very low birthweight neonates and pre term neonates . The possible explanation could be lesser number of neonates included from that extremely low birth weight category. The simplicity of CRIB's data collection is a major benefit, as each neonate's calculation only takes five minutes, as opposed to 20- or 30-minute calculations for some of the more difficult scores, such SNAP, SNAP-PE..[5]

Problems like Fio2 use and data collection upto 12 hours of admission were avoided in CRIB II. Dalili et al assessed CRIB II and SNAP PE II for predicting mortality in preterm (<32 weeks) or low birthweight neonates (<1500 g) admitted to NICU in Iran and reported a cut-off of 27.5 for SNAPPE II with sensitivity and specificity of 84% and 79% respectively and reported accuracy of 0.887 (CI 95%:0.847- 0.927) (P<0.05). In contrast the present study includes all newborns below the gestational age of 34 weeks.

The cut off obtained in the present study for SNAPPE II is also lower (17.5) and sensitivity and specificity being 78% and 82% respectively (Table 14 A) while the values reported for sensitivity and specificity by Dalili et Both are 79.05% (CI 95%: 79.051-79.052) and 84.44% (CI 95%: 84.443-84.445) with a cut-off point of 27.5, respectively. Additionally, at the cut-off point of 29 +/- 5, these similar values were 82.22% (CI 95%: 82.222 - 82.223) and 81.42% (CI 95%: 81.422 - 8.423). The same study reported a cut off point of 8.5 for CRIB II system with a sensitivity and specificity of 74.4% and 78.65% respectively. In comparison our study has reported a CRIB cut off value of 6.5 with 64% sensitivity and 74% specificity.

In Richardson's et al comparison, SNAP predicted death better than birth weight alone (Az 0.87 v 0.77), and SNAP-PE was even better (Az 0.93).[30] In comparison the AUC obtained in the present study are on lower range.

Comparison with other studies

Thimoty *et al* evaluated SNAPPE II as the predictor of neonatal mortality in NICU at a general hospital Indonesia reported a good correlation between SNAPPE II and mortality and suggested a cut-off of 51. This cut off seems several times higher than the cut off obtained in the current study (17.5). The AUC reported in that study was (0.933, 95% CI- 0.843-1) was high compared to our study.

Our study is similar to a study done in Nepal by Muktan et al where SNAPPE-II score validity as neonatal mortality predictor and length of stay in NICU was evaluated. It was found that the cut-off score 38 for predicting mortality, sensitivity 84.4% and specificity 91%9. In comparison to the newborns that survived, the babies who died had significantly higher median (IQR) SNAP PE II scores [57 (42 - 64) vs. 22 (14 - 32), P 0.001]. The ROC curve's area under the curve (AUC) was 0.917 (95% CI: 0.854-0.980). The best cut off SNAPPE-II score in predicting overall mortality was 38. Sensitivity, specificity, positive and negative predictive value of score ≥ 38 in estimating overall mortality were 84.4, 91, 66.7 and 96.5% respectively. Though the cut offs are slightly higher implication is similar to our study.

A prospective study by Eldin from Egypt reported with a cut-off point of 11, the CRIB II score is a reliable measure for LBW risk assessment initially and had good specificity (82.4%) and high sensitivity (94.9%)7. Additionally, ROC curve analysis showed that the optimal cut-off for predicting death were 11 for CRIB II score, 28 for gestational age, and 1100 for birthweight. These values had the best sensitivity and specificity. While the age and gestation were poor predictors of mortality in our study the cut off value for CRIB II was **6.5.** Our findings are in agreement with Eldin et al. study results , who observed that the CRIB II score had the best accuracy for extremely low birth children (86.7%).

The SNAPPE II scoring results obtained in our study are similar to a multicentric study in the Indian population by Vardhelli *et al* who compared SNAP PE II score and CRIB-II score in neonate illness severity scores assessment for mortality and morbidity prediction in neonates with gestational age of ≤ 32 weeks and found good predictive ability for in hospital mortality with SNAPPE-II (AUC: 0.78)[39]. In contrast our study did not find significant predictive ability for CRIB II for pre term as a whole. Unlike study by Vardhelli we found dissimilar AUC with CRIB-II and SNAPPE-II. Our observations are in agreement with the results of a study by Eldin et al., who observed that the CRIB II score had the best accuracy (the percentage of true results, including true positives and true negatives) for extremely low birth children (86.7%).

In a study conducted by Harsha and Archana SNAPPE-II score of 37 or higher was associated with an increased death rate, which is once more higher than what our study[8] reported. However, unlike Harsha's study, our attention was limited to only preterm infants. They claimed that, regardless of gestational ages, SNAPPE-II demonstrated a good connection with outcomes in terms of mortality. In this study, increased mortality was linked to SNAPPE-II scores of 37 and above.

Gagliardi *et al* evaluated the propensity for CRIB, CRIB-II, and SNAPPE-II to predict in-hospital mortality in a cohort of VLBW neonates admitted to 12 NICUs taking part in a regional area in Italy between 1999 and 2001, and found that CRIB and CRIB-II exhibited more discrimination than SNAPPE-II (AUC 0.90 and 0.91 vs 0.84,)[6]. However, these figures are before the advent of ante natal steroids and surfactants. So retrospective AUC comparison may not be appropriate. Unlike their study we did not find any association between caesarean section and survival.

SNAPPE (devised and primarily used in the United States and Canada) is used in neonates of all birth weight and all GA, whereas CRIB II (designed in the United Kingdom and

mainly employed in Europe) can only be applied to VLBWI. The practice is heterogenous in the Indian setting with several scores being used.

There could be several reasons for the different cut off, AUC, sensitivity and specificity values compared to other studies. The sample had a relatively less number of children below 1000 g. Accordingly the results of scoring systems obtained from this category could only be an estimate.

Strengths

The study is conducted in large group of pre term infants (324). Other studies which have evaluated scoring system from developing countries have been conducted smaller group of children.

There is some uncertainty with the regard to the application of CRIB II scoring in different classes of low birthweight patients. The current study found significant application for CRIB -II scoring only in the category B (BW- 1000- 1500) but not in other groups. Whereas SNAPPE II system can be applied in all the age groups except Category A (BW< 1000).

Limitations

The number of infants in some of the weight categories (Extremely low birth weight) were relatively less in comparison to other weight categories. The actual outcomes (death and survival) were again few in some of the sub groups. This could be because of a higher quality of care being provided so that lesser number of infants are dying.

Implications

The study of scoring system has to be evaluated based on the clinical profile of neonates and in a different resource setting. This may facilitate prioritising neonates with illnesses and providing their parents with information about the severity of their conditions. The validity of scoring systems furthers helps in planning NICU manpower, training, optimizing the utilizations of resources.

SUMMARY

- In the study population of 324 neonates, the average birth weight of neonates admitted to the NICU was 1760 grams and the gestation period was 32 weeks. Between groups that survived and those that did not, there was no significant difference in terms of baseline maternal characteristics except that pregnancy-induced hypertension had significant value among the maternal complications.
- Blood pressure recording among the neonates had significant differences among the two groups compared to other base neonatal variables.
- Base excess values differed between the two groups compared to laboratory parameters between the two groups of neonates.
- Among neonates admitted in our NICU, mean CRIB II - 5.1 and SNAPPE II -12.7. The score in neonates who survived was 4.8 in CRIB II and 11.2 in SNAPPE II.
- CRIB II and SNAPPE II scores on application to different birthweight showed a significant difference between the groups. SNAPPE was more reliable without any distinction between survived and not survived neonates.
- Individually birth weight and gestational age are poor mortality predictors.
- SNAPPE II score had a better predictive potential of mortality among neonates born before 34 weeks, irrespective of the birth weight.
- SNAPPE II has better predictivity of mortality among neonates admitted to NICU in terms of both birth weight and gestational age considered.
- SNAPPE II score differed significantly from the CRIB II score in neonates more than 2000g and more than 32 weeks of gestation.

- CRIB 2 scoring system had good predictivity for neonates between 28 - 32 weeks with a sensitivity of 61%, specificity of 80% and for less than 1500 grams as 66% sensitivity and 79% specificity.
- SNAPPE II had better sensitivity and specificity for neonates till 34 weeks of gestation and 2500 grams.
- SNAPPE II predictive scores for extreme preterm were better than CRIB II, with sensitivity and specificity of 95% and 64%, respectively.
- Survival rates of neonates between 28-32 and 32-34 weeks were significant, with statistically significant in 28-32 weeks implementing good NICU care
- CRIB II scoring had good predictive ability in neonates between 26 to 32 weeks of gestation in terms of sensitivity and specificity but to lack of standardization of score for neonates above 32 weeks; CRIB II score is not applicable to neonates above 32 weeks.
- SNAPPE II score has good mortality predictor ability in all preterm neonates between 26 to 34 weeks of gestation and low birthweight groups SNAPPE II has better sensitivity and specificity in all groups studied.

CONCLUSION

- Depending on the outcomes, it can be concluded that the SNAPPE II score is a suitable tool for estimating mortality in neonates with very low birthweights and gestations between 28 and 32 weeks.
- SNAP PE II score is a more accurate predictor of neonatal mortality than the CRIB II score.
- Compared to birthweight and gestational age alone, CRIB-II and SNAPPE II both superior predictors of the outcome of mortality.

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ANNEXURE – I

ETHICAL CLEARANCE CERTIFICATE

IEC/NO-09/2021 Date-22/01/2021

B.L.D.E. (DEEMED TO BE UNIVERSITY)

(Declared vide notification No. F.9-37/2007-U.3 (A) Dated. 29-2-2008 of the MHRD, Government of India under Section 3 of the UGC Act, 1956)

The Constituent College

SHRI. B. M. PATIL MEDICAL COLLEGE, HOSPITAL AND RESEARCH CENTRE

INSTITUTIONAL ETHICAL CLEARANCE CERTIFICATE

The Institutional ethical committee of this college met on 11-01-2021 at 11-00 am to scrutinize the synopsis of Postgraduate students of this college from Ethical Clearance point of view. After scrutiny the following original/corrected and revised version synopsis of the Thesis has been accorded Ethical Clearance

Title: Comparision of Predictive Power of CRIB-II and SNAPPE-II in Mortality risk of early pattern neonate and Very low birth weight admitted to the Neonatal Intensive Care Unit.

Name of PG student: Dr Anju.T , Department of Paediatrics

Name of Guide/Co-investigator: Dr M.M.Patil, Professor of Paediatrics

DR .S.V.PATIL
CHAIRMAN, IEC
Institutional Ethical Committee
B L D E (Deemed to be University)
Shri B.M. Patil Medical College,
VIJAYAPUR-586103 (Karnataka)

Following documents were placed before Ethical Committee for Scrutinization:

1. Copy of Synopsis / Research project
2. Copy of informed consent form
3. Any other relevant documents.

9

ANNEXURE-II

RESEARCH INFORMED CONSENT FORM

B.L.D.E. Deemed to be University

SHRI B.M. PATIL MEDICAL COLLEGE HOSPITAL AND RESEARCH CENTRE, VIJAYAPUR-586103

TITLE OF THE PROJECT :" **Predictive Power of CRIB-II and SNAPPEII in Mortality Risk of Early Preterm Neonate and/or Low Birth Weight"**

"

GUIDE : Dr M M Patil MD
PROFESSOR , DEPARTMENT OF PAEDIATRICS

PG STUDENT: : Dr .ANJU T

PURPOSE OF RESEARCH:

I have been informed that the present study will help in screening for hearing loss in high risk neonates admitted to Shri B.M. Patil Medical College.

PROCEDUR E:

I understand that after having obtained a detailed clinical history, thorough clinical examination and relevant investigations, hearing screening will be done in high risk neonates.

RISK AND DISCOMFORTS:

I understand there is no risk involved and that the baby may experience some pain and discomforts during the examination. This is mainly the result of the condition and the procedures of this study are not expected to exaggerate these feelings which are associated with the usual course of treatment.

BENEFITS:

I understand that my participation in the study will have no direct benefit to me other than the potential benefit of the research and education.

CONFIDENTIALITY:

I understand that the medical information produced by this study will become a part of hospital records and will be subject to the confidentiality. Information of sensitive personal nature will not be part of the medical record, but will be stored in the investigations research file.

If the data are used for publication in the medical literature or for teaching purpose, no name will be used and other identifiers such as photographs will be used only with special written permission. I understand that I may see the photograph before giving the permission

REQUEST FOR MORE INFORMATION:

I understand that I may ask more questions about the study at any time;

Dr. ANJU T , at the department of Pediatrics is available to answer my questions or concerns. I understand that I will be informed of any significant new findings discovered during the course of the study, which might influence my continued participation. A copy of this consent form will be given to me to keep for careful reading.

REFUSAL FOR WITHDRAWAL OF PARTICIPATION:

I understand that my participation is voluntary and that I may refuse to participate or may withdraw consent and discontinue participation in the study at any time without prejudice. I also understand that Dr. ANJU T may terminate my participation in the study after she has explained the reasons for doing so.

INJURY STATEMENT:

I understand that in the unlikely event of injury to my baby resulting directly from baby's participation in this study, if such injury were reported promptly, the appropriate treatment would be available to the baby. But, no further compensation would be provided by the hospital. I understand that by my agreements to participate in this study and not waiving any of my legal rights.

I have explained---------- to the purpose of the research, the procedures required, and the possible risks to the best of my ability.

_____ _____

Dr. ANJU T Date

(Investigator)

PARENTS / GUARDIAN CONSENT STATEMENT:

We confirm that Dr.ANJU T is doing a study on **"Predictive Power of CRIB-II and SNAPPE-II in Mortality Risk of Early Preterm Neonate and/or Low Birth Weight**" a hospital based prospective observational study Dr ANJU T has explained to us the purpose of research and the study procedure. We are willing to give as much as information required for the study and consent for investigations and the possible discomforts as well as benefits. We have been explained all the above in detail in our own language and we understand the same

Therefore we agree to give consent for the baby's participation as a subject in this research project.

_____ _____

(Parents / Guardian) Date

_____ _____

(Witness to signature) Date

Predictive Power of CRIB-II and SNAPPE-II in Mortality Risk of Early Preterm Neonate and/or Low Birth Weight

PROFORMA

1. Baby of:

2. IP No:

3. Date of Birth:

4. Gestational Age:

5. Time of birth:

6. Classification: AGA / SGA/ LGA

7. Sex:

8. Birth weight:

9. Gravida:

10. PIH: YES NO

11. GDM: YES NO

12. PROM: YES NO

13. Maternal Thrombocytopenia: YES NO

14. Maternal Fever: YES NO

15. Maternal H/O UTI: YES NO

16. Chorioamnionitis: YES NO

17. H/O Maternal vaginitis: YES NO

18. MODE OF DELIVERY: Normal vaginal/caesarean/forceps/vacuum

19. APGAR SCORE: 1min 5min

Need for resuscitation YES NO

IF YES

20. NICU admission in hours:

21. Primary Respiratory Support: Nasal Prongs/Hood O2/CPAP/HFNC/SIMV

22. Clinical Sepsis:

a) Respiratory instability: apnea, tachypnea, increased o2 requirement/

Requirement for ventilation support : YES NO

No of days on ventilator

b) Cardiovascular instability: heart rate -
urine output (<1ml/kg/hr.)-
blood pressure (MAP)
Capillary filling time

c) Modified body temperature

d) Gastrointestinal instability: feeding intolerance poor sucking abdominal Distension

e) Skin and subcutaneous lesions: petechial rash or sclerema.

f) CNS: irritability, lethargy, hypotonia, seizure.

24. Early on Sepsis: a) Clinical Sepsis b) Probable Sepsis c) Proven Sepsis

23. ECHO

26. Lab Parameter:

a) White blood cells count

c) Platelet count

d) CRP

e) Glucose

f) Arterial Blood gas analysis

pH
pCO2
pO2
Hco3
Metabolic acidosis with base excess (BE)
Serum lactate >2mMol/l

l) **B**lood Culture

27. Early onset sepsis YES NO

28. Early onset sepsis a) Clinical b) Probable c) Proven

27. Late onset sepsis YES NO

28. Late onset sepsis a) Clinical b) Probable c) Proven

29. Antibiotics received amongst below

a) Piptaz b) Amikacin c) Meropenam d) Vancomycin

d) Linezolid e) Colistin f) Amphotericin B

30. Culture positive in first 72 hours YES NO

If culture positive Organism

31. Need for inotrophic support YES NO

If used: inotroph dopamine/adrenaline/nor adrenaline/sildenafil/milrinone/

32. HIE YES NO

33. HIE I / II / III

34. Therapeutic Hypothermia YES NO

35. Feeds intolerance YES NO

36. NPO days

37. Final outcome a) Discharged b) Referred c) DAMA d) Death

DIAGNOSIS

CRIB SCORING

PARAMETERS	SCORE
Birth weight	
Gestational age	
Gender	
Base excess	
Temperature	

SNAPPE –II SCORE

PARAMETERS	SCORE
Blood pressure (MAP)	
Temperature	
Serum ph	
PaO2/FiO2 Ratio	
Urine output	
Seizures	
Weight	
Gestational age	
Five minute APGAR score	

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Baby of	IP No	Date of Birth	Gestational Age		Gestation	Time of Birth	Sex	Birth Weight	gestation p	BIrth weight	Classific	O	Obstr	Obst	Ob	PIH	GDM	PROM	Matern
Savitri aravind ganga	111959	4/1/2022	34 + 1 week		34_+1-36+6	10:45:00 AM	Female	2000.0	34	1500 to 2000	AGA	1	1	1		No	No	No	NO
SWALEHA MAHMAD	131810	8/2/2021	34 WEEKS		34_+1-36+6	4:00:00 AM	Male	2000.0	34	1500 to 2000	SGA	3	1	1	1	YES	No	No	YES
Mehajabeen mabusa	148377	5/2/2022	34+2weeks		34_+1-36+6	2:00:00 PM	Female	2200.0	34	2001 to 2499	AGA	4	4	4		No	No	No	NO
Swati Suresh hosam	58390	2/11/2022		28	28-30	5:00:00 PM	Male	750.0	28	<1000	SGA	1	1	1		YES	No	YES	NO
Kalavati jatteppa puja	18123	7/5/2021		33	30+1 - 34	7:00:00 AM	Female	1300.0	33	1001 to 1500	AGA	3	1		1	No	No	No	NO
Bhagyashree D Tang	179048	5/26/2022	31+2		30+1 - 34	5:41:00 AM	Male	1000.0	31	<1000	AGA	2	1	1		YES	No	No	NO
VAISHALI SADASHIV	172067	8/20/2021	34+4		34_+1-36+6	7:10:00 AM	Female	2200.0	34	2001 to 2499	SGA	1				YES	No	No	NO
Neetaganiger	119120	4/7/2022	33week		30+1 - 34	4:37:00 PM	Male	2000.0	33	1500 to 2000	AGA	2	1	1		YES	No	No	NO
Soudaya Sharanbasa	104610	3/25/2022	32 weeks + 5 Days		30+1 - 34	11:45:00 AM	Female	1490.0	32	1001 to 1500	AGA	2	2	1	1	No	No	YES	NO
Aishwarya praveen	173401	3/18/2022		33	30+1 - 34	7:30:00 PM	Male	1400.0	32	1001 to 1500	AGA	1	1			YES	No	No	NO
AAishwarya Chandra	169749	9/7/2021	33+3		30+1 - 34	12:15:00 PM	Male	2000.0	33	1500 to 2000	AGA	1				YES	No	No	NO
Asma Wasim maniya	249023	11/5/2021	34+1		34_+1-36+6	7:00:00 PM	Female	2100.0	33	2001 to 2499	AGA	1	1	1		No	No	No	NO
Deepa prakash Naik	248631	11/10/2021	32+4		30+1 - 34	2:31:00 AM	Female	1500.0	32	1001 to 1500	AGA	3	2	2		No	No	No	NO
POOJA RATHOD	215310	9/30/2021		30	28-30	1:00:00 AM	Female	1400.0	30	1001 to 1500	AGA	1				YES	No	No	NO
Rooper s nilugav	255482	11/17/2022	34 weeks + 3 days		34_+1-36+6	9:00:00 AM	Female	2500.0	34	2001 to 2499	LGA	2	1			No	YES	No	NO
Lalithamma	87393	6/24/2021	34+3		34_+1-36+6	11:02:00 AM	Female	1700.0	34	1500 to 2000	SGA					YES	No	No	NO
Jagadevi dattadrag k	242055	11/4/2021	34+2		34_+1-36+6	12:08:00 AM	Male	2400.0	34	2001 to 2499	AGA	3	2	2		No	No	No	NO
Shivavva Hanamanth	244611	11/6/2021		32	30+1 - 34	9:42:00 AM	Male	1900.0	32	1500 to 2000	AGA	3	2	2		No	No	No	NO
Shoba gururaj ganac	104722	3/25/2022		32	30+1 - 34	6:55:00 PM	Male	1700.0	32	1500 to 2000	AGA	1	1	1		YES	No	YES	NO
Geeta	232215	10/27/2021		28	28-30	5:58:00 AM	Female	1120.0	28	1001 to 1500	AGA					No	No	No	NO
Savita Ashok chavan	92249	3/14/2022		31	30+1 - 34	4:54:00 PM	Male	1414.0	31	1001 to 1500	AGA	1	1	1		No	No	No	NO
Deepa Prakash Naik	248632	11/10/2021	32 weeks + 4 days		30+1 - 34	2:41:00 AM	Male	1900.0	32	1001 to 1500	AGA	3	2	2		No	No	No	NO
Shivavva	244612	11/6/2021		32	30+1 - 34	9:41:00 AM	Female	1400.0	32	1001 to 1500	AGA					No	No	No	NO
Priyanka Vittal manav	241200	11/4/2021		29	28-30	5:30:00 AM	Male	1500.0	29	1001 to 1500	AGA	3	2	2		No	No	No	NO
Ashwini Shivanand G	85340	6/22/2022	31 weeks 1 days		30+1 - 34	12:50:00 PM	Female	1460.0	31	1001 to 1500	AGA	3	1	1	1	No	No	YES	NO

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Neelakka	187766	9/22/2021		29	28-30	9:30:00 PM	Male	1200.0	29	2001 to 2499		AGA	2			1	No	No	No	NO	NO	No	No	No
Anupamma	175780	9/12/2021		34	30+1-34	10:00:00 PM	Male	2400.0	34	2001 to 2499		AGA	3	2			No	No	No	NO	NO	No	No	No
Laxmi ganesh math	105833	3/26/2022	32+1		30+1-34	5:00:00 AM	Male	2200.0	32	2001 to 2499		AGA	2	1	1		No	No	No	NO	NO	No	No	No
		6/29/2021		34	34_+1-36+6	2:00:00 PM	Female	1600.0	34	1500 to 2000		AGA	1				No	No	No	NO	NO	No	No	No
Suryamadevi	288004	12/9/2021	33+5		30+1-34	2:09:00 AM	Male	2000.0	33	1500 to 2000		AGA	1	1	1		No	No	No	NO	NO	No	No	No
Bijamma noorahemad	179532	9/15/2021		34	30+1-34	2:00:00 AM	Female	1700.0	34	1500 to 2000		AGA	1	1	1		No	No	YES	NO	NO	No	No	No
Swaliya iliyas mujawa	286249	12/7/2021		34	30+1-34	3:40:00 AM	Male	2300.0	34	2001 to 2499		AGA	3	2	3		No	No	No	NO	NO	No	No	No
Supriya taramulae	177589	5/25/2022	31+2		30+1-34	3:50:00 AM	Male	1400.0	31	1001 to 1500		AGA	1	1	1		No	No	YES	NO	NO	No	No	No
Kaveri praveen kaleb	183785	5/30/2022		34	34_+1-36+6	6:00:00 AM	Female	1700.0	34	1500 to 2000		AGA	3	2	2		No	No	No	NO	NO	No	No	No
Ragini m. Agnihotri	75210	2/28/2022	26+3		<28	4:10:00 AM	Female	600.0	26	<1000		SGA	->	3		1	YES	No	YES	NO	NO	No	No	No
Pavitra shankargoud	000000	1/7/2022		33	30+1-34	4:41:00 AM	Female	1600.0	33	1500 to 2000		AGA	3	2	1		YES	No	No	NO	NO	No	No	No
Ziya firozkhan t2	169371	5/19/2022		33	30+1-34	6:34:00 AM	Female	1896.0	33	1500 to 2000		AGA	1	1	1		YES	No	YES	NO	NO	No	No	No
Savitri aravind ganga	111956	4/1/2022	34+2		34_+1-36+6	10:45:00 AM	Female	1500.0	34	1500 to 2000		AGA	1	1	1		YES	No	No	NO	NO	No	No	No
Tasmiya mosin kolur	98928	3/19/2022		34	30+1-34	4:00:00 AM	Male	2000.0	34	1500 to 2000		AGA	2	1	1		No	No	No	NO	YES	No	No	YES
Girija basayya wadag	277097	12/1/2021		34	30+1-34	6:48:00 AM	Male	1900.0	34	1500 to 2000		AGA	3	2	2		No	No	No	NO	NO	No	No	No
Ashwini minchanal t2	105264	7/10/2021	29+3		28-30	11:00:00 AM	Female	1100.0	29	1001 to 1500		AGA	1	1	1		YES	No	No	NO	NO	No	No	No
Sumitra Prabhu Paw	10215	4/2/2021		34	34_+1-36+6	8:52:00 AM	Female	2300.0	34	2001 to 2499		AGA	1				No	No	YES	NO	NO	No	No	No
Nadira ilyas mirji	174634	9/11/2021		33	30+1-34	10:10:00 AM	Female	1800.0	33	1500 to 2000		AGA	3	2	2		YES	YES	No	NO	NO	No	No	No
Sumitra Prabhu Paw	10215	4/2/2021		34	34_+1-36+6	2:00:00 AM	Female	2300.0	34	2001 to 2499		AGA	1				No	No	YES	NO	NO	No	No	No
Deepali tipparkar	111038	7/15/2021		34	34_+1-36+6	3:18:00 PM	Male	2340.0	34	2001 to 2499		AGA	1				No	No	YES	NO	NO	No	No	No
Rajashree Roli	109753	7/15/2021	33+5		30+1-34	12:37:00 PM	Female	2500.0	33	2001 to 2499		AGA	3	2	2		No	No	No	NO	NO	No	No	No
Shantabai N hodagal	172307	9/9/2021	33+2		30+1-34	11:00:00 AM	Female	1600.0	32		2600	AGA	2	1	1		No	No	YES	NO	NO	No	No	No
davalbe solapur	196220	9/29/2021		32	30+1-34	2:20:00 PM	Female	1500.0	32	1500 to 2000		AGA	1				No	No	No	NO	NO	No	No	No
sana s jamadar	167894	9/4/2021	33 weeks 4 days		30+1-34	11:15:00 AM	Male	1800.0	33	1500 to 2000		AGA	3	1	1	1	No	No	No	NO	NO	No	No	No
Savitha hanumanthin	12649	4/20/2021	34 weeks		34_+1-36+6	4:00:00 PM	Female	2000.0	34	1500 to 2000		AGA	1				YES	No	No	NO	NO	No	No	No
ashwin	214716	10/14/2021	34 weeks 5 days		34_+1-36+6	3:30:00 PM	Male	2000.0	34	1500 to 2000		AGA	1				No	No	YES	NO	NO	No	No	No
Anjana Shivraj alabai	116126/2	7/20/2021	34 weeks 1 day		34_+1-36+6	6:20:00 PM	Male	2200.0	34	2001 to 2499		AGA	1				No	No	No	NO	NO	No	No	No
Karuna rathod	188948	9/24/2021	34+1		34_+1-36+6	6:05:00 AM	Male	2100.0	34	2001 to 2499		AGA	1				YES	No	No	NO	NO	No	No	No
MAMALAJ MAHIBOO	85393	6/22/2021	34+3		34_+1-36+6	4:09:00 PM	Male	2300.0	34	2001 to 2499		AGA	1				No	No	No	NO	NO	No	No	No
Suniya chandrasheka	159624	5/11/2022		33	34_+1-36+6	5:06:00 PM	Male	2130.0	33	2001 to 2499		AGA	1				YES	No	No	NO	YES	No	No	No
Sangeetha basavraj	150906	3/19/2021		34	34_+1-36+6	5:00:00 AM	Female	2200.0	34	2001 to 2499		AGA	2	1	1		YES	No	No	NO	NO	No	No	No
Sonam Jain	71018	6/2/2021		34	34_+1-36+6	5:20:00 AM	Male	2300.0	34	2001 to 2499		AGA	1	1	1		YES	No	No	NO	NO	No	No	No
Bhagyashree N Yank	57609	5/14/2021	31+3		34_+1-36+6	12:07:00 PM	Female	1800.0	31	1500 to 2000		SGA	1				No	No	No	NO	NO	No	No	No
Sangeetha Ramesh	164290	5/15/2022	31+3		30+1-34	6:45:00 PM	Male	1600.0	31	1500 to 2000		AGA	2	1	1		No	No	YES	NO	NO	No	No	No
Prabhavati	154438	5/8/2022	32+3		34_+1-36+6	3:50:00 AM	Male	1760.0	32	1500 to 2000		AGA	1				No	No	No	NO	NO	No	No	No
Ashwini Shridhar Jer	183451	9/19/2021	29+5		28-30	5:20:00 PM	Male	1300.0	29	1001 to 1500		AGA	2	1	1		No	No	YES	NO	NO	No	No	No
Mamataj mahiboob b	85392	6/22/2021	33+1		34_+1-36+6	4:06:00 PM	Male	1700.0	33	1500 to 2000		AGA	1				No	No	No	NO	NO	No	No	No
Mallama bhimaraya h	12820	4/22/2021	33+4		34_+1-36+6	2:40:00 AM	Male	2500.0	33		2.5	AGA	2			1	No	No	No	NO	NO	No	No	No
Sumitra	153080	5/6/2022	29+1		28-30	2:00:00 PM	Male	1140.0	29	1001 to 1500		AGA	1				YES	No	No	NO	NO	No	No	No
Ashwini	164283	5/15/2022		30	28-30	4:25:00 PM	Male	1400.0	30	1001 to 1500		AGA	1				No	No	YES	NO	NO	No	No	No
Savita pujari	287986	12/8/2021		32	30+1-34	6:00:00 PM	Male	1150.0	32	1001 to 1500		AGA	1				YES	No	YES	NO	NO	No	No	No
Shahin jalagar	107110	7/12/2021		30	28-30	9:30:00 PM	Male	1400.0	30	1001 to 1500		LGA	1				No	No	No	NO	NO	No	No	No
Indra mukesh mehata	25613/12	4/18/2021	31+5		34_+1-36+6	10:45:00 PM	Female	1500.0	31	1001 to 1500		SGA	2			1	YES	No	No	NO	NO	No	No	No
Nadira Ilyas Mirji	174634	11/9/2021	31+5		34_+1-36+6	10:10:00 AM	Female	2300.0	31		3000	LGA	3	2	2		YES	YES	No	NO	NO	No	No	No
Savita	190187	9/24/2021	30+4		30+1-34	7:00:00 AM	Male	1400.0	30	1001 to 1500		AGA	3	2	2		YES	No	YES	NO	NO	No	No	No
Madhumati magadum	174139	9/10/2021	32+1		30+1-34	12:00:00 PM	Female	1710.0	32	1500 to 2000		AGA	1				No	No	YES	NO	NO	No	No	No
Yallava pujari	12745/31	4/21/2021	33+5		34_+1-36+6	12:15:00 PM	Male	1700.0	33	1500 to 2000		AGA	2	1	1		YES	No	No	NO	NO	No	No	No
Preeti hugar twin1	170475	9/7/2021	34+3		34_+1-36+6	12:00:00 AM	Male	2150.0	34		2500	AGA	3	2	2		YES	No	YES	NO	NO	No	No	No
Renuka shrishail mas	161463	3/26/2021		34	34_+1-36+6	7:30:00 PM	Female	2300.0	34	2001 to 2499		AGA	2			1	No	No	No	NO	NO	No	No	No
Mallamma hirekuraba	238768	11/1/2021	33+5		34_+1-36+6	7:32:00 PM	Male	1800.0	33	1500 to 2000		AGA	1				YES	No	No	NO	NO	No	No	No
Geeta rajakumar nag	161479	3/26/2021	33+1		34_+1-36+6	11:55:00 PM	Female	2000.0	33	1500 to 2000		AGA	1				YES	No	No	YES	NO	No	No	No
Savitri Hiremath	292126	12/12/2021		30	28-30	3:25:00 AM	Female	2000.0	30	1500 to 2000		AGA	3	1	1	1	No	No	No	NO	NO	No	No	No
Vidyavathi bavikatti	172257	9/8/2021	33+1		34_+1-36+6	3:42:00 PM	Female	2100.0	33	2001 to 2499		AGA	1				No	No	No	NO	YES	No	No	No
Savitri bellaki	292114	12/11/2021		31	30+1-34	10:15:00 PM	Male	1400.0	31	1001 to 1500		AGA	4				YES	No	No	NO	NO	No	No	No
Pavitra Rajput	281772	12/4/2021		32	30+1-34	11:58:00 PM	Male	2000.0	32	1500 to 2000		AGA	1				No	No	No	NO	NO	No	No	YES
Jyothi ravoor	120687	7/25/2021		29	28-30	1:00:00 PM	Female	1060.0	29	1001 to 1500		AGA	1				No	No	No	NO	NO	YE	No	No
Savita Basavaraj	71028/16	6/3/2021	33+2		34_+1-36+6	2:45:00 AM	Female	2420.0	33	2001 to 2499		AGA	3	2	1		No	No	No	NO	NO	No	No	No
SRUSHTI CHANNAY	85399	6/22/2021		33	34_+1-36+6	9:42:00 PM	Female	2099.0	33	1500 to 2000		AGA	1				No	No	YES	NO	NO	No	No	No
LAXMI SHIVISHAIL	184949	9/26/2021	34+6		34_+1-36+6	11:20:00 AM	Male	2500.0	34		2500	AGA	1				No	No	No	NO	YES	No	No	YES
SAMREEN JABAZ	167180	3/30/2021		33	30+1-34	8:25:00 AM	Female	1900.0	33	1500 to 2000		AGA	3	1	1	1	No	No	No	NO	NO	No	No	No
Amruta Sadashiv	234944	10/29/2021		34	34_+1-36+6	3:53:00 PM	Female	2000.0	33	1500 to 2000		AGA	1	1	1		No	No	YES	NO	NO	No	No	No
Jayashree Suresh na	199496	10/2/2021	34+1		34_+1-36+6	11:51:00 AM	Male	1600.0	34	1500 to 2000		AGA	3	2	2		No	No	YES	NO	NO	No	No	No
Umera Ilahi Inamada	200045	10/3/2021		33	30+1-34	8:00:00 AM	Female	1600.0	33	1500 to 2000		AGA	1	1			YES	No	No	NO	NO	No	No	No
Laxmi sharanappa bo	168656	5/18/2022		33	30+1-34	3:31:00 PM	Male	1395.0	33	1001 to 1500		AGA	2	1	1		YES	No	No	NO	NO	No	No	No
Channama	262060	11/21/2021		33	30+1-34	6:30:00 PM	Female	1200.0	33	1001 to 1500		AGA	1	1			YES	No	No	NO	NO	No	No	No
Savita Devaraj Ajman	222631	10/21/2021	34+2		34_+1-36+6	12:15:00 AM	Female	2000.0	34	1500 to 2000		AGA	2	1	1		No	No	No	NO	NO	No	No	No
Pratibha Niranjan Ba	222621	10/20/2021		34	30+1-34	11:12:00 PM	Female	1600.0	34	1500 to 2000		AGA	1	1			No	No	No	NO	NO	No	No	No
Shilpa Gururaj Patil	112075	7/16/2021		34	30+1-34	11:05:00 AM	Female	1610.0	34	1500 to 2000		AGA	4	2	2		YES	No	No	NO	NO	No	No	No
Bismilla mainudinna	175136	9/9/2021		33	30+1-34	2:32:00 PM	Male	2000.0	33	1500 to 2000		AGA	1	1			No	No	No	NO	NO	No	No	No
Vaishnavi salunke	96572	7/3/2021		30	28-30	3:10:00 PM	Female	1800.0	30	1500 to 2000		AGA	4	3	3		No	No	No	NO	NO	No	No	No
Shruthi pandre	170889	9/7/2021	30+5		34_+1-36+6	3:45:00 PM	Male	1800.0	30	1500 to 2000		AGA	4	3	2		No	No	No	NO	NO	No	No	No
Shilpa	58461	5/15/2021	30+5		28-30	4:10:00 PM	Male	1576.0	30	1500 to 2000		AGA	2	1	1		No	No	YES	NO	NO	No	No	No
Farhana begum Faro	186298	9/21/2021	31+6		30+1-34	10:00:00 AM	Male	1700.0	31	1500 to 2000		AGA	1	1			No	No	No	NO	NO	No	No	No
Bhuvaneshwari badig	66027/15	5/26/2021		30	28-30	8:00:00 AM	Female	1300.0	30	1001 to 1500		AGA	1				No	No	No	NO	NO	No	No	No
Yasmeen bidri	198819	10/1/2021		34	30+1-34	1:30:00 AM	Male	2200.0	34	2001 to 2499		AGA	3	2	2		No	No	No	NO	NO	No	No	No
Rakshita Siddu Made	251576	11/14/2021	33+5		30+1-34	9:00:00 PM	Female	1800.0	33	1500 to 2000		AGA	2	1	1		YES	No	No	NO	NO	No	No	No
Jyothi nandur	187736	9/22/2021		31	30+1-34	4:45:00 PM	Male	1500.0	31	1001 to 1500		AGA	1				No	No	No	NO	NO	No	No	No
Umera	200043	10/3/2021		33	30+1-34	8:00:00 AM	Female	1800.0	33	1500 to 2000		AGA	1				No	No	No	NO	NO	No	No	No
Jyoti jadav	135788	8/7/2021	34+3		34_+1-36+6	4:20:00 AM	Male	2400.0	34	2001 to 2499		AGA	1				No	No	No	NO	NO	No	No	No
Shilpa chavan	172853	9/9/2021	34+3		34_+1-36+6	7:15:00 AM	Female	1600.0	34	1500 to 2000		SGA	1				YES	No	No	NO	NO	No	No	No
Savitri Hiremath	240311	11/2/2021	32+1		30+1-34	2:21:00 PM	Female	1450.0	32	1001 to 1500		SGA	1				No	No	No	NO	NO	No	No	No
Shruthi	119903/2	7/24/2021		30	28-30	9:58:00 PM	Female	1100.0	30	1001 to 1500		AGA	2	1	1		No	No	No	NO	NO	No	No	No
Jyothi hanchinal	42011/13	4/29/2021	32+6		30+1-34	11:15:00 PM	Female	950.0	32	<1000		SGA	1				YES	No	YES	NO	NO	No	No	No
Sunita	118112/2	7/22/2021	30+1		30+1-34	6:45:00 PM	Male	1100.0	30	1001 to 1500		AGA	1				No	No	No	NO	NO	No	No	No
Chandrakala	172558	9/9/2021	31+2		30+1-34	8:50:00 AM	Female	2400.0	31	2001 to 2499		AGA	1				No	No	No	NO	NO	No	No	No
Shruthi	259668	11/19/2021		26	<28	10:20:00 AM	Female	890.0	26	<1000		SGA	1				No	No	No	NO	NO	No	No	No
Geeta	135752	8/6/2021		30	28-30	6:20:00 PM	Male	1600.0	30	1500 to 2000		AGA	2	1	1		No	No	YES	NO	NO	No	No	No
676u	213484	10/13/2021	34+1		34_+1-36+6	3:40:00 PM	Female	2000.0	34	1500 to 2000		AGA	1				YES	No	No	NO	NO	No	No	No
Preethi	170498	9/7/2021	32+4		30+1-34	6:05:00 AM	Female	1700.0	32	1500 to 2000		AGA	1				YES	No	YES	NO	NO	No	No	No
Siddalingawwa Bhim	248943	11/10/2021		33	30+1-34	12:17:00 PM	Male	2100.0	33	2001 to 2499		AGA	1				YES	No	No	NO	NO	No	No	No
Jyothi Basavraj Metri	256783	11/17/2021		34	30+1-34	5:24:00 PM	Female	1200.0	34	1001 to 1500		AGA	4	1		2	No	No	No	NO	NO	No	No	No
Jyothi	241201	11/4/2021	33+5		30+1-34	4:35:00 AM	Male	2028.0	33	1500 to 2000		AGA	3	1			No	No	No	NO	NO	No	No	No
Mamabhol	136921	8/7/2021		30	28-30	4:00:00 PM	Female	1500.0	30	1500 to 2000		AGA	3	1	1	1	YES	No	No	NO	NO	No	No	No
Sunanda	222586	10/20/2021		29	28-30	4:20:00 PM	Female	1070.0	29	1001 to 1500		AGA	1				No	No	No	NO	NO	No	No	No
Rubina	168774	8/25/2021		33	30+1-34	8:00:00 AM	Female	1610.0	33	1500 to 2000		AGA	1				YES	No	No	NO	NO	No	No	No
Vishali	147460	9/17/2021		30	28-30	11:15:00 PM	Male	1000.0	30	1001 to 1500		AGA	1				No	No	No	NO	NO	No	No	No
Vaishnavi	96573	7/3/2021		30	28-30	3:12:00 PM	Female	1580.0	30	1500 to 2000		AGA	4	3	3		No	No	No	NO	NO	No	No	No
Veena	250149	11/12/2021		33	30+1-34	11:46:00 AM	Male	1540.0	33	1500 to 2000		AGA	1				No	No	No	NO	NO	No	No	No
Pooja Dadamani	256822	7/18/2021	31+4		30+1-34	2:56:00 AM	Female	1460.0	34	1001 to 1500		SGA	4			2	No	No	No	NO	NO	No	No	No
Tejashwini bajantri	256820	11/18/2021		34	30+1-34	12:38:00 PM	Male	2000.0	34	1500 to 2000		AGA	2	1	1		No	No	No	NO	NO	No	No	No
Roopa kadam	248934	11/10/2021		34	30+1-34	12:32:00 PM	Female	2100.0	34	2001 to 2499		AGA	3			2	No	No	No	NO	NO	No	No	No
Pooja Dodamani	256821	11/18/2021		34	30+1-34	2:54:00 AM	Female	2000.0	34	1500 to 2000		AGA	4			2	No	No	No	NO	NO	No	No	No
Kasturibai	197587	9/25/2021	32+1		30+1-34	9:20:00 AM	Male	2400.0	32	2001 to 2499		AGA	2	1	1		YES	No	No	NO	NO	No	No	No
Sunitha chavan	118112	7/27/2021		32	30+1-34	6:45:00 AM	Male	1100.0	32	1001 to 1500		SGA	1				No	No	No	NO	NO	No	No	No
Karishma tidagundi	116939	7/20/2021		34	30+1-34	11:12:00 AM	Female	2200.0	34	2001 to 2499		AGA	2	1	1		No	No	No	NO	NO	No	No	No
Shridevi	135763	7/6/2021	33+6		30+1-34	9:33:00 PM	Female	2300.0	33	2001 to 2499		SGA	4	3	1		No	No	No	NO	NO	No	No	No
Shruti sukad	119873	7/24/2021	31+5		30+1-34	9:54:00 AM	Female	1239.0	31	1001 to 1500		AGA	2			1	No	No	No	NO	NO	No	No	No
Gurubai	213510	10/14/2022	33+5		30+1-34	5:26:00 AM	Female	1900.0	33	1500 to 2000		SGA	3	2			No	No	No	NO	NO	No	No	No
Shobha	178315	9/13/2021	31+6		30+1-34	2:18:00 PM	Female	1600.0	31	1500 to 2000		SGA	2	1			YES	No	No	NO	NO	No	No	No
Vijayalakshmi rajput	48798	5/6/2021	33+6		30+1-34	4:24:00 AM	Male	2500.0	33	2001 to 2499		AGA	2	1	1		No	No	No	NO	NO	No	No	No
Preeti hugar T 2	170498	9/7/2021		32	30+1-34	6:05:00 AM	Female	1700.0	32	1500 to 2000		AGA	1				YES	No	YES	NO	NO	No	No	No
Pavitra T1	222581	10/20/2021	32+6		30+1-34	3:20:00 AM	Male	1600.0	32	1500 to 2000		AGA	3	2	2		No	No	No	NO	NO	No	No	No
Sushma sudhakar de	28121/12	4/16/2021	32+2		30+1-34	8:00:00 AM	Male	1170.0	32	1001 to 1500		AGA	2	1	1		No	No	No	NO	NO	No	No	No
Jyothi kallappa sonag	198823	10/1/2021	31+5		30+1-34	3:50:00 PM	Male	1200.0	31	1001 to 1500		AGA	2	1	1		YES	No	No	NO	NO	No	No	No
mainu rajasab balibai	69918/15	6/1/2021	33+2		30+1-34	10:00:00 AM	Male	1800.0	33	1500 to 2000		AGA	3	2			YES	No	No	NO	NO	No	No	No
Savitri mahantgowda	90738	6/29/2021	32+1		30+1-34	8:00:00 AM	Female	1600.0	32	1500 to 2000		SGA	1				No	No	No	NO	NO	No	No	No
Shilpa yuvaraj patil	112075	7/16/2021	33+4		30+1-34	11:05:00 AM	Female	1600.0	33	1500 to 2000		SGA	4	2	2	1	YES	No	No	NO	NO	No	No	No
Mantabai iliyas mirji	175205	9/11/2021	32+4		30+1-34	6:15:00 AM	Male	1600.0	32	1500 to 2000		AGA	3	2	2		No	YES	YES	NO	NO	No	No	No
Swathi	213484	7/10/2021	33+6		34_+1-36+6	3:40:00 AM	Female	2000.0	33	1500 to 2000		AGA	2			1	YES	No	No	NO	NO	No	No	No
Geeta santosh birada	135752	8/6/2021	30+6		28-30	6:20:00 AM	Male	1160.0	30	1001 to 1500		AGA	2	1	1		No	No	YES	NO	NO	No	No	No
Shruthi kiran jolli	259668	11/19/2021	27+4		<28	10:02:00 AM	Female	890.0	27	<1000		SGA	1				No	No	No	NO	NO	No	No	No
Chandra kala katima	172558	9/9/2021		34	30+1-34	8:50:00 AM	Female	2400.0	34	2001 to 2499		AGA	2	1	1		No	No	No	NO	NO	No	No	No
Vaishnavi T1 salake	96572	7/3/2021		30	28-30	3:10:00 AM	Female	1080.0	30	1001 to 1500		AGA	3	3	3		No	No	No	NO	NO	No	No	No
Shruthi pandre	170889	9/9/2021	33+2		30+1-34	3:45:00 PM	Male	1800.0	33	1500 to 2000		AGA	4	3	2		YES	No	No	NO	NO	No	No	No
Shilpa s malli	58461	5/5/2021		32	28-30	4:10:00 AM	Male	1576.0	32	1001 to 1500		AGA	2	1	1		No	No	YES	NO	NO	No	No	No
Bhubaneswari anil ba	66027/15	5/26/2021	31+6		30+1-34	8:00:00 AM	Female	1300.0	31	1001 to 1500		AGA	2			1	No	No	No	NO	NO	No	No	No
Jyothi nandur	187736	9/22/2021	32+4		30+1-34	4:45:00 AM	Male	1500.0	32	1001 to 1500		AGA	3			2	No	No	No	NO	NO	No	No	No
Umera ilahi inamdar	200043	10/3/2021		33	30+1-34	8:00:00 AM	Female	1800.0	33	1500 to 2000		AGA	2	1			No	No	No	NO	NO	No	No	No
Neela Ravi jadav	135788	8/7/2022	32+6		30+1-34	4:20:00 AM	Male	2240.0	32	2001 to 2499		AGA	1				No	No	No	NO	NO	No	No	No
Rekha mallanagowda	234960	10/29/2021	31+3		30+1-34	4:50:00 PM	Female	1170.0	31	1001 to 1500		SGA	2	1	1		No	No	No	NO	NO	No	No	No
Shilpa around kumar	172853	9/9/2021		32	30+1-34	7:15:00 AM	Female	1600.0	32	1500 to 2000		SGA	1	1			No	No	No	NO	NO	No	No	No
Savitri mahesh hirem	240311	11/2/2021		31	30+1-34	2:21:00 PM	Female	1450.0	31	1001 to 1500		AGA	3	1		1	No	No	No	NO	NO	No	No	No
Shruthi saukand t2	119903/2	7/24/2021		30	28-30	9:58:00 PM	Female	1200.0	30	1001 to 1500		AGA	2			1	No	No	No	NO	NO	No	No	No
Sunitha suresh chara	118112/2	7/22/2021	31+3		30+1-34	6:45:00 AM	Male	1100.0	31	1001 to 1500		AGA	1				No	No	No	NO	NO	No	No	No
Sudha vittal	192000	9/26/2021	30+2		28-30	4:50:00 AM	Female	1200.0	30	1001 to 1500		AGA	2	1	1		No	No	No	NO	NO	No	No	No
Akshata basavraj	230023	7/3/2022	33+1		30+1-34	3:30:00 AM	Female	2100.0	33	2001 to 2499		AGA	3	2	2		YES	No	No	NO	NO	No	No	No
Anasubai kupendra	198433	6/10/2022	30+3		28-30	4:10:00 AM	Male	1150.0	30	1500 to 2000		AGA	2	1	1		No	No	YES	NO	NO	No	No	No
Sana peerzade	194212	6/6/2022	32+1		30+1-34	7:45:00 AM	Female	1210.0	32	2001 to 2499		AGA	1		1		YES	No	No	NO	NO	No	No	No
Prema veeresh	229849	7/4/2022		34	34_+1-36+6	11:40:00 AM	Female	2100.0	34	2001 to 2499		AGA	3	2	2		No	No	YES	NO	NO	No	No	No
Amruta	200821	7/2/2022		32	30+1-34	3:33:00 AM	Male	1800.0	32	1500 to 2000		AGA	3	2	4	1	No	No	YES	NO	NO	No	No	No

Neelakka	CAESAREAN	7	9	2:00:00 AM	CPAP		Tachypnea	Normal	34	0.8	35.3	PFO		yes	Adrenaline	6989	307000	
Anupamma	NORMAL VAGINAL	8	9	11:30:00 AM	HHFNC		Tachypnea	Normal	35	1.1	35.6	PDA, PFO		yes	Adrenaline	10780	252000	
Laxmi ganesh math	CAESAREAN	7	9	12:00:00 AM	CPAP		Tachypnea	Bradycardia (	32	0.9	36.1	PDA, PFO, PAH	Mild	yes	Adrenaline	17021	178000	
	NORMAL VAGINAL	7	9	12:00:00 PM	CPAP		Tachypnea	Normal	31	0.7	34.9	PDA,small asd ,mod	Moderate	yes	Dopamine,	13950	250000	
Suryamadevi	CAESAREAN	7	9	11:00:00 AM	CPAP		Tachypnea	Normal	32	1.2	35.4	PDA, PFO	Mild	yes	Adrenaline	12160	231000	
Bijamma noorahemad	NORMAL VAGINAL	7	9	3:00:00 AM	CPAP		Tachypnea	Normal	35	1.2	33.5	PFO, GOOD BIVENTRICULAR FUNCTION		yes	Adrenaline	20390	344000	
Swaliya iliyas mujawa	CAESAREAN	7	9	2:00:00 AM	CPAP		Tachypnea	Normal	34	1.2	33.2	PDA, PFO, GOOD BIVENTRICULAR FUNC		yes	Adrenaline	8440	200,000	
Supriya taramulae	NORMAL VAGINAL	6	7	1:00:00 AM	SIMV	2	Increased oxygen req	Normal	32	2.3	35.8	PDA, PFO		yes	Adrenaline	19,200	320,000	
Kaveri praveen kaleb	NORMAL VAGINAL	7	9	7:00:00 AM	CPAP		Tachypnea	Normal	35	0.7	33.1	PDA, ASD, Ejection Fraction <60%		yes	Adrenaline	10,690	212,000	
Ragini m. Agnihotri	NORMAL VAGINAL	6	8	1:00:00 AM	SIMV	5	Increased oxygen req	Normal	24	0.7	34.3	PDA, PFO, Ejection Fraction <60%		yes	Adrenaline	20910	120,000	
Pavitra shankargoud	CAESAREAN	6	8	5:00:00 AM	CPAP		Tachypnea	Normal	33	1.2	34.7	PDA, PAH, GOOD BI	Severe	yes	Dopamine	24,000	426,000	
Ziya firozkhan t2	CAESAREAN	7	9	1:00:00 AM	SIMV	2	Tachypnea	Normal	34	1.09	36.3	PFO, PAH, Ejection F	Moderate	yes	Adrenaline	15940	270000	
Savitri aravind ganga	CAESAREAN	7	9	2:00:00 AM	HHFNC		Tachypnea	Normal	34	0.8	36	PFO, GOOD BIVENTRICULAR FUNCTION		yes	Dopamine	12500	260000	
Tasmiya mosin kolur	CAESAREAN	7	9	1:00:00 AM	SIMV	3	Tachypnea	Normal	35	0.9	36.2	PDA, PAH, GOOD BI	Moderate	yes	Adrenaline	4090	257000	
Girija basayya wadag	NORMAL VAGINAL	7	9	3:00:00 AM	CPAP		Tachypnea	Normal	34	1.2	36	PFO, PAH	Mild	yes	Dopamine	8180	132000	
Ashwini minchanal t2	CAESAREAN	8	9	1:00:00 AM	CPAP		Tachypnea	Normal	30	0.6	35.3	PDA, PFO, GOOD BIVENTRICULAR FUNC		yes	Adrenaline	7130	302000	<5
Sumitra Prabhu Paw	NORMAL VAGINAL	6	8	9:20:00 AM	HOOD O2		Tachypnea	Tachycardia	36	0.8	35.8	PDA		No	others	10780	184000	
Nadira ilyas mirji	CAESAREAN	8	9	11:10:00 AM	HOOD O2		Tachypnea	Normal	36	1.2	35.4	PDA		yes	Adrenaline	15490	291000	
Sumitra Prabhu Paw	NORMAL VAGINAL	6	8	3:00:00 AM	HOOD O2		Tachypnea	Tachycardia	36	0.8	35.8	PDA, PAH	Mild	yes	Adrenaline	10780	184000	
Deepali tipparkar	CAESAREAN	6	8	4:18:00 PM	HOOD O2		Tachypnea	Normal	36	0.9	36.3	PFO		No	others	7880	209000	Less than 5
Rajashree Roli	CAESAREAN	7	9	1:37:00 PM	CPAP		Tachypnea	Normal	34	1.3	33.8	PFO		yes	Adrenaline	30630	209000	Less than 5
Shantabai N hodagal	CAESAREAN	7	9	12:00:00 PM	HOOD O2		Tachypnea	Normal	35	1.04	35.8	VSD, ASD		yes	Adrenaline	13720	227000	
davalbe solapur	CAESAREAN	7	9	3:20:00 PM	HOOD O2		Tachypnea	Tachycardia	34	0.8	34	PDA, PFO, GOOD BIVENTRICULAR FUNC		yes	Dopamine	8130	216000	
sana s jamadar	NORMAL VAGINAL	7	9	12:15:00 PM	CPAP		Tachypnea	Normal	36	1.1	35.9	PFO, GOOD BIVENTRICULAR FUNCTION		yes	Adrenaline	12980	350000	
Savitha hanumanthin	CAESAREAN	7	9	5:00:00 PM	CPAP		Tachypnea	Normal	36	0.7	35.8	PDA, PAH		yes	Dopamine, A	12090	309000	
ashwin	NORMAL VAGINAL	8	9	4:30:00 PM	HHFNC		Tachypnea	Normal	34	0.8	33.1	GOOD BIVENTRICULAR FUNCTION		yes	Dopamine	8140	214000	less than 8
Anjana Shivraj alabai	CAESAREAN	3	7	10:20:00 PM	HHFNC		Tachypnea	Tachycardia	37	0.9	34.1	PFO, PAH	Mild	yes	Adrenaline,	10390	179000	less than 5
Karuna rathod	NORMAL VAGINAL	7	9	8:00:00 AM	HHFNC		Tachypnea	Normal	36	1	33	PDA, PFO, PAH	Mild	yes	Adrenaline	8660	221000	
MAMALAJ MAHIBOO	NORMAL VAGINAL	8	9	5:09:00 PM	HHFNC		Tachypnea	Tachycardia	35	0.7	35	PFO		yes	Adrenaline	6010	301000	LESS THAN 5
Suniya chandrasheka	NORMAL VAGINAL	7	9	6:05:00 PM	SIMV	3	Tachypnea	Normal	34	0.7	35.9	PDA, PAH, ASD	Mild	yes	Adrenaline	18790	202000	
Sangeetha basavraj	NORMAL VAGINAL	6	9	6:00:00 AM	SIMV	2	Increased oxygen req	Bradycardia (	36	1	35.7	PDA		No	others	15030	241000	
Sonam Jain	CAESAREAN	7	9	6:20:00 AM	CPAP		Tachypnea	Normal	35	1.3	35.6	Ejection Fraction <60%		yes	Adrenaline	20290	252000	<5
Bhagyashree N Yank	NORMAL VAGINAL	7	9	1:10:00 PM	HOOD O2		Tachypnea	Normal	36	1.12	36.1	PDA		No	others	11530	232000	
Sangeetha Ramesh	NORMAL VAGINAL	7	9	7:45:00 AM	HHFNC		Tachypnea	Normal	32	0.8	35.3	PDA, PFO, GOOD BIVENTRICULAR FUNC		yes	Adrenaline	5450	126000	
Prabhavati	NORMAL VAGINAL	7	9	5:50:00 AM	HHFNC		Tachypnea	Normal	35	0.8	35.1	ASD, GOOD BIVENTRICULAR FUNCTION		yes	Dobutamine	9760	223000	
Ashwini Shridhar Jer	CAESAREAN	7	9	8:20:00 PM	SIMV	2	Tachypnea	Normal	30	0.9	34.9	PFO, GOOD BIVENTRICULAR FUNCTION		yes	Adrenaline	7000	247000	
Mamataj mahiboob b	CAESAREAN	7	8	5:06:00 PM	CPAP		Tachypnea	Normal	36	0.7	35.7	PAH, GOOD BIVENT	Mild	No	others	6020	286000	Less than 5
Mallama bhimaraya h	CAESAREAN	7	9	3:50:00 AM	HOOD O2		Tachypnea	Normal	36	1.02	36.1	PDA, PAH	Mild	yes	Dopamine	19450	184000	
Sumitra	CAESAREAN	7	8	3:00:00 PM	SIMV	3	Apnea	Normal	30	0.8	36.2	PFO		yes	Adrenaline	11220	258000	
Ashwini	NORMAL VAGINAL	6	8	5:25:00 PM	CPAP		Tachypnea	Normal	33	1	36.2	PFO		yes	Adrenaline	12900	254000	
Savita pujari	CAESAREAN	6	8	7:00:00 PM	HHFNC		Tachypnea	Normal	30	1.1	35.5	PFO		yes	Adrenaline	13050	172000	
Shahin jalagar	NORMAL VAGINAL	6	8	11:30:00 PM	HHFNC		Tachypnea	Normal	30	0.6	35.4	PFO		yes	Adrenaline	7160	183000	
Indra mukesh mehata	CAESAREAN	7	9	11:50:00 PM	CPAP		Tachypnea	Normal	36	0.8	35.9	PAH, ASD, GOOD BIVENTRICULAR FUNC		yes	Adrenaline	7910	329000	
Nadira Ilyas Mirji	CAESAREAN	8	9	11:10:00 AM	HOOD O2		Tachypnea	Normal	36	1.2	35	PFO		No	others	15490	291000	
Savita	CAESAREAN	5	8	8:00:00 AM	HHFNC		Tachypnea	Normal	34	0.9	34.9	PDA		yes	Adrenaline	9060	150000	
Madhumati magadum	NORMAL VAGINAL	7	9	1:00:00 PM	CPAP		Tachypnea	Normal	32	0.9	36.1	PFO		yes	Adrenaline	10830	216000	
Yallava pujari	NORMAL VAGINAL	7	9	1:30:00 PM	HOOD O2		Tachypnea	Normal	36	0.87	36.1	PDA		yes	Dopamine	25240	285000	
Preeti hugar twin1	CAESAREAN	6	8	1:00:00 PM	HOOD O2		Tachypnea	Normal	36	0.8	35.5	PAH, ASD	Mild	yes	Adrenaline	33980	273000	
Renuka shrishail mas	CAESAREAN	7	9	8:30:00 PM	HOOD O2		Tachypnea	Tachycardia	35	1.1	36	PDA, GOOD BIVENTRICULAR FUNCTION		yes	Dopamine	15190	366000	
Mallamma hirekuraba	CAESAREAN	8	9	8:32:00 PM	CPAP		Tachypnea	Normal	36	0.8	35.4	PFO, GOOD BIVENTRICULAR FUNCTION		yes	Adrenaline	10100	204000	
Geeta rajakumar nag	CAESAREAN	7	9	1:00:00 AM	CPAP		Increased oxygen req	Normal	37	1	1.2	PDA		yes	Adrenaline	12810	316000	
Savitri Hiremath	NORMAL VAGINAL	6	8	4:25:00 AM	HOOD O2		Tachypnea	Normal	30	1.3	35.8	PFO		yes	Adrenaline	4192	219000	
Vidyavathi bavikatti	CAESAREAN	8	9	4:50:00 PM	HOOD O2		Tachypnea	Normal	38	1.3	35.7	VSD, ASD		yes	Dopamine, A	23580	166000	
Savitri bellaki	CAESAREAN	7	8	12:15:00 AM	CPAP		Tachypnea	Normal	30	1.1	35.9	ASD		yes	Adrenaline	10070	389000	
Pavitra Rajput	NORMAL VAGINAL	6	8	1:58:00 AM	CPAP		Tachypnea	Normal	32	1.4	36.1	PFO, GOOD BIVENTRICULAR FUNCTION		yes	Adrenaline	9510	270000	
Jyothi ravoor	NORMAL VAGINAL	6	8	3:00:00 PM	HHFNC		Tachypnea	Normal	32	0.72	34.5	PDA		yes	Adrenaline	10990	325000	
Savita Basavaraj	CAESAREAN	7	9	3:45:00 AM	HHFNC		Tachypnea	Normal	38	1.08	35.8	GOOD BIVENTRICULAR FUNCTION		yes	Dopamine	11720	259000	
SRUSHTI CHANNAY	CAESAREAN	8	9	10:42:00 PM	HOOD O2		Tachypnea	Normal	36	0.7	36	PDA, PAH	Severe	yes	Dopamine, A	15840	238000	
LAXMI SHIVISHAIL	NORMAL VAGINAL	8	9	12:20:00 AM	CPAP		Tachypnea	Normal	36	0.9	38.4	PFO, Ejection Fraction <60%		yes	Dopamine	6710	176000	
SAMREEN JABAZ	NORMAL VAGINAL	6	8	9:25:00 AM	HOOD O2		Tachypnea	Normal	34	0.9	35.8	PAH	Mild	yes	Dopamine	7640	195000	
Amruta Sadashiv	CAESAREAN	7	8	4:53:00 PM	CPAP		Tachypnea	Normal	34	0.7	35.1	PDA, PFO, PAH, GO	Mild	yes	Dopamine	8970	325000	
Jayashree Suresh na	CAESAREAN	8	9	1:51:00 PM	CPAP		Increased oxygen req	Normal	30	0.92	33.4	PFO		yes	Dopamine	10330	237000	
Umera Ilahi Inamada	CAESAREAN	6	8	10:00:00 AM	SIMV	4	Tachypnea	Normal	31	0.8	33.6	PAH, ASD	Moderate	yes	Dopamine	5870	188000	
Laxmi sharanappa bo	CAESAREAN	7	9	4:31:00 PM	HHFNC		Tachypnea	Normal	33	1.1	36	ASD		yes	Dopamine	6520	223000	
Channama	CAESAREAN	7	8	7:30:00 PM	CPAP		Tachypnea	Normal	34	0.8	33.4	GOOD BIVENTRICULAR FUNCTION		yes	Dopamine	9080	486000	
Savita Devaraj Ajman	NORMAL VAGINAL	7	9	1:15:00 AM	HOOD O2		Tachypnea	Normal	35	0.7	35.9	PDA, PFO		yes	Dopamine	14970	230000	
Pratibha Niranjan Ba	NORMAL VAGINAL	4	7	3:12:00 AM	CPAP		Tachypnea	Normal	34	0.7	35.4	PFO, GOOD BIVENTRICULAR FUNCTION		yes	Dopamine, A	7950	272000	
Shilpa Gururaj Patil	CAESAREAN	7	9	12:05:00 PM	HHFNC		Tachypnea	Normal	34	0.7	35.9	PDA, PFO		yes	Dopamine	11000	214000	
Bismilla mainudinna	CAESAREAN	8	9	4:32:00 PM	HOOD O2		Tachypnea	Normal	33	0.8	34.6	PFO, ASD		yes	Dopamine	7630	278000	
Vaishnavi salunke	NORMAL VAGINAL	6	9	4:10:00 PM	CPAP		Tachypnea	Normal	30	0.9	34.2	ASD		yes	Adrenaline	7970	281000	
Shruthi pandre	CAESAREAN	8	9	1:00:00 AM	CPAP		Tachypnea	Normal	34	0.7	35.1	Ejection Fraction <60%		yes	Adrenaline	12060	286000	
Shilpa	CAESAREAN	7	9	5:10:00 PM	CPAP		Tachypnea	Tachycardia	34	0.9	36.4	PDA		yes	Dobutamine	12870	318000	
Farhana begum Faro	CAESAREAN	7	9	1:00:00 PM	CPAP		Tachypnea	Normal	30	1.09	35.1	PFO, GOOD BIVENTRICULAR FUNCTION		yes	Adrenaline	3800	154000	
Bhuvaneshwari badig	NORMAL VAGINAL	6	8	9:00:00 AM	SIMV	6	Tachypnea	Normal	32	1.02	36.2	PDA		yes	Adrenaline	5620	151000	
Yasmeen bidri	CAESAREAN	6	9	2:30:00 AM	SIMV	3	Increased oxygen req	Normal	34	1.01	36.3	PFO, GOOD BIVENTRICULAR FUNCTION		No	others	12040	349000	
Rakshita Siddu Made	CAESAREAN	6	8	11:00:00 PM	HOOD O2		Tachypnea	Normal	34	0.8	35.2	PDA, PFO, GOOD BIVENTRICULAR FUNC		yes	Dopamine	9030	207000	
Jyothi nandur	CAESAREAN	6	8	5:45:00 PM	SIMV	6	Tachypnea	Normal	32	0.8	36.3	ASD		yes	Adrenaline	9650	227000	
Umera	CAESAREAN	6	9	9:00:00 AM	HOOD O2		Tachypnea	Normal	34	1.2	34.1	PDA, PFO, PAH	Mild	yes	Adrenaline	8460	226000	
Jyoti jadav	NORMAL VAGINAL	7	9	5:20:00 AM	HOOD O2		Tachypnea	Normal	35	0.8	36.9	PDA, PFO, GOOD BIVENTRICULAR FUNCTION		yes	Adrenaline	13820	204000	
Shilpa chavan	CAESAREAN	7	9	8:15:00 AM	HHFNC		Tachypnea	Normal	30	0.8	35.4	PDA		yes	Adrenaline	7840	209000	
Savitri Hiremath	NORMAL VAGINAL	7	9	3:21:00 PM	CPAP		Tachypnea	Normal	33	0.9	33.4	PDA, PAH, ASD	Mild	yes	Adrenaline	17480	201000	
Shruthi	NORMAL VAGINAL	7	8	10:58:00 PM	CPAP		Tachypnea	Normal	32	0.7	35.8	PDA, PAH, ASD	Mild	yes	Adrenaline	10840	250000	
Jyothi hanchinal	CAESAREAN	7	9	12:15:00 PM	CPAP		Tachypnea	Normal	32	0.6	35.9	PFO, GOOD BIVENTRICULAR FUNCTION		yes	Adrenaline	3550	155000	
Sunita	NORMAL VAGINAL	7	9	7:45:00 PM	CPAP		Tachypnea	Normal	30	0.7	32.8	PFO		yes	Adrenaline	4850	262000	
Chandrakala	CAESAREAN	7	8	10:50:00 AM	CPAP		Tachypnea	Normal	32	1.08	33.2	PFO, PAH	Mild	yes	Adrenaline	10620	344000	
Shruthi	NORMAL VAGINAL	6	8	3:20:00 PM	CPAP		Tachypnea	Normal	30	0.7	32.4	PFO		yes	Adrenaline	18780	362000	
Geeta	CAESAREAN	6	8	7:20:00 PM	CPAP		Tachypnea	Normal	30	0.7	35.8	PAH, ASD	Moderate	yes	Adrenaline	7180	253000	
676u	CAESAREAN	7	9	4:40:00 PM	HOOD O2		Tachypnea	Normal	35	0.8	32.9	PDA		yes	Adrenaline	20850	443000	
Preethi	NORMAL VAGINAL	7	9	7:05:00 AM	HOOD O2		Tachypnea	Normal	38	0.9	35.4	PAH	Mild	yes	Adrenaline	20650	202000	
Siddalingawwa Bhim	CAESAREAN	7	9	1:17:00 PM	HHFNC		Tachypnea	Normal	34	0.8	35.7	PDA, PAH	Moderate	yes	Adrenaline	13000	174000	
Jyothi Basavraj Metri	CAESAREAN	7	9	6:24:00 PM	CPAP		Tachypnea	Normal	34	0.9	36.3	PDA, PFO, GOOD BIVENTRICULAR FUNC		yes	Adrenaline	12810	188000	
Jyothi	CAESAREAN	7	9	6:35:00 AM	CPAP		Tachypnea	Tachycardia	34	0.8	30.4	PDA		yes	Dopamine	15620	209000	
Mamabhol	CAESAREAN	7	9	6:00:00 PM	CPAP		Tachypnea	Normal	30	0.6	36	PDA, ASD		yes	Dopamine	5910	221000	
Sunanda	NORMAL VAGINAL	6	8	5:20:00 PM	CPAP		Tachypnea	Normal	30	0.7	35.4	PAH	Mild	yes	Adrenaline	5930	327000	<5
Rubina	NORMAL VAGINAL	7	9	10:00:00 AM	SIMV	8	Tachypnea	Normal	32	0.8	35.9	PFO		yes	Adrenaline	1796	360000	<5
Vishali	NORMAL VAGINAL	5	7	12:15:00 PM	SIMV	2	Tachypnea	Normal	30	0.7	35.6	PFO		yes	Adrenaline	9480	190000	
Vaishnavi	NORMAL VAGINAL	5	7	4:12:00 PM	CPAP		Tachypnea	Normal	34	0.5	34	PFO, GOOD BIVENTRICULAR FUNCTION		yes	Dopamine	8810	307000	<5
Veena	CAESAREAN	7	9	12:46:00 AM	CPAP		Tachypnea	Normal	34	0.8	35.8	PDA, PFO, PAH	Severe	yes	Adrenaline	13310	191000	
Pooja Dadamani	CAESAREAN	7	9	4:56:00 AM	CPAP		Tachypnea	Normal	34	0.7	33.3	PDA, ASD, GOOD BIVENTRICULAR FUNC		yes	Adrenaline	15130	253000	
Tejashwini bajantri	NORMAL VAGINAL	7	9	2:38:00 PM	HOOD O2		Tachypnea	Normal	32	0.8	35.7	PDA, PFO, PAH	Moderate	yes	Dopamine	11910	38000	
Roopa kadam	NORMAL VAGINAL	3	6	1:32:00 PM	SIMV	3	Tachypnea	Normal	32	0.4	36.1	PFO, GOOD BIVENTRICULAR FUNCTION		yes	Adrenaline	20820	342000	
Pooja Dodamani	CAESAREAN	7	9	3:54:00 AM	CPAP		Tachypnea	Normal	34	0.8	36.3	PDA, PAH	Mild	yes	Adrenaline	7800	316000	
Kasturibai	CAESAREAN	8	9	10:20:00 AM	HHFNC		Tachypnea	Normal	33	0.7	35	PDA, PAH, VSD, ASD	Moderate	No	others	9820	190000	
Sunitha chavan	NORMAL VAGINAL	6	8	9:45:00 AM	CPAP		Tachypnea	Normal	32	0.7	33.6	PFO		yes	Dopamine, A	4850	315000	<5
Karishma tidagundi	NORMAL VAGINAL	7	9	12:12:00 AM	HHFNC	14	Apnea	Normal	34	0.7	36	PDA		yes	Dopamine, A	8100	230000	
Shridevi	NORMAL VAGINAL	7	9	10:33:00 PM	HOOD O2		Tachypnea	Normal	33	0.9	36.2	PDA		No	others	17870	191000	<5
Shruti sukad	NORMAL VAGINAL	6	9	10:54:00 AM	CPAP		Tachypnea	Normal	36	0.9	33.4	PFO		yes	Dopamine, A	6090	266000	
Gurubai	CAESAREAN	7	9	6:26:00 AM	HOOD O2		Tachypnea	Normal	34	0.7	32.7	PFO		No	Adrenaline	1661	217000	
Shobha	CAESAREAN	7	9	5:18:00 AM	HOOD O2		Tachypnea	Normal	35	1.1	35.8	PAH		No	others	10240	237000	
Vijayalakshmi rajput	CAESAREAN	6	9	5:24:00 PM	HOOD O2		Tachypnea	Normal	36	1.03	36.2	PDA		yes	Dopamine	6490	244000	
Preeti hugar T 2	NORMAL VAGINAL	7	9		HOOD O2		Tachypnea	Normal	32	0.9	35.4	PAH	Mild	No	others	20650	202000	Less then 5
Pavitra T1	CAESAREAN	7	9	1:00:00 AM	HHFNC		Tachypnea	Normal	30	0.9	35.9	PFO		No	others	11020	169000	Less then 9
Sushma sudhakar de	CAESAREAN	6	9		SIMV	7	Increased oxygen req	Normal	32	0.8	36.1	PFO		No	others	8000	93000	
Jyothi kallappa sonag	NORMAL VAGINAL	7	9		CPAP		Tachypnea	Normal	33	0.7	32.9	PFO		No	others	7430	327000	Less then 5
mainu rajasab balibai	CAESAREAN	7	9	2:00:00 AM	CPAP		Tachypnea	Normal	36	1.1	35.9	PDA		No	others	10320	157000	Less then 5
Savitri mahantgowda	CAESAREAN	7	9	1:00:00 AM	CPAP		Tachypnea	Normal	34	0.7	34.9	PDA, PAH	Mild	No	others	11390	206000	
Shilpa yuvaraj patil	CAESAREAN	7	9	2:00:00 AM	HHFNC		Tachypnea	Normal	35	0.7	35.9	PDA, PFO	Moderate	No	others	8150	205000	
Mantabai iliyas mirji	CAESAREAN	8	9	1:00:00 AM	CPAP		Tachypnea	Normal	32	0.7	34.9	PDA, PFO, PAH	Moderate	No	others	7690	246000	
Swathi	CAESAREAN	7	9	1:00:00 AM	HOOD O2		Tachypnea	Normal	35	0.8	32.9	GOOD BIVENTRICULAR FUNCTION		No	others	20850	443000	Less then 5
Geeta santosh birada	CAESAREAN	6	8	1:00:00 AM	CPAP		Tachypnea	Normal	30	0.7	35.8	PAH	Mild	yes	Dopamine, o	7180	253000	
Shruthi kiran jolli	NORMAL VAGINAL	6	8	5:00:00 AM	CPAP		Tachypnea	Normal	30	0.7	32.4	PFO		No	others	18780	362000	
Chandra kala katima	CAESAREAN	7	8	2:00:00 PM	CPAP		Tachypnea	Normal	32	1.08	33.2	PFO, PAH	Mild	yes	Adrenaline	10620	344000	
Vaishnavi T1 salake	NORMAL VAGINAL	6	9	1:00:00 AM	CPAP		Tachypnea	Normal	30	0.9	34.2	ASD		yes	Adrenaline	7970	281000	Less then 5
Shruthi pandre	CAESAREAN	8	9	1:00:00 AM	CPAP		Tachypnea	Normal	34	0.7	35.1	Ejection Fraction <60%		yes	Dopamine	12060	286000	
Shilpa s malli	CAESAREAN	7	9		CPAP		Tachypnea	Normal	34	0.9	36.4	PDA		yes	Dopamine, A	12870	318000	Less then 5
Bhubaneswari anil ba	NORMAL VAGINAL	6	8	8:00:00 AM	SIMV	5	Tachypnea	Normal	32	1.02	36.2	PDA		yes	Adrenaline,	6526	151000	
Jyothi nandur	CAESAREAN	6	8	1:00:00 AM	SIMV	3	Tachypnea	Normal	32	0.8	36.3	PAH		yes	Adrenaline	9650	227000	
Umera ilahi inamdar	NORMAL VAGINAL	6	9		HOOD O2		Tachypnea	Normal	34	1.2	34.1	PDA, PFO		yes	Dopamine	8460	226000	Less then 5
Neela Ravi jadav	NORMAL VAGINAL	7	9	1:00:00 AM	HOOD O2		Tachypnea	Normal	35	0.8	35.9	PDA		No	others	13820	20400	Less then 5
Rekha mallanagowda	CAESAREAN	4	7	1:00:00 AM	CPAP		Tachypnea	Normal	36	0.6	33	PAH, ASD	Severe	yes	Adrenaline,	18860	160000	Less then 5
Shilpa around kumar	CAESAREAN	7	9	5:20:00 PM	HHFNC		Tachypnea	Normal	38	0.8	35.4	GOOD BIVENTRICULAR FUNCTION		yes	Adrenaline	7840	209000	
Savitri mahesh hirem	NORMAL VAGINAL	7	9		CPAP		Tachypnea	Normal	33	0.9	33.4	PDA, PAH, ASD	Mild	No	others	17480	201000	
Shruthi saukand t2	NORMAL VAGINAL	7	8		CPAP		Tachypnea	Normal	32	0.73	35.8	PDA, PAH, ASD	Mild	yes	Adrenaline	10840	250000	
Sunitha suresh chara	NORMAL VAGINAL	7	9	1:00:00 AM	CPAP		Tachypnea	Normal	30	0.7	32.8	PFO		yes	Adrenaline	4850	262000	
Sudha vittal	NORMAL VAGINAL	5	9	1:00:00 AM	SIMV	4	Increased oxygen req	Normal	30	0.9	32	PFO, PAH	Mild	yes	Adrenaline	17400	265000	
Akshata basavraj	CAESAREAN	5	7		SIMV	2	Increased oxygen req	Normal	30	0.8	35.6	PDA, PAH	Mild	yes	Adrenaline	17760	229000	
Anasubai kupendra	CAESAREAN	7	9	2:00:00 AM	CPAP		Tachypnea	Normal	30	0.9	35.5	PFO, PAH, Ejection F	Mild	yes	Adrenaline,	3660	197000	
Sana peerzade	NORMAL VAGINAL	6	9	11:00:00 AM	SIMV	5	Increased oxygen req	Normal	35	0.9	35.5	PAH, ASD, GOOD BI	Mild	yes	Adrenaline	6850	164000	
Prema veeresh	CAESAREAN	7	9	2:00:00 AM	HHFNC		Tachypnea	Normal	34	0.8	35.5	PDA, PFO, PAH	Mild	yes	Adrenaline	13020	299000	
Amruta	CAESAREAN	7	9	2:00:00 AM	SIMV	3	Increased oxygen req	Normal	30	0.9	35.4	PDA, PAH, ASD		yes	Adrenaline	9060	206000	

Neelakka	5	70	7.3	23.4	138	40	15	1.9	3.8	Yes	Clinical	No		Piptaz	No		no	no	36	Discharge	23	10	LEVEL 2 (6-10)	Discharge
Anupamma	7.9	68	7.4	28	101	30	17	3.6	6.2	No		No		Piptaz	No		no	no	32	Discharge	8	3	LEVEL 1 (0-5)	Discharge
Laxmi ganesh math	17.2	102	7.48	31.6	182	30	13	2.2	14	Yes	Clinical	Yes	Proba	Piptaz	No		no	no	49	Discharge	5	3	LEVEL 1 (0-5)	Discharge
	6.9	70	7.38	26.9	109	40	16	5.3	8.5	No		Yes	Proba	Piptaz, Amikacin, Mer	No		no	no	40	Discharge	15	4	LEVEL 1 (0-5)	Discharge
Suryamadevi	8.2	80	7.41	27.1	174	40	17	6.6	7.3	No		Yes		Piptaz	No		no	no	29	Discharge	8	3	LEVEL 1 (0-5)	Discharge
Bijamma noorahemad	10.4	112	7.38	23.4	129	40	14	8	9.4	Yes	Clinical	No		Piptaz	No		no	no	63	Discharge	0	5	LEVEL 1 (0-5)	Discharge
Swaliya iliyas mujawa	11.8	78	7.35	38.3	124	40	21	1.6	3.2	No		No		Piptaz, Amikacin	No		no	no	38	Discharge	8	4	LEVEL 1 (0-5)	Discharge
Supriya taramulae	16	69	7.36	28.9	189	80	16	3.7	12.1	Yes	Clinical	Yes	Proba	Amikacin	No		no	no	48	Discharge	0	5	LEVEL 1 (0-5)	Discharge
Kaveri praveen kaleb	17.8	122	7.32	16.8	184	40	8.5	4.8	15.5	No		Yes	Clinic	Amikacin	No		no	no	48	Death	20	5	LEVEL 1 (0-5)	Death
Ragini m. Agnihotri	36.2	78	7.18	51.9	88	###	19	2.8	5.5	Yes	Clinical	No		Amikacin	No		no	no	56	Death	45	13	LEVEL 3 (11-15)	Death
Pavitra shankargoud	13.3	77	7.26	12.8	191	100	5.5	19.6	18.5	Yes	Probable	No		Piptaz, Amikacin	No		no	no	39	Death	13	1	LEVEL 1 (0-5)	Death
Ziya firozkhan t2	9	69	7.45	26.4	142	60	18	3.9	5.8	Yes	Clinical	Yes	Clinic	Amikacin, Meropene	No		no	no	48	Discharge	0	2	LEVEL 1 (0-5)	Discharge
Savitri aravind ganga	8.6	79	7.37	22.5	117	40	13	3.2	10.4	Yes	Clinical	No		Amikacin	No		no	no	46	Discharge	5	4	LEVEL 1 (0-5)	Discharge
Tasmiya mosin kolur	9	102	7.32	31.8	178	60	16	9	9	Yes	Clinical	Yes	Proba	Amikacin	No		no	no	72	Discharge	5	3	LEVEL 1 (0-5)	Discharge
Girija basayya wadag	21.2	107	7.33	22.5	232	40	12	2.1	12.5	No		No		Piptaz	No		no	yes	87	Discharge	0	4	LEVEL 1 (0-5)	Discharge
Ashwini minchanal t2		120	7.33	34.8	105	40	18	3.2	6.2	Yes	Clinical	Yes	Clinic	Piptaz, Amikacin	No		no	yes	68	Discharge	13	7	LEVEL 2 (6-10)	Discharge
Sumitra Prabhu Paw	15.5	136	7.43	23.5	160	40	15	3.5	6.6	No		No		Piptaz, Amikacin			no	no	24	Discharge	10	3	LEVEL 1 (0-5)	Discharge
Nadira ilyas mirji	8.5	63	7.28	25.1	180	40	14	4	9.1	No		No		Piptaz			yes	no	16	Discharge	8	3	LEVEL 1 (0-5)	Discharge
Sumitra Prabhu Paw	15.5	136	7.43	23.5	160	40	15	3.5	7.2	Yes	Clinical	No		Piptaz, Amikacin	yes	II	no	no	48	Discharge	10	3	LEVEL 1 (0-5)	Discharge
Deepali tipparkar		78	7.42	150	150	40	16	2.4	8	Yes	Clinical	No		Piptaz	No		no	yes	70	Discharge	5	3	LEVEL 1 (0-5)	Discharge
Rajashree Roli		75	7.41	118	118	40	16	5.7	5.8	No		No		Piptaz	No		no	no	48	Discharge	0	4	LEVEL 1 (0-5)	Discharge
Shantabai N hodagal	10.4	68	7.36	26.7	180	40	15	3.8	9.3	No		No		Piptaz	No		no	no	35	Discharge	13	4	LEVEL 1 (0-5)	Discharge
davalbe solapur	8	70	7.27	40.7	149	40	18	3.7	6.3	No		No		Piptaz	No		no	no	29	Discharge	13	5	LEVEL 1 (0-5)	Discharge
sana s jamadar	8.6	80	7.35	32.4	124	40	17	3.7	6.6	Yes	Clinical	No		Piptaz, Meropenem	No		no	no	18	Discharge	0	3	LEVEL 1 (0-5)	Discharge
Savitha hanumanthin	5	95	7.55	17.6	159	80	16	3.6	9.5	No		No		Piptaz			no	no	42	Discharge	15	4	LEVEL 1 (0-5)	Discharge
ashwin		82	7.36	23	57	40	13	2.4	11.3	Yes	Probable	No		Piptaz	No		no	no	48	Discharge	25	5	LEVEL 1 (0-5)	Discharge
Anjana Shivraj alabai		90	7.39	33	112	50	19	5.9	4.6	Yes	Clinical	Yes	Clinic	Piptaz, Amikacin, Mer	yes	II	no	no	72	Discharge	15	3	LEVEL 1 (0-5)	Discharge
Karuna rathod	18.5	86	7.2	22.5	168	40	8.4	3.5	-18.6	Yes	Clinical	No	Proba	Piptaz			no	no	28	Discharge	8	7	LEVEL 2 (6-10)	Discharge
MAMALAJ MAHIBOO		87	7.49	21	144	50	16	1.4	8.3	No	Clinical	No	Clinic	Piptaz	No		no	no	48	Discharge	13	4	LEVEL 1 (0-5)	Discharge
Suniya chandrasheka	25	362	7.32	35.2	107	80	18	3	5.6	Yes	Probable	No	Proba	Amikacin			no	yes	86	Discharge	18	4	LEVEL 1 (0-5)	Discharge
Sangeetha basavraj	53	105	7.37	17.2	165	100	9.6	1.5	6.1	No	Probable	No	Proba	Piptaz, Amikacin			no	yes	96	Discharge	5	3	LEVEL 1 (0-5)	Discharge
Sonam Jain		70	7.48	20.6	234	40	15	2.7	8.7	No	Proven	No	Prove	Piptaz	No		no	no	38	Discharge	0	4	LEVEL 1 (0-5)	Discharge
Bhagyashree N Yank	13.3	143	7.37	29.2	141	40	17	3.2	8	No	Probable	No	Proba	Piptaz, Amikacin			no	no	44	Discharge	9	2	LEVEL 1 (0-5)	Discharge
Sangeetha Ramesh	5.2	70	7.39	32.2	134	40	19	2.2	4.9	Yes	Clinical	No	Proba	None	No		no	yes	59	Discharge	13	4	LEVEL 1 (0-5)	Discharge
Prabhavati	6	70	7.3	26.2	82	40	14	3	9.2	Yes	Probable	Yes	Proba	Amikacin, Meropene	No		no	no	36	Discharge	18	4	LEVEL 1 (0-5)	Discharge
Ashwini Shridhar Jer	22	50	7.3	44	179	70	21	2.5	5	Yes	Clinical	No	Proba	Piptaz, Amikacin	No		no	no	40	Discharge	13	6	LEVEL 2 (6-10)	Discharge
Mamataj mahiboob b		70	4.35	35.8	187	40	19	2.6	6	No	Clinical	No	Clinic	Piptaz	No		no	no	40	Discharge	5	3	LEVEL 1 (0-5)	Discharge
Mallama bhimaraya h	10	96	7.3	36.6	102	40	17	5.2	8.5	No	Probable	No	Proba	Piptaz			no	no	48	Discharge	9	2	LEVEL 1 (0-5)	Discharge
Sumitra	73	98	7.3	31.2	183	80	15	2.4	9	No	Probable	Yes	Proba	Piptaz, Amikacin, Mer	No		no	no	22	Discharge	10	8	LEVEL 2 (6-10)	Discharge
Ashwini	6.8	223	7.33	34.5	164	40	18	2.7	6.4	No	Probable	No	Proba	Piptaz, Amikacin	yes		no	no	48	Discharge	0	2	LEVEL 1 (0-5)	Discharge
Savita pujari	12.2	76	7.35	23.2	93	40	13	5.3	11.7	No	Probable	No	Proba	Piptaz, Amikacin	No		no	yes	72	Discharge	13	5	LEVEL 1 (0-5)	Discharge
Shahin jalagar	17	65	7.26	48.9	149	40	21	4.1	3.9	Yes	Clinical	No	Proba	Piptaz	No		no	no	48	Discharge	13	6	LEVEL 2 (6-10)	Discharge
Indra mukesh mehata	11.6	58	7.3	28.3	152	50	17	2.9	8.5	No	Probable	No	Proba	Piptaz, Amikacin			no	yes	60	Discharge	5	5	LEVEL 1 (0-5)	Discharge
Nadira Ilyas Mirji	8.5	63	7.3	36.2	102	40	17	4.1	6.7	Yes	Clinical	No	Clinic	Piptaz	No		no	no	16	Discharge	8	3	LEVEL 1 (0-5)	Discharge
Savita	16.6	59	7.19	15	126	40	5.4	9.1	18.6	No	Probable	Yes	Clinic	Piptaz, Amikacin, Mer	yes	I	no	yes	36	Death	27	8	LEVEL 2 (6-10)	Death
Madhumati magadum	37	59	7.45	21.4	112	40	15	2.5	9.2	Yes	Clinical	No	Proba	Piptaz, Amikacin	No		no	no	40	Discharge	5	3	LEVEL 1 (0-5)	Discharge
Yallava pujari	18	64	7.39	25.3	111	40	15	1.9	9	No	Probable	No	Proba	Piptaz			no	no	48	Discharge	5	3	LEVEL 1 (0-5)	Discharge
Preeti hugar twin1	6.6	109	7.27	18.4	110	40	8.3	7.4	15.4	Yes	Clinical	No	Proba	Piptaz	yes	I	no	no	33	Discharge	13	5	LEVEL 1 (0-5)	Discharge
Renuka shrishail mas	5.1	143	7.38	25.8	92	40	15	3.2	-8.3	No	Probable	No	Proba	Piptaz			no	no	48	Discharge	5	2	LEVEL 1 (0-5)	Discharge
Mallamma hirekuraba	5.1	62	7.32	25.8	110	30	13	6.6	12	No	Clinical	Yes	Clinic	Piptaz, Meropenem	No		no	no	37	Discharge	13	4	LEVEL 1 (0-5)	Discharge
Geeta rajakumar nag	7.9	78	7.42	15.9	167	30	10	5.2	14	No	Probable	No	Proba	Piptaz			no	no	38	Discharge	0	4	LEVEL 1 (0-5)	Discharge
Savitri Hiremath	7	79	7.39	29.3	151	40	17	5.1	6.7	Yes	Clinical	No	Proba	Piptaz	yes	I	no	no	22	Discharge	8	3	LEVEL 1 (0-5)	Discharge
Vidyavathi bavikatti	10.4	89	7.45	21.2	163	40	15	1.3	8.4	Yes	Clinical	No	Proba	Piptaz			no	no	20	Discharge	0	4	LEVEL 1 (0-5)	Discharge
Savitri bellaki	11.7	83	7.29	37.1	162	30	18	2.8	7.4	No	Probable	No	Proba	Piptaz	No		no	no	28	Discharge	0	4	LEVEL 1 (0-5)	Discharge
Pavitra Rajput	23.7	78	7.42	18.2	178	40	12	3.3	12.9	Yes	Clinical	No	Clinic	Piptaz, Amikacin	No		no	no	38	Discharge	0	4	LEVEL 1 (0-5)	Discharge
Jyothi ravoor	5.7	75	7.45	22.6	14	30	15	4.9	8	No	Probable	No	Proba	Piptaz	No		no	no	22	Discharge	13	8	LEVEL 2 (6-10)	Discharge
Savita Basavaraj	6	78	7.38	28.7	93	50	17	2.6	7.4	Yes	Clinical	No	Clinic	Piptaz, Amikacin	No		no	no	55	Discharge	5	3	LEVEL 1 (0-5)	Discharge
SRUSHTI CHANNAY	23.7	78	7.41	28.5	113	40	18	1.6	6.5	Yes	Clinical	No	Clinic	Piptaz, Amikacin	No		no	no	48	Discharge	9	3	LEVEL 1 (0-5)	Discharge
LAXMI SHIVISHAIL	44.1	74	7.33	39.8	89	40	20	4	4.8	Yes	Clinical	No	Clinic	Piptaz, Amikacin	No		no	yes	76	Discharge	8	4	LEVEL 1 (0-5)	Discharge
SAMREEN JABAZ	7.7	84	7.41	22.6	141	40	14	3.7	8.4	Yes	Clinical	No	Clinic	Piptaz	No		no	no	8	Discharge	5	4	LEVEL 1 (0-5)	Discharge
Amruta Sadashiv	11	62	7.36	28.8	136	45	13	3.8	11.2	Yes	Clinical	No	Proba	Piptaz	No		no	no	48	Discharge	13	4	LEVEL 1 (0-5)	Discharge
Jayashree Suresh na	11.1	74	7.42	28.9	128	40	18	3.4	5.8	Yes	Clinical	No	Proba	Piptaz	No		no	no	20	Discharge	5	2	LEVEL 1 (0-5)	Discharge
Umera Ilahi Inamada	18.2	72	7.31	31.7	103	100	16	6.3	8.9	Yes	Clinical	Yes	Clinic	Piptaz, Amikacin, Mer	No		no	no	83	Discharge	5	4	LEVEL 1 (0-5)	Discharge
Laxmi sharanappa bo	5.7	119	7.45	18.6	118	40	13	3	11.3	Yes	Clinical	Yes	Clinic	Amikacin, Meropene	No		no	no	0	Discharge	0	4	LEVEL 1 (0-5)	Discharge
Channama	13	56	7.37	12.3	113	40	6.9	12.7	16.8	Yes	Clinical	No	Proba	Piptaz	No		no	no	49	Discharge	13	8	LEVEL 2 (6-10)	Discharge
Savita Devaraj Ajman	12.8	80	7.39	33.2	123	40	20	6.4	-5.3	No	Probable	No	Proba	Piptaz	No		no	no	56	Discharge	8	2	LEVEL 1 (0-5)	Discharge
Pratibha Niranjan Ba	43.2	63	7.33	27.2	129	40	14	2.9	9.9	No	Probable	Yes	Clinic	Piptaz, Amikacin, Mer	No		no	no	48	Discharge	5	4	LEVEL 1 (0-5)	Discharge
Shilpa Gururaj Patil	5.9	60	7.36	34.3	155	40	19	2.3	5.1	No	Probable	No	Proba	Piptaz, Amikacin, Mer	No		no	yes	72	Discharge	5	2	LEVEL 1 (0-5)	Discharge
Bismilla mainudinna	7.3	72	7.37	25.2	176	40	14	1.8	-9	Yes	Clinical	Yes	Clinic	Piptaz, Amikacin, Mer	No		no	no	63	Discharge	13	4	LEVEL 1 (0-5)	Discharge
Vaishnavi salunke	5	80	7.35	34.8	84	40	19	2.5	5.4	No	Probable	No	Proba	Piptaz			no	no	72	Discharge	26	5	LEVEL 1 (0-5)	Discharge
Shruthi pandre	7.5	62	7.4	26.2	166	40	16	4.5	8.3	No	Probable	No	Proba	Piptaz, Amikacin	No		no	no	40	Discharge	16	4	LEVEL 1 (0-5)	Discharge
Shilpa	22.6	115	7.35	34.8	84	40	19	4.8	5.5	No	Probable	No	Clinic	Piptaz, Amikacin			no	no	36	Discharge	10	5	LEVEL 1 (0-5)	Discharge
Farhana begum Faro	8.7	62	7.32	33.7	183	40	17	4.6	-7.6	Yes	Clinical	Yes	Clinic	Piptaz, Amikacin, Mer	No		no	no	49	Discharge	15	9	LEVEL 2 (6-10)	Discharge
Bhuvaneshwari badig	38.7	68	7.09	32.1	75	100	9.2	15	14.8	No	Probable	No	Proba	Piptaz			no	no	38	Discharge	32	6	LEVEL 2 (6-10)	Discharge
Yasmeen bidri	65	62	7.32	24.7	107	80	14	5.8	10.7	No	Probable	Yes	Clinic	Amikacin, Meropene	No		no	no	48	Discharge	10	3	LEVEL 1 (0-5)	Discharge
Rakshita Siddu Made	13	80	7.42	298	130	40	191	4.9	5.9	No	Probable	No	Proba	Piptaz	No		no	no	10	Discharge	13	3	LEVEL 1 (0-5)	Discharge
Jyothi nandur	7	63	7.1	53	95	100	16	6.5	8.3	No	Probable	No	Proba	Piptaz, Meropenem,	No		no	yes	72	Death	28	8	LEVEL 2 (6-10)	Death
Umera	5	109	7.3	23.7	172	30	11	5.9	12.9	No	Probable	No	Proba	Piptaz, Amikacin, Mer	No		no	yes	22	Discharge	5	4	LEVEL 1 (0-5)	Discharge
Jyoti jadav	5	64	7.43	24.2	147	45	16	3.9	8.1	No	Probable	No	Proba	Piptaz	No		no	no	23	Discharge	5	3	LEVEL 1 (0-5)	Discharge
Shilpa chavan	37.4	78	7.4	21.7	101	40	13	7.2	10.2	Yes	Probable	No	Proba	Piptaz, Amikacin	No		no	no	50	Discharge	24	4	LEVEL 1 (0-5)	Discharge
Savitri Hiremath	9.9	92	7.37	23	99	40	13	5.2	10.2	No	Probable	No	Proba	Piptaz	No		no	no	40	Discharge	18	6	LEVEL 2 (6-10)	Discharge
Shruthi	8.1	102	7.45	24.1	87	40	17	5.5	7.5	Yes	Clinical	No	Proba	Piptaz	No		no	no	48	Discharge	10	3	LEVEL 1 (0-5)	Discharge
Jyothi hanchinal	5.9	70	7.35	25.6	171	40	13	3.3	11.4	No	Probable	Yes	Clinic	Piptaz, Amikacin, Mer	No		no	no	57	Discharge	10	9	LEVEL 2 (6-10)	Discharge
Sunita	45	76	7.43	16	154	30	14	2.7	9.6	No	Probable	Yes	Clinic	Amikacin, Meropene	No		no	no	24	Discharge	25	10	LEVEL 2 (6-10)	Discharge
Chandrakala	8.1	78	7.42	24.9	120	30	16	4.8	9.8	No	Probable	No	Proba	Piptaz	No		no	no	39	Discharge	8	3	LEVEL 1 (0-5)	Discharge
Shruthi	6.5	68	7.44	28.9	150	35	19	1.3	4.9	Yes	Clinical	No	Proba	Piptaz	No		no	no	72	Discharge	23	10	LEVEL 2 (6-10)	Discharge
Geeta	14	103	7.28	45.5	123	100	20	1.5	3.9	Yes	Clinical	No	Proba	Piptaz			no	yes	79	Discharge	5	5	LEVEL 1 (0-5)	Discharge
676u	5	75	7.37	21.6	145	40	12	4.1	11.9	No	Probable	No	Proba	Piptaz	No		no	no	32	Discharge	5	4	LEVEL 1 (0-5)	Discharge
Preethi	5	105	7.33	16.1	163	40	8.3	7.3	15.7	Yes	Clinical	No	Proba	Piptaz	No		no	yes	47	Discharge	13	5	LEVEL 1 (0-5)	Discharge
Siddalingawwa Bhim	8.3	92	7.4	22.2	110	30	13	7.5	10.6	No	Probable	No	Proba	Piptaz, Metrogyl	No		no	yes	49	Discharge	5	3	LEVEL 1 (0-5)	Discharge
Jyothi Basavraj Metri	5	92	7.43	15.4	136	30	10	7.9	11.3	Yes	Probable	No	Proba	Amikacin	No		no	yes	38	Discharge	0	4	LEVEL 1 (0-5)	Discharge
Jyothi	8.5	98	7.26	34.6	79	40	15	4.1	9.2	Yes	Clinical	No	Clinic	Piptaz, Amikacin	No		no	no	83	Discharge	10	5	LEVEL 1 (0-5)	Discharge
Mamabhol	5	75	7.29	28.1	120	40	13	1.9	10.8	Yes	Clinical	No	Clinic	Piptaz, Amikacin	No		no	no	89	Discharge	8	5	LEVEL 1 (0-5)	Discharge
Sunanda		78	7.44	19.3	146	40	13	3	11.1	Yes	Clinical	No	Clinic	Piptaz	No		no	yes	72	Discharge	13	6	LEVEL 2 (6-10)	Discharge
Rubina		72	7.42	16.5	197	40	11	7.2	13.5	No	Clinical	No	Clinic	Piptaz, Amikacin	No		no	no	78	Discharge	10	4	LEVEL 1 (0-5)	Discharge
Vishali	8.3	70	7.21	38.4	245	40	15	2.69	9.4	No	Clinical	Yes	Clinic	Amikacin, Meropene	yes	I	no	no	55	Death	10	8	LEVEL 2 (6-10)	Death
Vaishnavi		75	7.24	31.9	62	40	13	5.9	11	Yes	Clinical	No	Clinic	Piptaz	No		no	no	56	Discharge	18	6	LEVEL 2 (6-10)	Discharge
Veena	7.8	153	7.39	31.4	176	40	18	34	4.9	Yes	Clinical	No	Clinic	Piptaz			no	no	73	Discharge	5	2	LEVEL 1 (0-5)	Discharge
Pooja Dadamani	28	38	7.43	25.7	118	40	17	4.5	7.4	Yes	Clinical	No	Clinic	Piptaz	No		no	no	48	Discharge	9	5	LEVEL 1 (0-5)	Discharge
Tejashwini bajantri	21.4	72	7.32	33.2	110	40	17	4.4	3.4	Yes	Clinical	No	Clinic	Piptaz, Amikacin	No		no	no	36	Discharge	9	3	LEVEL 1 (0-5)	Discharge
Roopa kadam	25.3	68	7.3	22.3	179	40	11	11	13.2	Yes	Clinical	No	Clinic	Piptaz	yes	I	no	no	70	Discharge	5	11	LEVEL 3 (11-15)	Discharge
Pooja Dodamani	7	58	7.26	38.4	95	40	17	7.1	7.5	Yes	Clinical	No	Clinic	Piptaz	No		no	yes	75	Discharge	10	3	LEVEL 1 (0-5)	Discharge
Kasturibai	9.2	70	7.21	33.4	168	40	13	5.8	11.3	Yes	Clinical	No	Clinic	Piptaz	No		no	no	34	Discharge	20	4	LEVEL 1 (0-5)	Discharge
Sunitha chavan		76	7.37	30.9	160	40	18	8.1	6.6	Yes	Clinical	Yes	Clinic	Piptaz	No		no	no	48	Discharge	8	6	LEVEL 2 (6-10)	Discharge
Karishma tidagundi	0.5	78	7.13	40	112	40	11	1.2	5.6	Yes	Clinical	No	Clinic	Piptaz	No		no	no	72	Discharge	17	5	LEVEL 1 (0-5)	Discharge
Shridevi		62	7.4	30.6	151	40	19	4.7	5.6	Yes	Clinical	No	Clinic	Piptaz	No		no	no	45	Discharge	5	2	LEVEL 1 (0-5)	Discharge
Shruti sukad	12	68	7.91	51.5	108	40	19	4.5	5.5	Yes	Clinical	No	Clinic	Piptaz	No		no	no	28	Discharge	17	5	LEVEL 1 (0-5)	Discharge
Gurubai	8.8	70	7.3	22.1	137	40	11	5.6	13.4	Yes	Clinical	No	Clinic	Piptaz			no	no	70	Discharge	9	4	LEVEL 1 (0-5)	Discharge
Shobha	7.5	68	7.39	33.5	87	40	20	2.5	4	Yes	Clinical	No	Clinic	Piptaz	No		no	no	60	Discharge	5	3	LEVEL 1 (0-5)	Discharge
Vijayalakshmi rajput	8.3	120	7.34	21.7	128	40	11	3.3	12.6	Yes	Clinical	No	Clinic	Piptaz	No		no	no	50	Discharge	0	4	LEVEL 1 (0-5)	Discharge
Preeti hugar T 2		105	7.33	16.1	163	40	8.3	7.3	13.7	Yes	Clinical	No	Clinic	Piptaz	No		no	yes	47	Discharge	13	5	LEVEL 1 (0-5)	Discharge
Pavitra T1		62	7.42	21	152	40	15	2.1	6.8	Yes	Proven	Yes	Prove	Amikacin	No		no	no	48	Discharge	0	0	LEVEL 1 (0-5)	Discharge
Sushma sudhakar de	8	54	7.33	20.3	148	70	10	2.1	11.6	No	Clinical	No	Clinic	Amikacin, Meropene	No		no	yes	36	Discharge	10	4	LEVEL 1 (0-5)	Discharge
Jyothi kallappa sonag		103	7.52	18	180	30	16	3.4	5.6	Yes	Probable	Yes	Proba	Amikacin	No		no	no	39	Discharge	12	3	LEVEL 1 (0-5)	Discharge
mainu rajasab balibai		48	7.32	28.1	129	30	14	3.5	7.9	No	Clinical	Yes	Clinic	Piptaz, Meropenem	No		no	yes	45	Discharge	0	4	LEVEL 1 (0-5)	Discharge
Savitri mahantgowda	21.9	70	7.38	26.9	109	30	16	2.7	6.5	Yes	Clinical	No	Prove	Piptaz, Amikacin			no	no	55	Discharge	10	4	LEVEL 1 (0-5)	Discharge
Shilpa yuvaraj patil	7.9	82	7.36	34.7	155	30	19	2.3	3.9	Yes	Clinical	No	Prove	Piptaz	No		no	no	68	Discharge	9	3	LEVEL 1 (0-5)	Discharge
Mantabai iliyas mirji	7.1	64	7.45	23.8	130	30	16	2.7	5.8	Yes	Clinical	No	Prove	Piptaz, Amikacin, Mer	No		no	no	38	DAMA	20	5	LEVEL 1 (0-5)	DAMA
Swathi		98	7.37	21.6	145	40	12	6.4	9.9	No	Proven	No	Prove	Piptaz	No		no	no	36	Discharge	5	4	LEVEL 1 (0-5)	Discharge
Geeta santosh birada	14	103	7.28	45.5	123	30	20	1.5	2.1	Yes	Clinical	No	Prove	Piptaz	No		no	yes	79	Discharge	5	5	LEVEL 1 (0-5)	Discharge
Shruthi kiran jolli	6.5	68	7.44	28.9	150	30	19	1.3	4.9	Yes	Clinical	No	Prove	Piptaz	No		no	no	72	Discharge	23	10	LEVEL 2 (6-10)	Discharge
Chandra kala katima	8.1	78	7.42	24.9	120	30	16	4.8	9.8	No	Proven	No	Prove	Amikacin	No		no	no	39	Discharge	8	3	LEVEL 1 (0-5)	Discharge
Vaishnavi T1 salake		96	7.35	34.8	84	30	19	2.5	5.4	No	Proven	No	Prove	Piptaz	No		no	no	76	Discharge	26	5	LEVEL 1 (0-5)	Discharge
Shruthi pandre	7.5	62	7.4	26.2	166	30	16	4.5	8.3	No	Proven	No	Prove	Piptaz	No		no	no	40	Discharge	16	4	LEVEL 1 (0-5)	Discharge
Shilpa s malli		96	7.35	34.8	84	30	19	4.8	5.5	No	Clinical	No	Prove	Piptaz, Amikacin	No		no	yes	76	Discharge	10	5	LEVEL 1 (0-5)	Discharge
Bhubaneswari anil ba	38.7	68	7.09	32.1	75	80	9.2	15	14.9	No	Proven	No	Prove	Piptaz	No		no	no	38	Discharge	32	6	LEVEL 2 (6-10)	Discharge
Jyothi nandur	7	63	7.1	53	95	60	16	6.5	8.3	Yes	Clinical	No	Prove	Piptaz, Meropenem,	No		no	no	76	Discharge	28	8	LEVEL 2 (6-10)	Discharge
Umera ilahi inamdar		109	7.3	23.7	172	40	11	5.9	12.9	No	Proven	Yes	Clinic	Piptaz, Amikacin, Mer	No		no	yes	36	Discharge	5	4	LEVEL 1 (0-5)	Discharge
Neela Ravi jadav		64	7.43	24.2	147	40	16	3.9	6.1	No	Proven	No	Prove	Piptaz	No		no	no	34	Discharge	9	4	LEVEL 1 (0-5)	Discharge
Rekha mallanagowda		59	7.36	34	131	30	19	3.7	6.5	No	Proven	Yes	Clinic	Piptaz, Meropenem	No		no	yes	79	Discharge	20	4	LEVEL 1 (0-5)	Discharge
Shilpa around kumar	37.4	78	7.4	21.7	101	30	13	7.2	10.2	Yes	Clinical	No	Prove	Piptaz, Amikacin	No		no	no	50	Discharge	29	4	LEVEL 1 (0-5)	Discharge
Savitri mahesh hirem	9.9	92	7.37	23	99	30	13	5.2	12.2	No	Proven	No	Prove	Amikacin	No		no	no	40	Discharge	18	6	LEVEL 2 (6-10)	Discharge
Shruthi saukand t2	8.1	102	7.75	24.1	87	30	17	5.5	7.5	Yes	Clinical	No	Prove	Piptaz	No		no	no	49	Discharge	10	3	LEVEL 1 (0-5)	Discharge
Sunitha suresh chara	5	76	7.43	16	154	30	14	2.7	9.6	No	Proven	Yes	Clinic	Amikacin, Meropene	No		no	no	48	Discharge	25	10	LEVEL 2 (6-10)	Discharge
Sudha vittal	7.2	69	7.19	15.6	8.4	80	5.7	11.6	16.3	Yes	Clinical	Yes	Clinic	Piptaz, Amikacin, Meropenem			no	no	48	Discharge	28	9	LEVEL 2 (6-10)	Discharge
Akshata basavraj	16.3	167	7.27	19.9	15	80	8.9	13.5	15.1	No	Probable	No	Proba	Amikacin	yes	I	no	yes	48	Discharge	10	5	LEVEL 1 (0-5)	Discharge
Anasubai kupendra	31.5	76	7.2	56	137	35	21	1.2	3.2	Yes	Probable	Yes	Proba	Vancomycin	No		no	yes	74	Discharge	8	6	LEVEL 2 (6-10)	Discharge
Sana peerzade	29.9	78	7.32	32.4	77	60	16	4.3	8	No	Probable	No	Proba	Meropenem	No		yes	yes	94	Discharge	13	4	LEVEL 1 (0-5)	Discharge
Prema veeresh	8.1	132	7.47	21.9	155	30	16	1.9	8.1	Yes	Probable	Yes	Proba	Amikacin	No		no	no	32	Discharge	5	4	LEVEL 1 (0-5)	Discharge
Amruta	9	70	7.26	39.3	97	80	18	2.8	7.3	Yes	Clinical	Yes	Proba	Piptaz, Amikacin	No		no	no	38	Discharge	5	5	LEVEL 1 (0-5)	Discharge