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"The Reds Score As An Outcome Predictor Among The Patients With Sepsis In Surgical Post Op Ward And Emergency Ward"

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I. INTRODUCTION

Early diagnosis and treatment are essential for managing sepsis, an illness that can be fatal. Therefore, it's crucial to identify emergency room patients who are most at danger of passing away. Finding the high-risk patients will enable additional care attention and assist in choosing the recipient of the transfer. . An evidence-based risk-stratification score can be used to pinpoint patients

who are very susceptible to dying. Any score that is used should be simple to calculate utilising easily accessible variables is must. Sepsis is defined objectively as an increase of at least two points in the Sequential Organ Failure Assessment (SOFA) score[4] ,which translates to a mortality rate of above 10%. Since the presenting and baseline SOFA scores must be calculated, calculating the change in SOFA score in a busy ED is at best work and at worst erroneous because some of the criteria are not met or are not frequently recorded there. The three factors in the quick-SOFA (qSOFA) score are respiration rate (RR) 22/min, systolic blood pressure (SBP) 100 mm Hg, and altered mental state. It was developed to risk-stratify patients without the use of blood tests. The patient is classified as having a high risk of dying if more than two variables are present.

Variable	Score	Guidance
(1) Age ≥65y	1	
(2) Altered mental state	1	Use initial values or values measured at a given point in time
(3) Systolic blood pressure ≤100 mm Hg	1	
(4) Respiratory rate ≥22/min	1	
(5) Lactate ≤2mmol/l 2.1-3.9mmol/l ≥4mmol/l	0 1 3	Use initial or highest lactate
(6) Albumin ≤27g/l	1	
(7) INR ≥1.3	1	If on warfarin or a DOAC, score 0
(8)No Refractory hypotension Refractory hypotension and lactate ≤2mmol/l Refractory hypotension and lactate >2mmol/l	0 2 3	Refractory Hypotension (RH)=the requirement for vasopressors to maintain MAP >65mm Hg after 2l fluid bolus. Use a MAP<62mmHg after 2l fluid bolus as an indicator for the need for vasopressors. Use the lactate taken after the fluid bolus to stratify RH.
REDS score	__/12	

Figure 1 The Risk-stratification of Emergency Department suspected Sepsis (REDS) score. DOAC, directly acting oral anticoagulants; INR, international normalised ratio; MAP, mean arterial pressure; RH, refractory hypotension.

AIM OF THE STUDY

"The REDS score as an outcome predictor among the patients with sepsis in surgical post op ward and Emergency ward"

II. MATERIALS AND METHODS

STUDY DESIGN : Crosssectional **study**

STUDY POPULATION : All patients admitted with a diagnosis of sepsis to the department of general surgery, In Our tertiary care Hospital during a period of one year

PERIOD OF STUDY: ONE YEAR

SAMPLE SIZE: 150

METHODOLOGY

• Written informed consent will be obtained from all subjects before involving in study
• Pt will be explained regarding their diagnosis, condition and modalities of treatment.
• Two groups to be studied.
• Each group consist of 75 patients
• In First group of patients with , REDS score is used to predict the outcome
• In second group of patients , qSOFA and sMISSED Score in used
• Outcome of all these scores are analysed.

INCLUSION CRITERIA

All patients presenting to the surgery and emergency department with
1.Age > 13yrs
2. Diabetic foot
3. Necrotising fasciitis
4. gas/ wet or dry gangrene
5. Post surgical site infection in sepsis
6. Peritonitis secondary to perforation
7. abscess/ Fournier's gangrene

EXCLUSION CRITERIA

1.Age <13years
2.Pregnant females

3. Excluding medical causes

SAMPLING METHOD

Judgemental sampling method will be taken.

After consent , baseline data will be collected and followed up appropriate

III. RESULTS AND OBSERVATIONS:

The collected data were analysed with IBM SPSS Statistics for Windows, Version 23.0.(Armonk, NY: IBM Corp).To describe about the data descriptive statistics frequency analysis, percentage analysis were used for categorical variables and the mean & S.D were used for continuous variables. To find the efficacy of the QSofa, SMissed and Redscore to predict the Mortality the Receiver Operating Characteristics curve(ROC) was used with Sesitivity,Specificity,PPV ,NPV & accuracy. In all the above statistical tools the probability value .05 is considered as significant level.

Table 1: Age distribution

Age distribution		
	Frequency	Percent
Upto 30 yrs	4	2.7
31 - 40 yrs	11	7.3
41 - 50 yrs	32	21.3
51 - 60 yrs	48	32.0
61 - 70 yrs	47	31.3
71 - 80 yrs	8	5.3
Total	150	100.0

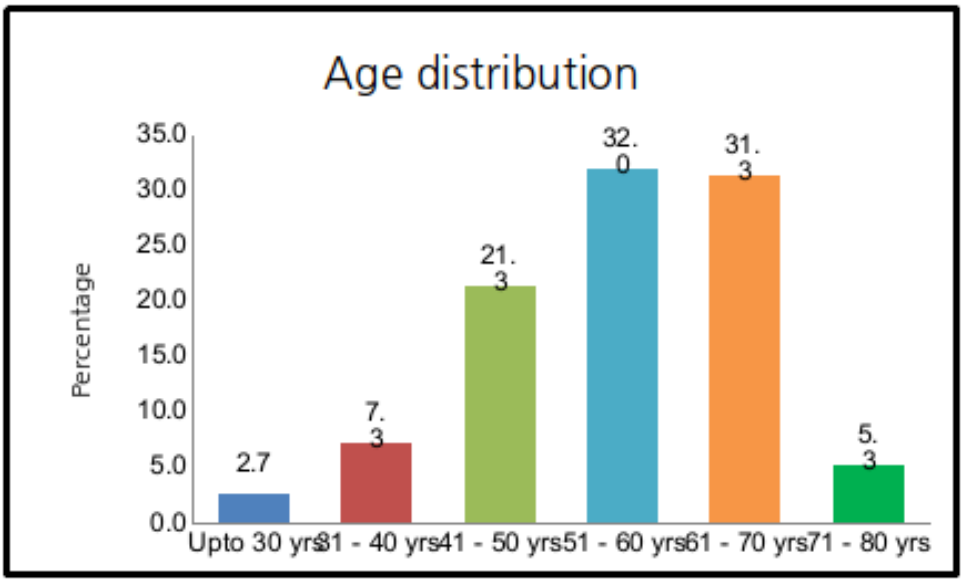

Figure 1

The above table shows Age distribution were <30 years is 2.7%, 31-40 years is 7.3%, 41-50 years is 21.3%, 51-60 years is 32.0%, 61-70 years is 31.3%, 71-80 years is 5.3%.

Table 2: Gender distribution

Gender distribution		
	Frequency	Percent
Female	66	44.0
Male	84	56.0
Total	150	100.0

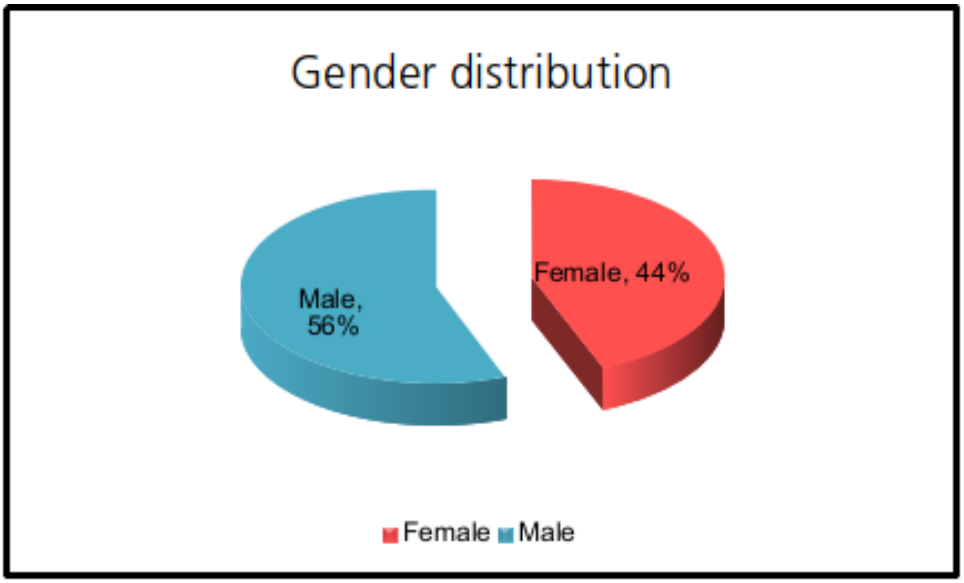

Figure 2

The above table shows Gender distribution were Female is 44.0%, Male is 56.0%.

Table 3: Comorbids distribution

Comorbids		
	Frequency	Percent
Absent	19	12.7
Present	131	87.3
Total	150	100.0

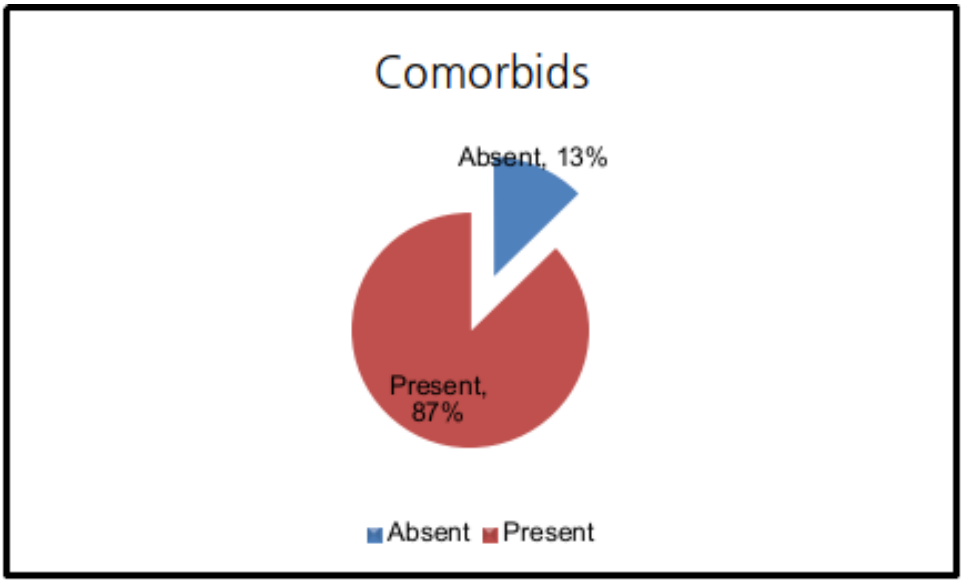

Figure 3

The above table shows Comorbids distribution were Absent is 12.7%, Present is 87.3%.

Table 4: Source distribution

Source		
	Frequency	Percent
ANP	5	3.3
DFS	64	42.7
DG	5	3.3
FG	1	.7
NF	25	16.7
PA	1	.7

PP	30	20.0
TBA	1	.7
WG	18	12.0
Total	150	100.0

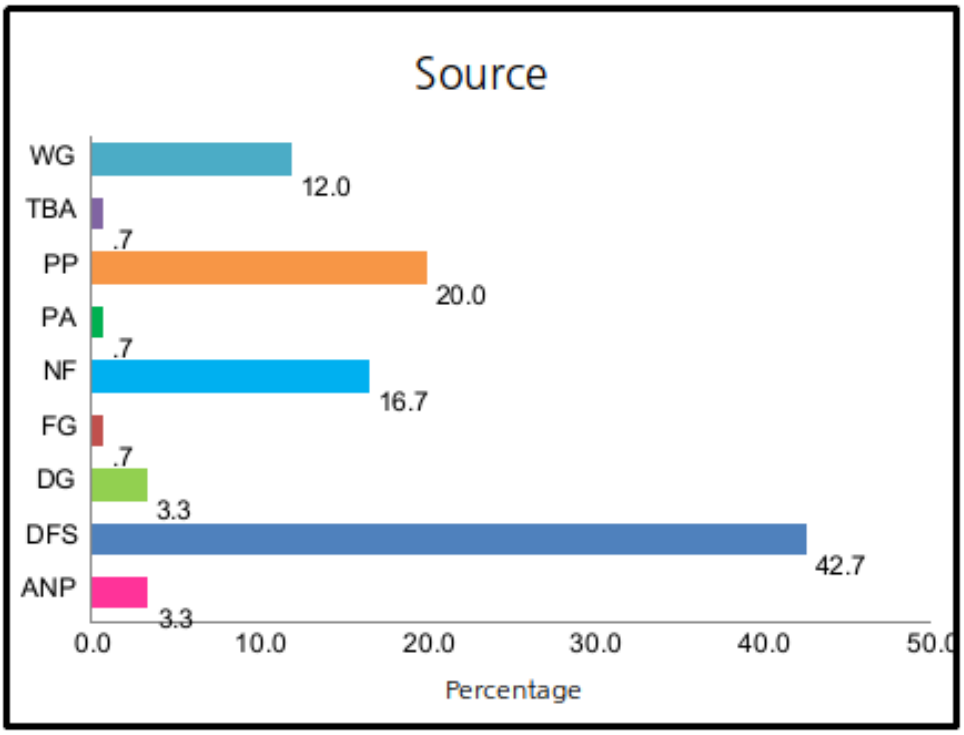

Figure 4

The above table shows Source distribution were DFS has highest percentage (42.7%), FG, PA, TBA has lowest percentage (0.7%).

Table 5: Blood C/S distribution

Blood C/S		
	Frequency	Percent
Acinetobacter	11	7.3
Awaited	1	.7
E.coli	20	13.3
Klebsiella	15	10.0
MRSA	1	.7
No growth	6	4.0
Proteus	36	24.0
Pseudomonas	45	30.0
Sr.Fecalis	5	3.3
Stap aureus	10	6.7
Total	150	100.0

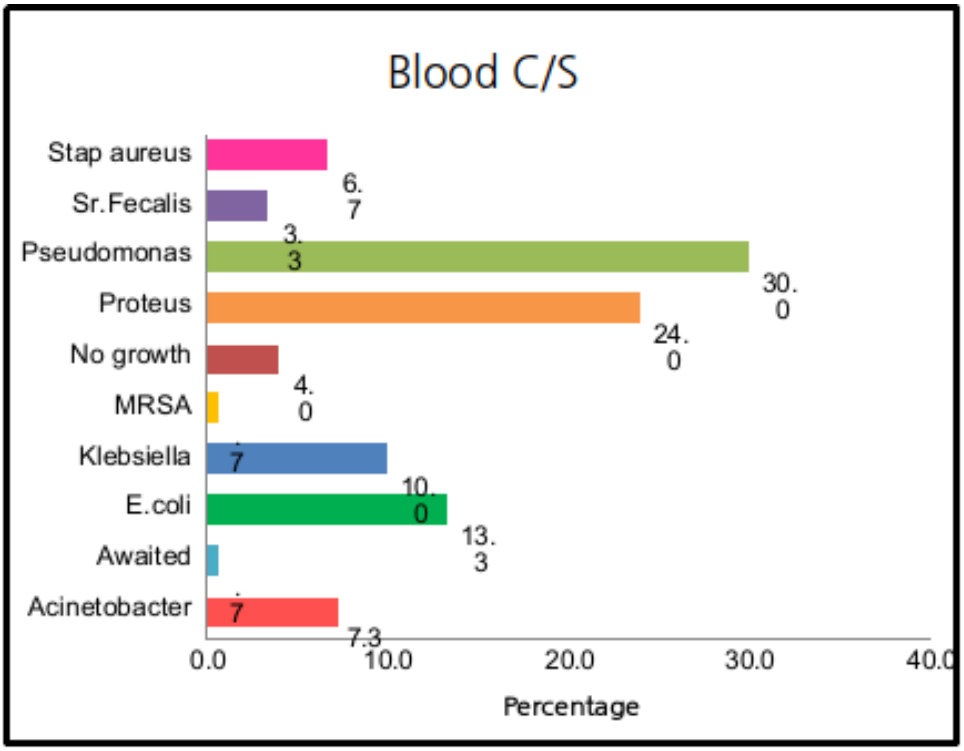

Figure 5

The above table shows Blood C/S distribution were Pseudomonas has highest percentage (30.0%), Awaited, MRSA has lowest percentage (0.7%).

Table 6: Need for Inotropes [Yes / No] distribution

Need for Inotropes [Yes/No]		
	Frequency	Percent
No	62	41.3
Yes	88	58.7
Total	150	100.0

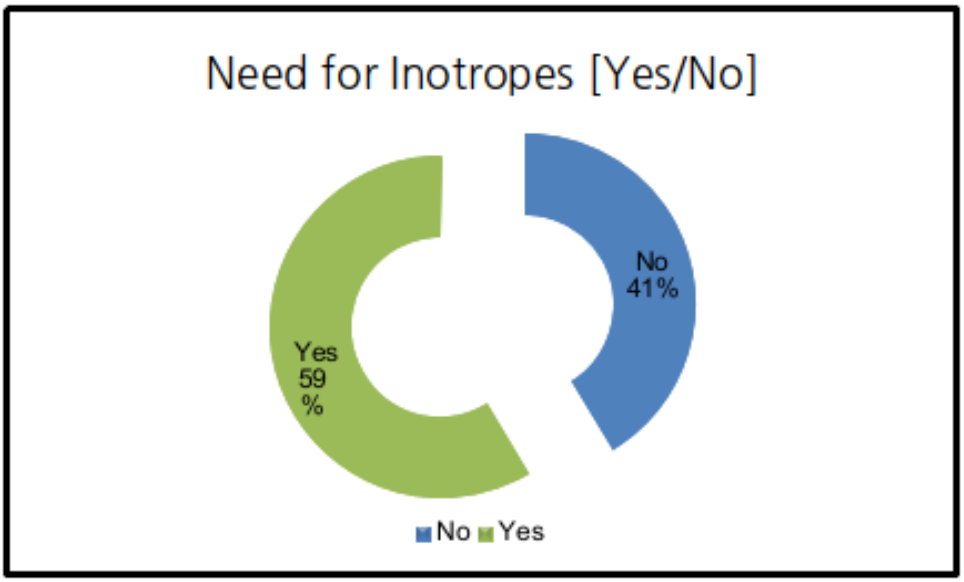

Figure 6

The above table shows Need for Inotropes [Yes/No] distribution were No is 41.3%, Yes is 58.7%.

Table 7: Outcome distribution

Outcome		
	Frequency	Percent
Dead	44	29.3
Alive	106	70.7
Total	150	100.0

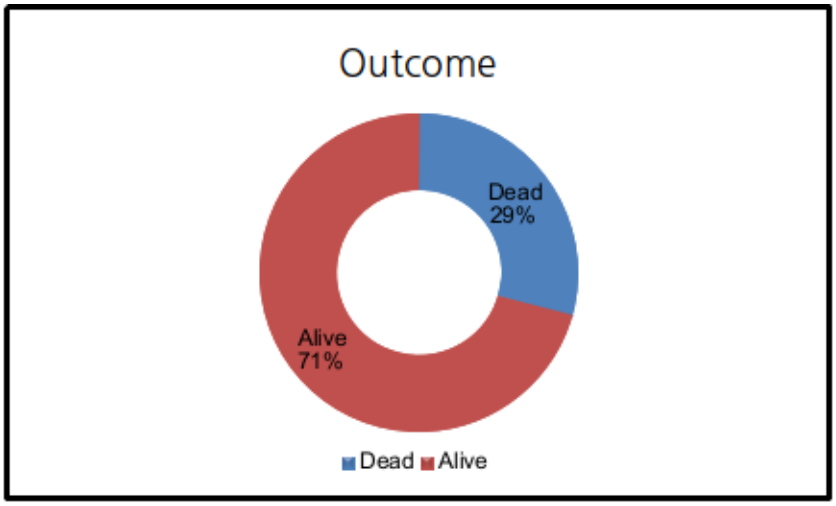

Figure 7

The above table shows Outcome distribution were Dead is 29.3%, Alive is 70.7%.

Table 8: Comparison of qSOFA, sMISSED, REDS SCORE with Outcome using Receiver Operating Characteristic curve (RoC)

Area Under the Curve					
Test Result Variable(s)	Area	Std. Error	p-value	95% C.I	
				LB	UB
qSOFA	.686	.044	0.0003 **	.600	.773
sMISSED	.779	.039	0.0005 **	.703	.854
REDS SCORE	.988	.009	0.0005 **	.971	1.000
** Highly Statistical Significance at p < 0.01 level					

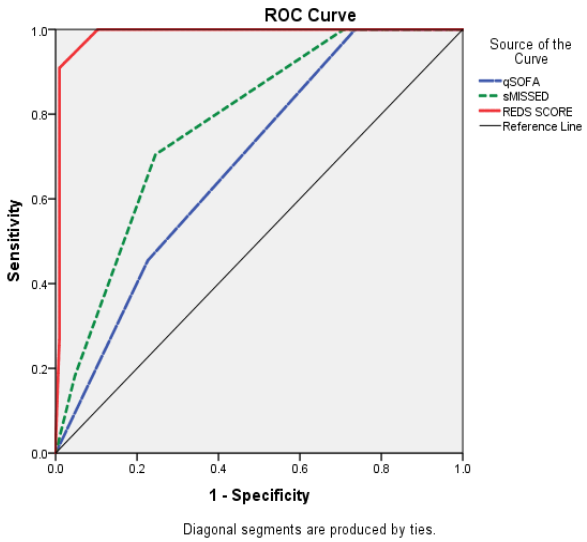

Figure 8

		Outcome		Total	Sensitivity	45.5
		Dead	Alive		Specificity	77.4
qSOFA	>= 2	20	24	44	PPV	45.5
	< 2	24	82	106	NPV	77.4
Total		44	106	150	Accuracy	68.0
		Outcome		Total	Sensitivity	70.5
		Dead	Alive		Specificity	75.5
sMISSED	>= 2	31	26	57	PPV	54.4
	< 2	13	80	93	NPV	86.0
Total		44	106	150	Accuracy	74.0
		Outcome		Total	Sensitivity	90.9
		Dead	Alive		Specificity	99.1
REDS SCORE	>= 7	40	1	41	PPV	97.6
	< 7	4	105	109	NPV	96.3
Total		44	106	150	Accuracy	96.7

The above table shows the comparison of qSOFA, sMISSED, REDS SCORE with Outcome using Receiver Operating Characteristic curve (RoC), were qSOFA with Outcome shows the area of the curve is 0.686, p- value= 0.0003<0.01 with 95% C.I 0.600 to 0.773, which is highly statistical significance with the Sensitivity is 45.5%, Specificity 77.4%, PPV 45.5%, NPV 77.4% and accuracy is 68.0%, similarly sMISSED with Outcome shows the area of the curve is 0.779, p- value= 0.0005<0.01 with 95% C.I 0.703 to 0.854, which is highly statistical significance with the Sensitivity is 70.5%,Specificity 75.5%, PPV 54.4%,NPV 86.0% and accuracy is 74.0%, where as in REDS SCORE with Outcome shows the area of the curve is 0.988, p- value= 0.0005<0.01 with 95% C.I 0.971 to 1.000, which is highly statistical significance with the Sensitivity is 90.9%,Specificity 99.1%, PPV 97.6%,NPV 96.3% and accuracy is 96.7% respectively.

Table 9: Descriptive Statistics

Descriptive Statistics					
	N	Minimum	Maximum	Mean	SD
AGE	150	22	80	55.6	11.2
GCS	150	11.0	14.0	12.8	0.8
HR	150	98.0	142.0	118.4	9.3
MAP	150	46.0	83.0	66.7	5.5
RR	150	16.0	46.0	29.2	5.2
TEMP	150	4.0	39.1	37.2	4.8
URINE O/P	150	.2	5.0	0.5	0.5
Albumin	150	22.0	31.0	26.5	1.9
INR>1.3	150	.80	2.50	1.4	0.4

The above table shows Descriptive Statistics of AGE, GCS, HR, MAP, RR, TEMP, URINE O/P, Albumin, INR>1.3.

IV. SUMMARY

- The Age distribution were <30 years is 2.7%, 31-40 years is 7.3%, 41-50 years is 21.3%, 51-60 years is 32.0%, 61-70 years is 31.3%, 71-80 years is 5.3%.
- The Gender distribution were Female is 44.0%, Male is 56.0%.
- The Comorbids distribution were Absent is 12.7%, Present is 87.3%.
- The Source distribution were DFS has highest percentage (42.7%), FG, PA, TBA has lowest percentage (0.7%).
- The Blood C/S distribution were Pseudomonas has highest percentage (30.0%), Awaited, MRSA has lowest percentage (0.7%).
- The Need for Inotropes [Yes/No] distribution were No is 41.3%, Yes is 58.7%.
- The Outcome distribution were Dead is 29.3%, Alive is 70.7%.

- The qSOFA, sMISSED, REDS SCORE with Outcome using Receiver Operating Characteristic curve (RoC), were qSOFA with Outcome shows the area of the curve is 0.686, p- value= 0.0003<0.01 with 95% C.I 0.600 to 0.773, which is highly statistical significance with the Sensitivity is 45.5%, Specificity 77.4%, PPV 45.5%, NPV 77.4% and accuracy is 68.0%, similarly sMISSED with Outcome shows the area of the curve is 0.779, p- value= 0.0005<0.01 with 95% C.I 0.703 to 0.854, which is highly statistical significance with the Sensitivity is 70.5%,Specificity 75.5%, PPV 54.4%,NPV 86.0% and accuracy is 74.0%, where as in REDS SCORE with Outcome shows the area of the curve is 0.988, p- value= 0.0005<0.01 with 95% C.I 0.971 to 1.000, which is highly statistical significance with the Sensitivity is 90.9%,Specificity 99.1%, PPV 97.6%,NPV 96.3% and accuracy is 96.7% respectively.

V. CONCLUSION:

From the above study, on comparing the sepsis score like qSOFA, sMISSED and REDS score, REDS score have high sensitivity and specificity in predicting the mortality among the patients with sepsis in Emergency ward and surgical post op ward

REFERENCES:

[1]. Singer M, Deutschman CS, Seymour CW, Et Al. The Third International Consensus Definitions For Sepsis And Septic Shock (Sepsis-3). JAMA 2016;315:801–10.
[2]. Rhodes A, Evans LE, Alhazzani W, Et Al. Surviving Sepsis Campaign: International Guidelines For Management Of Sepsis And Septic Shock: 2016. Crit Care Med 2017;45:486–552.
[3]. National Confidential Enquiry In To Patient Outcome And Death- 'Just Say Sepsis', 2015. Available: Www.Ncepod.Org.Uk
[4]. Vincent J-L, Moreno R, Takala J, Et Al. The SOFA (Sepsis-Related Organ Failure Assessment) Score To Describe Organ Dysfunction/ Failure. Intensive Care Med 1996;22:707–10.
[5]. Seymour CW, Liu VX, Iwashyna TJ, Et Al. Assessment Of Clinical Criteria For Sepsis: For The Third International Consensus Definitions For Sepsis And Septic Shock (Sepsis-3). JAMA 2016;315:762–74.
[6]. Freund Y, Lemachatti N, Krastinova E, Et Al. Prognostic Accuracy
[7]. Of Sepsis-3 Criteria For In-Hospital Mortality Among Patients With Suspected Infection Presenting To The Emergency Department. JAMA 2017;317:301–8.
[8]. Churpek MM, Snyder A, Han X, Et Al. Quick Sepsis-Related Organ Failure Assessment, Systemic Inflammatory Response Syndrome, And Early Warning Scores For Detecting Clinical Deterioration In Infected Patients Outside The Intensive Care Unit. Am J Respir Crit Care Med 2017;195:906–11.
[9]. Song J-U, Sin CK, Park HK, Et Al. Performance Of The Quick Sequential (Sepsis-Related) Organ Failure Assessment Score As A Prognostic Tool In Infected Patients Outside The Intensive Care Unit: A Systematic Review And Meta-Analysis. Critical Care 2018;22.
[10]. Fernando SM, Tran A, Taljaard M, Et Al. Prognostic Accuracy Of The Quick Sequential Organ Failure Assessment For Mortality In Patients With Suspected Infection: A Systematic Review And Meta-Analysis. Ann Intern Med 2018;168:266–75.
[11]. Sivayoham N, Rhodes A, Cecconi M. The Missed Score, A New Scoring System To Predict Mortality In Severe Sepsis In The Emergency Department: A Derivation And Validation Study. Eur J Emerg Med 2014;21:30–6.
[12]. Ryoo SM, Ahn S, Kim WY, Et Al. External Validation Of The MISSED Score To Predict Mortality In Patients With Severe Sepsis And Septic Shock In The Emergency Department. Eur J Emerg Med 2015;22:327–30.