

Assessment of the Predictive Value of Euroscore in the Patients of CTVS Department

By

Vivek Kumar Singh

*Dissertation submitted for the partial fulfillment of the
MBA Hospital and Health Management*

Academic year, 2015-2017



The IIHMR University, Jaipur

1, Prabhu Dayal Marg, Sanganer, Airport
Jaipur 302029, Rajasthan
Ph: 0141 3924700, Fax: 3924738
Website: www.iihmr.edu.in

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Website: www.iihmr.edu.in

TO WHOMSOEVER MAY CONCERN

This is to certify that Dr. Vivek Kumar Singh student of MBA Health and Hospital Management from The IIHMR University, Jaipur has undergone internship training at "EHCC, Jaipur" from 6th February to 5th May 2017.

The Candidate has successfully carried out the study designated to him during internship training and his approach to the study has been sincere, scientific and analytical.

The Internship is in fulfillment of the course requirements.

I wish him all success in all his future endeavors.



Dr. Ashok Kaushik
Dean, Academics and Student Affairs
The IIHMR University, Jaipur



Dr. Sandesh Kumar Sharma
Associate Professor
The IIHMR University, Jaipur

TO WHOMSOEVER IT MAY CONCERN

This is to certify that **Dr. Vivek Kumar Singh** student of **IIHMR, Jaipur** has completed his internship at **"Eternal Hospital, Jaipur"** from **06th Feb 2017 to 05th May 2017**.

During this period, he has successfully completed his projects on:

1. Euroscore Pre-Operative Mortality Rate Calculation in CTVS Department.
2. Gap Analysis of Radiology Department according to NABH Standards.
3. Gap Analysis of Emergency Department according to NABH Standards

He comes across as a committed, sincere & diligent person who has a strong drive and zeal for learning.

We wish him all the best for future endeavours.

For **ETERNAL HEART CARE CENTRE AND RESEARCH INSTITUTE, JAIPUR**


Ashok K Jeenwal
Manager - HR

THE IIHMR UNIVERSITY, JAIPUR

CERTIFICATE BY SCHOLAR

This is to certify that the dissertation titled “**Assessment of the predictive value of EuroSCORE in the patients of CTVS department at Eternal Heart Care Center, Jaipur**” and submitted by **Dr. Vivek Kumar Singh** Enrollment No. **IIHMR-U/01/2015-17/20/ 0365** under the supervision of **Dr. Sandesh Kumar Sharma** for award of MBA in Hospital and Health of the University carried out during the period from 6th February, 2017 to 5th May, 2017 embodies my original work and has not formed the basis for the award of any degree, diploma associate ship, fellowship, titles in this or any other institute or other similar institution of higher learning.



Signature

Dr. Vivek Kumar Singh

THE IIHMR UNIVERSITY, JAIPUR

CERTIFICATE BY SCHOLAR

This is to certify that all ethical issues have been considered while collecting data for my dissertation titled “Assessment of the predictive value of EuroSCORE in the patients of CTVS department at Eternal Heart Care Center, Jaipur”



Signature

Dr. Vivek Kumar Singh

ACKNOWLEDGEMENT

Apart from the efforts of me, the success of any project depends largely on the encouragement and guidelines of many others. I take this opportunity to express my gratitude to the people who have been instrumental in the successful completion of this dissertation project.

I would like to show my greatest appreciation to Mr. Subroto Das(HR-Head). I can't say thank you enough for his tremendous support and help.

I am heartily thankful to Kirti Hemkar (Quality Head) whose encouragement, guidance and support from the initial to the final level enabled me to develop an understanding of the subject, feel motivated and encouraged every time. Without her encouragement and guidance this project would not have materialized.

The guidance and support received from my Colleague Dr. Priyanka Kundrai and Mr. Praveen Batra has been a vital element in the success of the project.

My sincere thanks to my mentor, Dr. Sandesh Kumar Sharma for his support and to Dr. Ashok Kaushik (Dean Academics), and respected faculties for their guidance. Lastly, I offer my regards and blessings to all of those who supported me in any respect during the completion of the project

Dr. Vivek Kumar Singh

Management Trainee

Eternal Hospital

ACRONYMS

CTVS – CARDIO THORACIC VASCULAR SURGERY

ICU – INTENSIVE CARE UNIT

SICU – SURGICAL INTENSIVE CARE UNIT

MICU –MEDICAL INTENSIVE CARE UNIT

EUROSCORE – EUROPEAN SYSTEM FOR CARDIAC
OPERATIVE RISK EVALUATION.

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PROJECT REPORT

INTRODUCTION

EuroSCORE stands for European System for Cardiac Operative Risk Evaluation. It is a prognostic scoring system which was developed in Europe for patients undergoing cardiac surgery. The system was developed by the study of more than 20,000 consecutive patients across 128 hospitals in Eight European countries. In totality, there were 97 risk factors and the outcome was based on the pre-operative risk factors. Amongst all the risk factors the most important, reliable and objective factors were chosen to devise the EuroSCORE calculator.

1.1 EuroSCORE as a quality indicator-

Operative mortality is a good indicator of quality in cardiac surgical care if all the short-listed risk factors are taken into consideration. EuroSCORE calculates the predictive operative mortality for patients undergoing cardiac surgery.

1.2 Working of EuroSCORE –

Working of the EuroSCORE calculator is very simple. Every risk factor is assigned with some number or weight and if it is present the same is assigned to that patient. The weights are then added to give the approximate prediction of the operative mortality.

1.3 Types of EuroSCORE Calculator –

Originally two types of calculators were developed, namely simple additive EuroSCORE and the full logistic EuroSCORE. Simple one has proved its efficacy in bedside calculation and its easy calculation has made it patient friendly. The only drawback with this version is of underestimation of high risk patient. The logistic calculator however regards all the risk factors and give much more accurate calculations than simple one. The drawback of logistic one is that its calculations are not easy to do hence not patient friendly.

The simple and logistic calculators have now become outdated. The new developed calculator so called EuroSCORE II ³ has been uploaded for the purpose.

This calculator is available in six different languages namely English, Spanish, German, Italian, Finnish and French.

1.4 Scoring System –

Broadly classifying there are 3 types of factors taken into consideration. Each factor has been assigned weight according to its nature. The first of which is

Patient Related Factors.

Under patient related factors following factors are taken into consideration

- Age
- Sex
- Chronic pulmonary disease - which sees for long term use of bronchodilators or steroids for lung diseases.
- Extracardiac arteriopathy – It includes claudication, carotid occlusion or more than 50 % stenosis, some previous planned abdominal aorta interventions, limb arteries or carotids.
- Neurological dysfunction disease – severely affecting ambulation or day to day functioning.
- Any previous cardiac surgery.
- Serum creatinine – more than 200m micromole/L is critical for the calculation.
- Active endocarditis- If the patient was under antibiotic treatment for endocarditis at the time of the surgery.
- Any Critical Pre-Operative State.

Cardiac Related Factors.

Under cardiac related factors

- Unstable angina. Stable angina where patient requires I.V nitrates till he or she arrives in the anesthetic room.
- LV Dysfunction where established ranges for LV functions are set.
- Recent MI (Myocardial Infarction).
- Pulmonary Hypertension.

Operation Related Factors.

Under this it has

- Nature of condition. Whether the patient was on urgent or emergency basis. Or it was elective surgery.
- Any procedure other than isolated CABG.
- Surgery conducted on thoracic aorta.

2. REVIEW OF LITERATURE

A system where one can evaluate the risk and predict the mortality of a cardiac surgical patient, helps in enhancing the quality on cardiac surgical care. S.A.M. Nashef, F. Roques, P. Michel, E. Gauducheau, S. Lemeshow, R. Salamon (1999) constructed a risk stratification system which would help in assessment of the quality of cardiac surgical care. In any cardiac set up it has already been accepted that hospital mortality is an indicator of quality of care. Nashef et al defined thresholds as low, moderate and high risk group. Then the calculated or predicted scores of the group were compared with the observed mortality. The low risk group showed observed mortality as (0.56 – 1.10) and for expected mortality (1.27 – 1.29). The medium risk group presents with observed mortality of (2.62-3.51) and expected came out to be (2.90-2.94). The high-risk group shows observed between (10.25-12.16) and predicted is (10.93-11.54). The study states that EuroSCORE predicted the outcome to the most accurate point and its widespread use is recommended. **(2)**

There are few other studies suggesting the over estimation of the risk. A study conducted by Brigitte R. Osswald, Vassil Gegouskov, Dominika Badowski-Zyla, Ursula Tochtermann, Gisela Thomas, Siegfried Hagl, Eugene H. Blackstone (2008) suggests that EuroSCORE may overestimate the risk. A study conducted on 1545 patients revealed that in the low risk group 30-day mortality was not substantially different. But in the extremely high risk group of 71 patients with EuroSCORE ranging 11 – 20 none of the patients died. This faulty calibration leads to inaccurate prediction of mortality. This renders it unsuitable for assessing risk in many cases. **(3)**

The accuracy in risk prediction helps in benchmarking and allows surgeons and institutions to compare the outcomes in a meaningful way. They are very helpful in decision making, preoperative informed consent, quality assurance and healthcare management. The study done by Cheng-Hon Yap, Christopher Reid, Michael Yui, Michael A. Rowland, MortezaMohajeri, Peter D. Skillington, SivenSeevanayagam, Julian A. Smith (2006) on eight thousand three hundred and thirty-one patients were analysed to check the validation of the EuroSCORE in Australian population. The observed mortality was 3.2% overall and 2% in CABG respectively. The model overestimated the mortality for both the entire cohort (additive being 5.31% and

logistic being 8.76 %) and CABG (additive 4.2% and logistic 6.19%). Hence the discriminative power of both the models were individually good but could not predict accurate outcomes for the entire cohort. **(4)**

In Indian context EuroSCORE has shown some promising results. A study on Off-pump trans-apical trans-catheter aortic valve implantation by Prashant Vaijyanath&SasirekhaDhandayuthapani&CharumathiDasarathan&KothurathuMammen Cherian(2011) shows presents with a case of Aortic Valve Replacement with score as high as 18.82%. The appropriate selection criteria and risk analysis by EuroSCORE helps in patient selection and its success. **(5)**

With continuous problems about the calibration and high risk estimation EuroSCORE developed the latest model as EuroSCORE II ³. A study conducted by Umberto Di Deddaa, Gabriele Pelisserob , Beatrice Agnellia , Carlo De Vincentiisc , SerenellaCastelvecchia and Marco Ranuccia (2012) analyses it's accuracy, calibration and clinical performance. An extensive validation study was done to check for the accuracy, calibration and its performance. A total of 1090 patients were studied retrospectively and it was found out that observed mortality to be 3.75% and predicted is 3.2% whereas the earlier versions which has logistics and additive EuroSCORE calculated the mortality rate as 7.3% and 5.8% respectively. It shows that accuracy of EuroSCORE to be acceptable in cases of coronary surgeries. **(6)**

Talking in the terms of cost effectiveness a study by Ioannis K. Toumpoulisa,b, Constantine E. Anagnostopoulousa,b, Daniel G. Swistela , Joseph J. DeRose Jra (2004) on EuroSCORE's ability on prediction of length of stay and post-operative complications encompasses a great deal. The data on 5051 patients were collected prospectively on CABG, valve surgery and thoracic aorta patients. The standard EuroSCORE showed a very good discriminatory ability in predicting hospital mortality of 0.76 as compared to Hosmer-Lemeshow of 0.449. For the post-operative renal failure, it is 0.79. For the length of stay it came out to be 0.71. It also predicted about the respiratory failure however it was unable to predict major complications such as stroke and infarct. Overall EuroSCORE performed good in predicting the in-hospital mortality, prolonged length of stay and specific post-operative complications as such as renal failure and respiratory failure.**(7)**

EuroSCORE has been validated in many countries such as Japan, Spain and other North American population. This model was not validated till 2010 in India. Study by Madhur Malik, Sandeep Chauhan, Vishwas Malik, Parag Gharde, Usha Kiran, RM Pandey(2010) conducted statistical analysis on 1000 Indian patients to test the calibration and discriminatory power of the EuroSCORE tool. The Hosmer-Lemeshow test gave results as C-statistic of 4.41 with $P = 0.73$. The result indicates satisfactory model fit. Area under ROC was found out to be 0.8278 which suggests very good discriminatory power. Therefore, EuroSCORE turned out to be a good tool in predicting pre-operative mortality in cardiac patients for Indian population. **(8)**

With the latest modification in EuroSCORE, its new model EuroSCORE II has taken its place. Study on its discriminating power on Indian patients suggests its validity in Indian population. The study was conducted by Prachi Kar, Kanithi Geeta, Ramachandran Gopinath, and Padmaja Durga (2017) on Indian population for its validation. A retrospective study was carried out on the population. After obtaining the ethics committee permission the research was conducted on adult patients of age greater than 18 years. Mortality prediction was done using online calculator EuroSCORE. The Hosmer-Lemeshow results indicated good calibration in CABG, valve surgery and mixed surgery respectively.**(9)**

OBJECTIVES

- To assess the predictive value of EuroSCORE in the patients of CTVS department in Eternal Heart Care Centre.
- To identify the difference between gross mortality and pre-operative mortality rate predicted by EuroSCORE.

METHODOLOGY

STUDY DESIGN - Descriptive Study.

SETTING – Eternal Heart Care Center, JAIPUR

DURATION - 3 Months, 6TH February 2017 TO 5TH March 2017.

SAMPLE SIZE – 150.

SAMPLE AREA – CTVS UNIT, 3RD floor.

SAMPLE TECHNIQUE – Purposive Sampling.

SAMPLE SELECTION –

- a) Inclusion criteria – All IPD patients of CTVS department.
- b) Exclusion criteria – All the Patients other than that of CTVS department.

DATA COLLECTION PROCEDURE –

- 1) A checklist of 17 parameters. Broadly classified under Patient related factors, Cardiac related factors and Operation related factors.

Patient related factors - Age, Sex, Chronic pulmonary disease, Extracardiac arteriopathy, Neurological dysfunction, Any previous cardiac surgery, Serum creatinine, Active endocarditis, Any Critical Pre-Operative State.

Cardiac Related Factors - Unstable angina. Stable angina, LV Dysfunction, Recent MI (Myocardial Infarction), Pulmonary Hypertension.

Operation Related Factors - Whether the patient was on urgent or emergency basis. Or it was elective surgery. Any procedure other than isolated CABG, Surgery conducted on thoracic aorta.

DATA COLLECTING TECHNIQUE

1) Primary data –

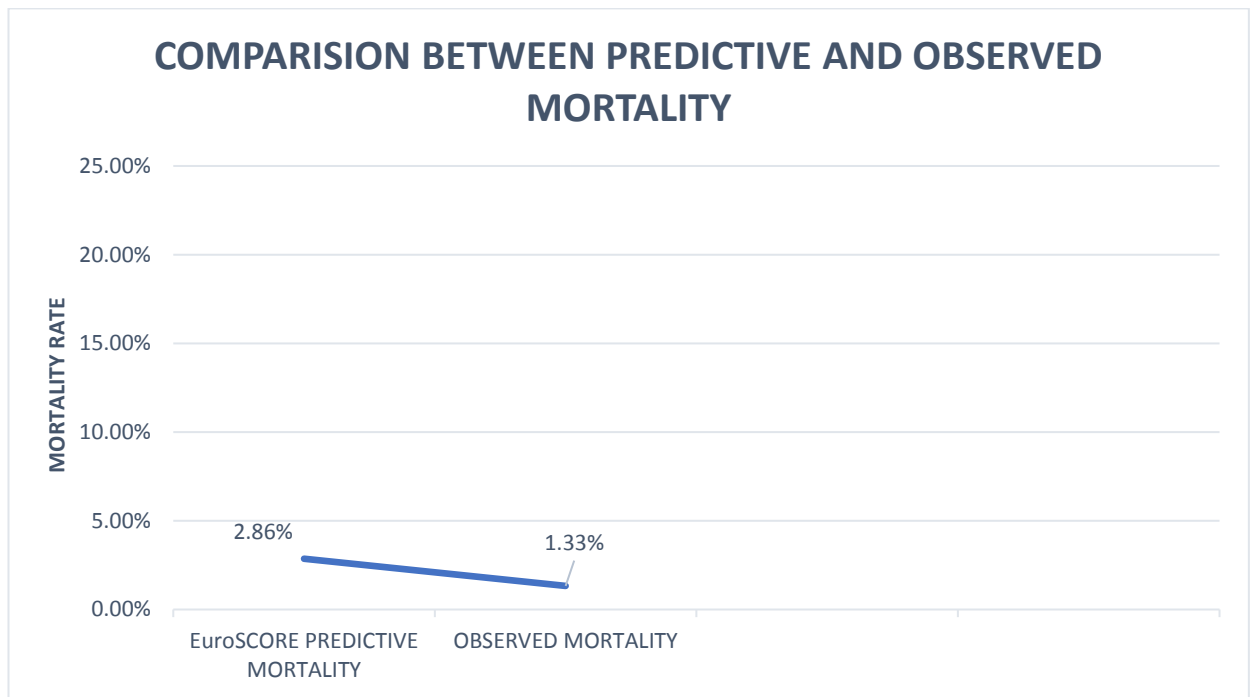
- The data was collected according to the set parameters by direct observation.
- Auditing patient records.
- Day to day observations.
- Hospital Information System -Panacea was also used to go through required laboratory reports and to keep a track of patient's movement from CTVS ward to ICU, OT.
- For the clarification purpose, many times nurses were questioned regarding the true nature of hypertension (moderate or severe).

DATA ANALYSIS PROCEDURE

- A self-developed excel sheet for the analysis.
- Format for recording the quality indicators.
- Graphical representation of data analysis.
- Interpretation of the data in detail.

RESULTS

1) COMPARISON BETWEEN PREDICTIVE AND OBSERVED MORTALITY.

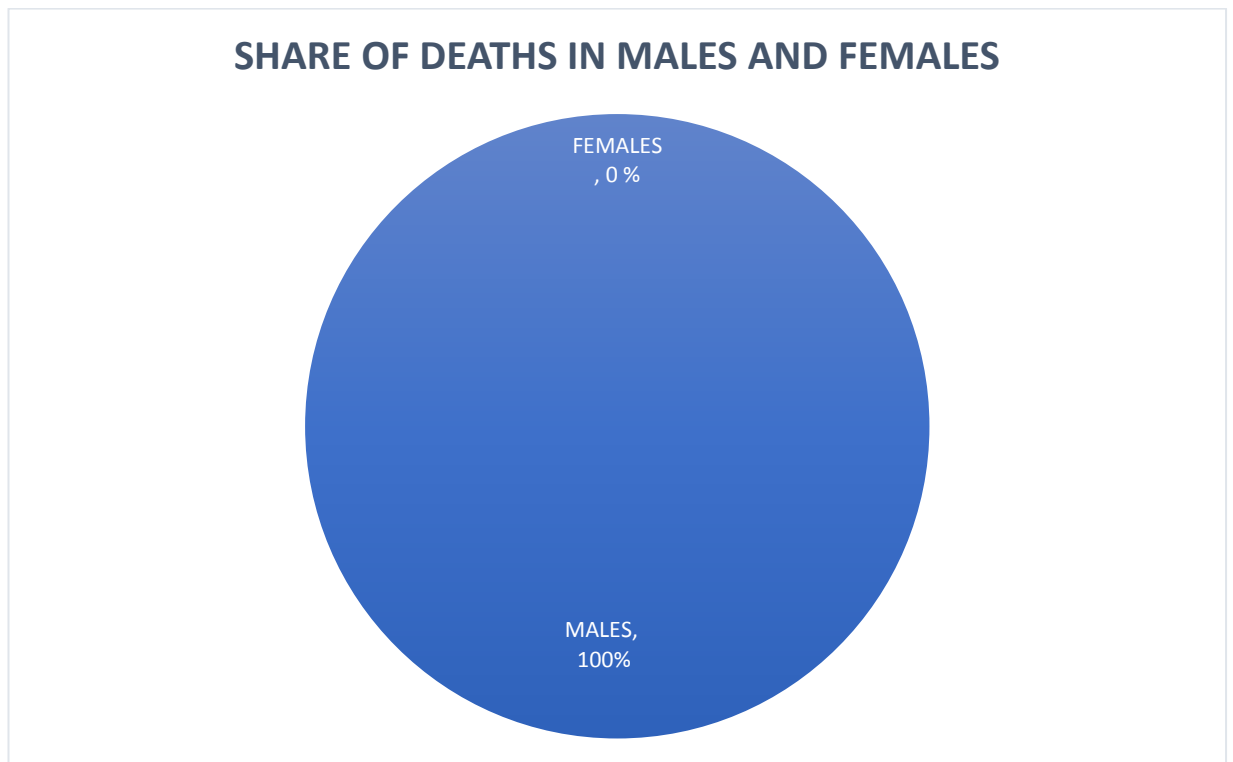


A sample of 150 patients of CTVS unit were studied.

A calculated score of 2.86% was obtained from EuroSCORE. The observed mortality is 1.33%.

Therefore, the mortality rate so observed in the CTVS Department outperforms that of predicted by EuroSCORE.

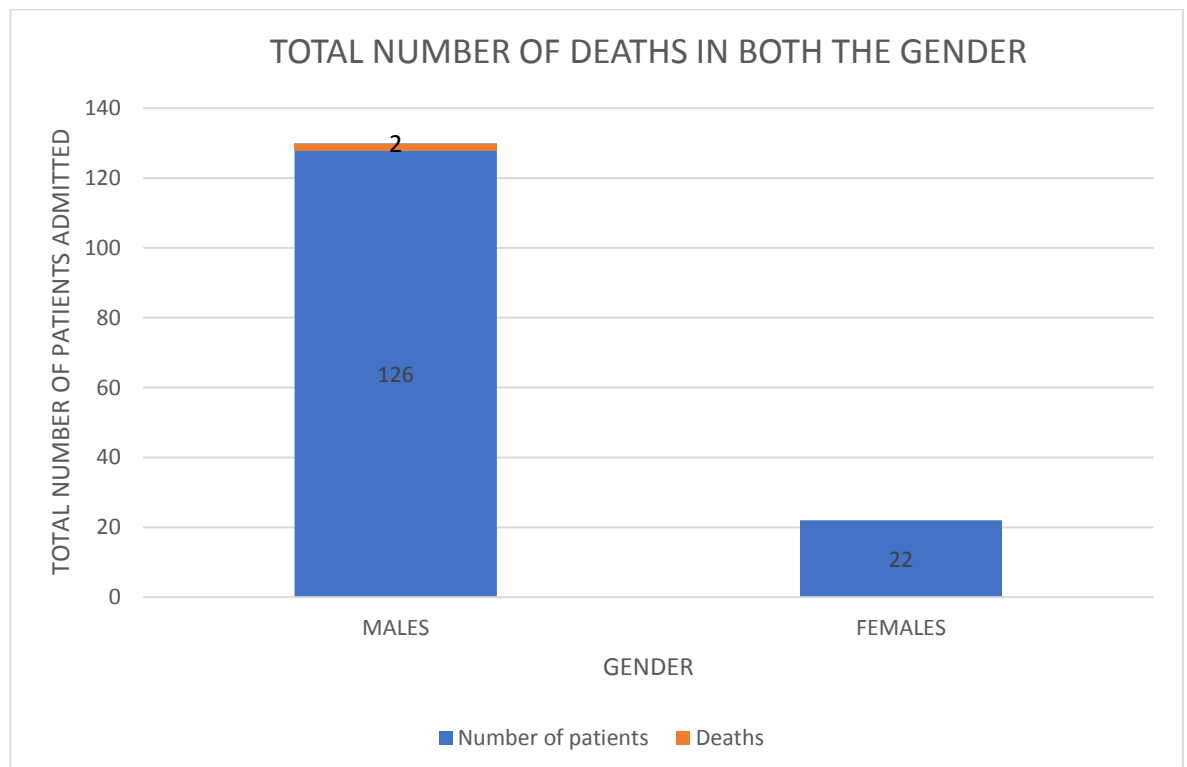
2) SHARE OF DEATHS IN MALES AND FEMALES OF CTVS PATIENTS.



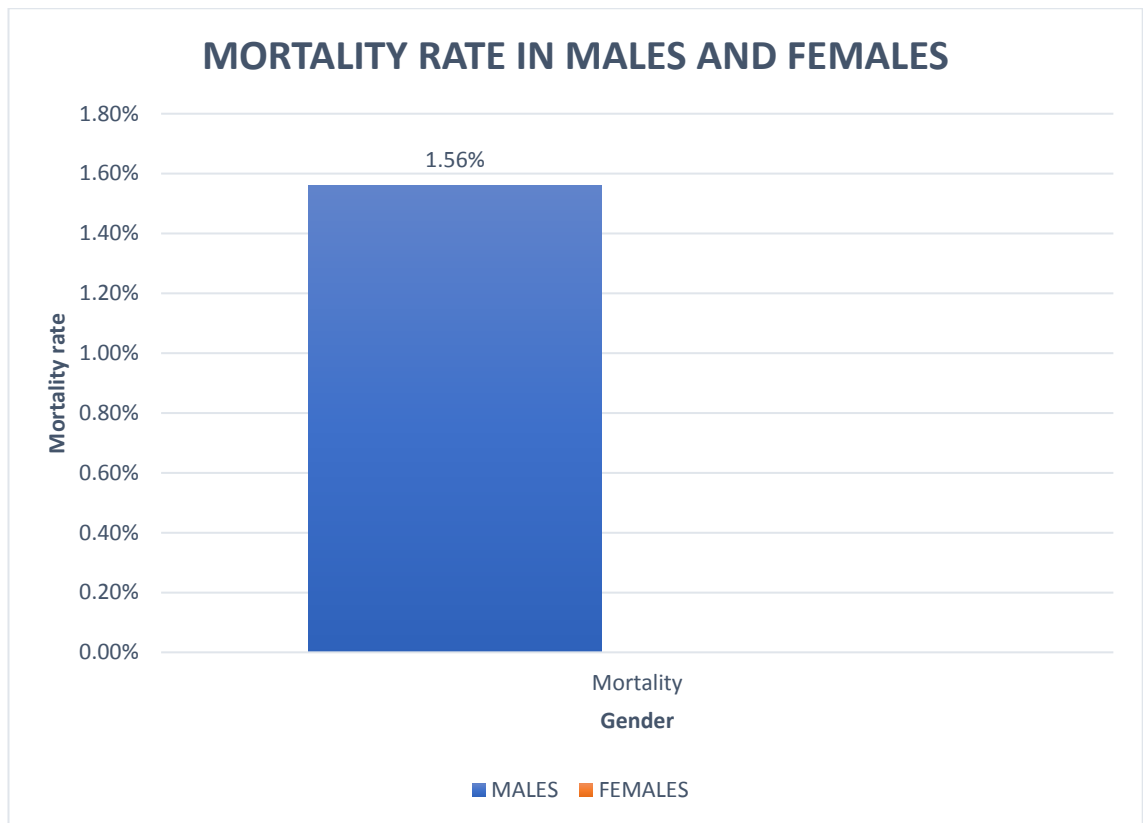
A total of 150 patients were studied during this duration. Out of 150 patients 128 patients were male and 22 were female. Out of total 5 deaths during this period 2 deaths were of male patients and none of them were of female patients.

This yields a 100 percent death share to the male gender. Female encountered no death.

3) TOTAL NUMBER OF DEATHS IN MALES AND FEMALES DURING THE STUDY PERIOD.



Out of all 150 patients so admitted 128 patients were male and 22 patients were female. A total of 2 deaths were recorded in the entire sample of 150 patients. The number of death recorded for male patients is 2 and that of female patients is none. Percentage of death is greater among the males as they constitute 100% of it when compare to those of female who constitutes nothing. When it comes to mortality rate, then the rate is higher among the males. The mortality rate for males is 1.56% and that of female turns out to be of zero. Females which are less prone to the condition has also got lesser mortality rate. Higher number of male population suffers from the heart ailments the likelihood of their survival is less than that of females. The study suggests that there is gender predilection male, both in terms of encountering the heart condition and the survival rate.



4) EUROSCORE MORTALITY RATES IN VARIOUS AGE GROUPS



Out of 150 patients so studied the sample is divided into 6 age groups that is age of 20-30 years, 30-40 years, 40-50 years, 50-60 years, 60-70 years and 70-80 years. The graphical analysis suggests that the age group 70-80 is the most vulnerable group. On further analysis of data, it is found that 6 patients out of a total of 26 patients under the age group 70-80 were found out to be under high risk group, that is their scores were higher than that of 6. Clearly suggesting that the cardiac conditions are riskier in this group.

The age groups till 40's is somewhat under the same range. The condition is same between the age 40-70.

The most vulnerable group turns out to be that of 50-60 where 55 patients are recorded. Suggestive that people tend to develop diseases at some more serious level on this stage of life.

LIMITATIONS

LIMITATION OF THE MODEL:

- The patients who died were of low risk EuroSCORE. That is there predictive mortality rate was lower than 6. There is no exceptional rule to this kind of situation.
- They did not suffer from any high scoring risk factors such as that of chronic lung disease, diabetes mellitus and did not even have any previous cardiac interventions done. EuroSCORE do not differentiates on the basis of individual risk factors. It is a combination of all the risk factors.

LIMITATION OF THE STUDY:

- Duration of the study – The study period was only of 3 months. A bigger number of data is preferable for study this big.
- Geographical population – The population group covered was only of the patients visiting the hospital.
- Study was limited to only one hospital.
- Includes only patients undergoing CABG procedure.
- Cost constraint – Due to cost constraints the study couldn't be conducted on a large scale.

CONCLUSION

- The EuroSCORE model's predictive ability has overestimated the mortality rate in this study.
- The model did not yield the right prediction rate. So its validity is yet to be established.
- In the performed study the EuroSCORE predictive mortality rate is higher than that of the Hospital mortality rate. This is suggestive of the good quality practice in the organisation.

INSTRUMENTATION

Self-made EuroSCORE checklist of all the short-listed parameters was made and filled in accordance with the EuroSCORE norm. All the entries are to be filled properly and precisely. After filling all the blank areas of a patient all the details are then uploaded and calculated by EuroSCORE calculator on its website. The checklist so filled helps in transferring the details to the calculator which is already calibrated according to set EuroSCORE standards. It has assigned different weights to different risk factors. According to the score of each parameter they are assigned weights which is further calculated by calculator to give the predictive mortality rate.

Charting criteria can be seen in the toolkit uploaded. (in the annexure)

Since the tool includes such large number of parameters it was not possible to express them all in one page. So factor wise representations are done.

1) PATIENT RELATED FACTORS

UH ID	NAME OF THE PATIENT	AGE	GENDER	WEIGHT (IN KG'S)	PLASMA CREATINE	CREATININE CLEARANCE	<u>EXTRACARDIAC</u> <u>ARTERIOPATHY</u>	POOR MOBILITY	PREVIOUS CARDIAC SURGERY	CHRONIC LUNG DISEASE	ANTIBIOTICS FOR ACTIVE ENDOCARDITIS	<u>CRITICAL</u> <u>PRE-OP</u> <u>STATE</u>	DIABETES (ON INSULIN)
65147	OMKAR NATH SHARMA	74	M	72	1.1	60mls/min	2	NO	NO	NO	NO	NO	YES
65304	D P VARSHNEY	71	M	62	1.2	50mls/min	2	YES	NO	YES	NO	NO	YES
65133	LAXMAN SINGH CHAUDHARY	55	M	75	1.1	81mls/min	2	YES	NO	NO	NO	NO	NO
64195	SAMPAT RAJ SANKHLA	59	M	78	1	88mls/min	2	NO	NO	NO	NO	NO	NO

655 51	UJJWAL KUMAR	57	M	76	0.9	97mls/mi n	2	NO	NO	NO	NO	NO	NO
639 38	CHANDRAK ANTA MATHUR	60	F	71	0.6	112mls/m in	2	NO	NO	NO	NO	NO	NO
656 51	VISHWANA TH DADHICH	68	M	86	1	86mls/mi n	2	NO	NO	NO	NO	NO	YES
633 06	POONAM RUNGTA	42	F	88	0.8	127mls/m in	N/A	NO	NO	NO	NO	NO	YES
657 06	SHYAM PRADHAN	55	M	71	1	84mls/mi n	2	NO	NO	NO	NO	NO	YES
654 06	LALIT GUPTA	65	M	74	1.1	70mls/mi n	2	NO	NO	NO	NO	NO	YES
651 26	ASHOK KUMAR WADHWANI	56	M	83	0.7	138mls/m in	2	YES	NO	NO	NO	NO	YES
653 79	GYANCHAN D BANSAL	69	M	93	0.8	115mls/m in	2	YES	NO	NO	NO	NO	YES
656 84	N K SHARMA	72	M	95	1.1	82mls/mi n	2	NO	NO	NO	NO	NO	NO

655 86	SUMER SINGH BENIWAL	61	M	72	0.9	88mls/mi n	2	NO	NO	NO	NO	NO	NO
652 54	BHIM CHAND SETHIA	78	M	80	1	69mls/mi n	2	YES	NO	NO	NO	NO	NO
656 24	PAWAN KUMAR SHARMA	58	M	73	1	83mls/mi n	2	YES	NO	NO	NO	NO	YES
656 05	VIDHYASA GAR	61	M	69	0.8	95mls/mi n	2	NO	NO	NO	NO	NO	YES
657 37	GOVIND SHARMA	53	M	58	0.7	100mls/m in	2	YES	NO	NO	NO	NO	NO
660 03	KISHORI LAL	74	M	61	1.1	51mls/mi n	2	NO	NO	NO	NO	NO	NO
646 02	SURENDRA KUMAR CHORDIA	52	M	78	0.9	108mls/m in	2	YES	NO	NO	NO	NO	NO
658 78	KRISHNA DEVI	72	F	65	0.9	68mls/mi n	2	YES	NO	NO	NO	NO	YES

626 35	SATYANAR AYAN DUTT MATHUR	68	M	68	1	68mls/mi n	N/A	YES	NO	NO	NO	NO	YES
656 21	HUKUM CHAND JAIN	60	M	61	1.1	62mls/mi n	2	YES	NO	NO	NO	NO	YES
661 90	UTTAM CHAND TANVANI	75	M	87	0.9	87mls/mi n	2	YES	NO	NO	NO	NO	NO
661 12	JUGAL KISHORE MATHUR	68	M	80	1	80mls/mi n	2	NO	NO	NO	NO	NO	NO
656 53	HARBANS CHHABRA	49	M	67	0.9	94mls/mi n	N/A	NO	NO	NO	NO	NO	NO
665 27	PREM CHAND	70	M	89	1.6	54mls/mi n	N/A	NO	YES	NO	NO	NO	NO
661 20	ARJUN SINGH	78	M	52	1.3	34mls/mi n	2	YES	YES	NO	NO	NO	NO
662 11	CHANDARA M BAKULLIA	69	M	52	1.1	47mls/mi n	2	NO	NO	NO	NO	NO	YES

661 91	SATPAL SHARAN	56	M	71	0.8	104mls/m in	2	NO	NO	NO	NO	NO	NO
656 34	RADHESHY AM JI AGARWAL	47	M	44	0.9	63mls/mi n	N/A	NO	NO	YES	NO	NO	NO
666 35	RAKESH MEENA	56	M	60	0.7	100mls/m in	2	NO	NO	NO	NO	NO	NO
663 18	MAMTA BHANDARI	70	F	69	0.7	82mls/mi n	N/A	NO	NO	NO	NO	NO	NO
213 45	MAHESH SHARMA	25	M	78	1	125mls/m in	N/A	YES	NO	NO	NO	NO	NO
657 53	RAMESH SETHIA	66	M	78	1	80mls/mi n	N/A	NO	NO	NO	NO	NO	NO
662 80	INTEZAR AHMED	60	M	77	1.7	50mls/mi n	2	NO	NO	NO	NO	NO	YES
665 26	RADHESHY AM SHARMA	67	M	70	0.8	89mls/mi n	2	YES	NO	NO	NO	NO	YES
663 89	ABDUL SATTAR	58	M	67	0.9	85mls/mi n	2	YES	NO	YES	NO	NO	NO

635 57	SUSHIL GANERIWA L	72	M	92	0.9	97mls/mi n	2	YES	YES	YES	NO	NO	NO
665 93	ABDUL RASHEED	54	M	67	0.8	100mls/m in	2	NO	NO	NO	NO	NO	YES
668 13	GAJE SINGH	65	M	79	1.1	75mls/mi n	2	YES	NO	NO	NO	NO	NO
667 05	PURSHOTTA M LAL SHARMA	59	M	81	1.1	83mls/mi n	2	NO	NO	NO	NO	NO	YES
661 70	RAJKUMARI MODI	65	M	48	0.7	72mls/mi n	2	NO	NO	YES	NO	NO	NO
661 17	HEMANT KABRA	58	M	83	0.8	118mls/m in	2	NO	YES	YES	NO	NO	YES
665 15	RAJKUMAR SAXENA	58	M	69	0.8	98mls/mi n	N/A	NO	NO	NO	NO	NO	NO
658 74	ASHOK KUMAR BANSAL	63	M	80	1.5	57mls/mi n	2	NO	NO	NO	NO	NO	NO
668 06	RAJINDER KUMAR	51	M	82	1.6	63mls/mi n	2	NO	YES	NO	NO	NO	YES

671 24	KAILASH SWAROOP SHARMA	54	M	73	1	87mls/mi n	2	NO	NO	NO	NO	NO	YES
650 39	KALICHARA N	52	M	69	0.9	86mls/mi n	2	YES	NO	NO	NO	NO	NO
666 73	R K GUPTA	72	M	64	1.1	55mls/mi n	2	YES	NO	NO	NO	NO	NO
672 65	MOHD. SADIK	66	M	69	0.9	79mls/mi n	2	NO	NO	YES	NO	NO	YES
658 82	MOHAN LAL CHAWLA	73	M	60	0.8	70mls/mi n	2	YES	YES	YES	NO	NO	NO
669 97	SAMSHUDD IN	54	M	58	1.1	63mls/mi n	2	NO	NO	NO	NO	NO	NO
667 75	ANIL SOGANI	62	M	82	1.2	74mls/mi n	2	YES	NO	NO	NO	NO	NO
599	LATA KUMARI	56	F	72	0.7	102mls/m in	2	NO	YES	NO	NO	NO	NO
674 42	KANARAM MEENA	50	M	68	1	85mls/mi n	2	NO	NO	YES	NO	NO	NO

670 41	SUBHASH DASOT	70	M	58	1	56mls/mi n	2	NO	NO	NO	NO	NO	NO
671 11	NORATI DEVI	70	F	63	0.8	77mls/mi n	2	NO	NO	YES	NO	NO	NO
664 22	YAQOOB ALI SAMEJA	62	M	50	1.5	36mls/mi n	2	NO	NO	NO	NO	NO	NO
675 36	NARBADA GUPTA	58	F	87	0.6	141mls/m in	N/A	NO	NO	NO	NO	NO	NO
676 14	TIKAM CHAND JAIN	60	M	81	1.05	86mls/mi n	2	YES	NO	YES	NO	NO	YES
676 29	KULDEEP KUMAR	51	M	83	0.8	128mls/m in	2	YES	NO	NO	NO	NO	YES
676 38	AMITABH HARSH	45	M	74	1.4	70mls/mi n	2	YES	NO	YES	NO	NO	YES
624 07	PANKAJ KUMAR	59	M	65	1	73mls/mi n	2	YES	NO	NO	NO	NO	YES
625 14	SURESH CHANDRA MAHESHW RI	73	M	79	1.3	57mls/mi n	2	NO	NO	NO	NO	NO	YES

671 70	VINOD KUMAR SONI	48	M	77	1	98mls/mi n	2	NO	NO	YES	NO	NO	YES
666 39	S N PUROHIT	72	M	68	1.3	49mls/mi n	2	NO	NO	YES	NO	NO	YES
677 74	BANKET LOHIA	58	M	67	0.8	95mls/mi n	2	NO	NO	NO	NO	NO	YES
674 46	RAMPRASA D GUPTA	62	M	70.5	0.8	95mls/mi n	2	NO	NO	NO	NO	NO	YES
671 56	JAGAT PAL GAUR	67	M	103	0.8	131mls/m in	2	YES	NO	YES	NO	NO	YES
676 82	NASEERUD DIN MOMIN	68	M	72	1.6	45mls/mi n	2	NO	NO	NO	NO	NO	YES
666 30	ASHA SHARMA	59	F	78	1.2	62mls/mi n	2	NO	NO	NO	NO	NO	YES
670 37	HARISH SOGANI	59	M	67	1.1	69mls/mi n	2	NO	NO	NO	NO	NO	YES
677 97	SHAKUNTA LA	72	F	69	0.7	79mls/mi n	2	NO	NO	NO	NO	NO	NO
671 38	CHANCHAL SAHU	24	F	48	0.6	110mls/m in	N/A	NO	NO	NO	NO	NO	NO

680 95	OMWATI	70	F	70	1.1	53mls/min	2	NO	NO	NO	NO	NO	NO
678 33	AMINA BANO	68	M	60	0.8	64mls/min	N/A	NO	NO	NO	NO	NO	YES
333 46	R V MAHESHWARI	68	M	82	1.1	75mls/min	N/A	NO	YES	NO	NO	NO	YES
636 37	DHAN SINGH	62	M	53	1.08	53mls/min	2	NO	NO	YES	NO	NO	NO
682 31	VED PRAKASH PUROHIT	63	M	83	1.1	81mls/min	2	NO	NO	NO	NO	NO	NO
673 30	SHRI RAM SAINI	67	M	67	1	68mls/min	2	NO	NO	YES	NO	NO	NO
672 56	VISHNU KUMAR PAREEK	67	M	85	0.9	96mls/min	2	NO	NO	NO	NO	NO	NO
673 03	VINOD SHARMA	56	M	70	1.1	74mls/min	2	NO	NO	NO	NO	NO	NO
682 07	ALL SAEED	71	M	72	0.8	86mls/min	1,2	YES	NO	YES	NO	NO	YES

341 67	UGANTI MEENA	41	F	53	0.8	78mls/mi n	N/A	NO	NO	NO	NO	NO	NO
437 50	OM PRAKASH AGARWAL	65	M	75	1.1	71mls/mi n	2	NO	NO	NO	NO	NO	YES
682 46	SHIV PRAKASH SHARMA	54	M	63	0.7	108mls/m in	2	NO	NO	NO	NO	NO	YES
683 44	DEVI LAL GUPTA	60	M	88	0.8	122mls/m in	2	NO	NO	NO	NO	NO	YES
680 67	RUPWANTI KARNANI	79	F	53	0.5	76mls/mi n	2	NO	NO	NO	NO	NO	NO
671 19	SEEMA DEVI JHANGID	37	F	33	0.8	50mls/mi n	2	NO	NO	NO	NO	NO	NO
660 24	RANJEET KAUR	55	F	54	0.9	60mls/mi n	N/A	NO	YES	NO	NO	NO	NO
373 60	HARSI SINGH MEENA	52	M	76	1	93mls/mi n	2	NO	YES	NO	NO	NO	NO

684 85	SUNITA	54	F	81	0.6	137mls/m in	N/A	NO	NO	NO	NO	NO	YES
683 78	PREM PAL SINGH	72	M	73	1	69mls/mi n	2	YES	NO	YES	NO	NO	YES
202 36	KANAHIYA LAL PAGODIYA	67	M	65	0.8	82mls/mi n	2	NO	NO	NO	NO	NO	NO
681 56	SOBHAG BIHARI SHIRINGI	76	M	56	1.2	42mls/mi n	2	NO	NO	NO	NO	NO	NO
686 40	ABDUL GUFFAR	75	M	61	0.9	61mls/mi n	2	NO	NO	NO	NO	NO	NO
686 35	PRASHANT JAIN	64	M	75	0.9	88mls/mi n	2	NO	NO	NO	NO	NO	NO
686 27	T C GOYAL	73	M	82	1.7	45mls/mi n	2	NO	NO	NO	NO	NO	YES
665 07	S R AGARWAL	56	M	59	1.7	41mls/mi n	2	NO	NO	NO	NO	NO	YES
684 16	RAM NIWAS BISHNOI	44	M	90	1.3	92mls/mi n	2	NO	NO	NO	NO	NO	NO

687 67	ROOP SINGH	51	M	72	0.8	111mls/m in	2	NO	NO	YES	NO	NO	YES
684 94	NANAD LAL	74	M	65	0.9	66mls/mi n	2	YES	NO	NO	NO	NO	NO
689 38	CHANDRAB HAN SINGH RAWAT	63	M	87	0.8	116mls/m in	2	NO	NO	YES	NO	NO	YES
689 01	BHAWANI SINGH	43	M	65	1.3	67mls/mi n	2	NO	NO	YES	NO	NO	NO
689 72	KAMAL SHARMA	54	M	67	0.8	100mls/m in	2	NO	NO	YES	NO	NO	NO
690 81	GOPAL SINGH	64	M	72	1.1	69mls/mi n	2	NO	NO	NO	NO	NO	NO
793 3	KESHAV DEV SHARMA	51	M	76	1	94mls/mi n	2	NO	NO	YES	NO	NO	YES
686 94	KHAN CHAND	61	M	80	0.7	126mls/m in	2	NO	NO	NO	NO	NO	YES
656 78	ANITA DEVI	56	F	71	0.9	78mls/mi n	2	NO	NO	NO	NO	NO	NO

236 42	PREM KUMAR GOYAL	52	M	77	1	94mls/mi n	2	YES	NO	NO	NO	NO	YES
691 84	CHENARAM CHAUDHAR Y	40	M	60	0.8	104mls/m in	2	NO	NO	YES	NO	NO	NO
687 86	MOHAN LAL TINKER	59	M	50	0.9	63mls/mi n	2	NO	NO	YES	NO	NO	YES
685 60	SHAILENDR A KUMAR JAIN	64	M	70	1	74mls/mi n	N/A	YES	YES	NO	NO	NO	NO
688 85	MATARMAL A SINGH	57	M	60	0.8	87mls/mi n	2	NO	NO	NO	NO	NO	NO
695 62	HARPHOOL SINGH BOLA	68	M	74	0.7	106mls/m in	2	YES	NO	YES	YES	NO	NO
211 59	RADHESHY AM SONI	76	M	72	1	64mls/mi n	2	NO	NO	NO	NO	NO	NO
694 21	SATISH CHANDRA GUPTA	58	M	84	0.8	120mls/m in	2	NO	YES	NO	NO	NO	NO

694 80	GOKUL DAS GAHLOT	71	M	60	0.9	88mls/mi n	2	NO	NO	YES	NO	NO	YES
695 05	RANBIR SINGH	65	M	79	0.9	92mls/mi n	2	NO	NO	YES	NO	NO	NO
696 50	ARVIND KUMAR	65	M	67	1.2	58mls/mi n	2	NO	NO	NO	NO	NO	NO
696 61	RATAN SINGH	56	M	64	0.7	107mls/m in	2	YES	YES	YES	NO	NO	NO
685 10	SATYANAR AYAN SHARMA	65	M	72	0.9	83mls/mi n	2	NO	NO	NO	NO	NO	NO
696 85	VINIT KUMAR	22	M	69	0.7	162mls/m in	N/A	NO	NO	NO	NO	NO	NO
326 31	NARENDRA GOYAL	48	M	86	0.9	122mls/m in	2	NO	YES	NO	NO	NO	NO
611 22	MOHAN LAL SHARMA	56	M	63	0.6	123mls/m in	2	NO	NO	NO	NO	NO	NO
692 43	RAMI KANWAR	50	F	61	1	65mls/mi n	N/A	NO	NO	NO	NO	NO	YES

698 62	MAHAVEER JAIN	62	M	85	1.2	76mls/mi n	2	NO	NO	NO	NO	NO	NO
698 93	BANSHI LAL	65	M	85	0.9	98mls/mi n	2	NO	NO	NO	NO	NO	YES
698 84	SITARAM BANSAL	60	M	64	0.8	89mls/mi n	2	YES	NO	YES	NO	NO	NO
699 17	GEETA DEVI	56	F	78	0.8	97mls/mi n	2	YES	NO	NO	NO	NO	NO
889 2	S S CHOUDHAR Y	63	M	58	0.9	69mls/mi n	2	NO	YES	NO	NO	NO	YES
692 37	DEVI DAS SAMNANI	61	M	79	0.8	108mls/m in	N/A	NO	NO	NO	NO	NO	NO
671 68	PRAMOD AGARWAL	42	M	57	1.1	71mls/mi n	2	NO	NO	NO	NO	NO	NO
700 24	DIWAN CHAND NAI	64	M	75	1	79mls/mi n	2	YES	NO	NO	NO	NO	NO
700 31	SAVITRI SHARMA	61	F	75	0.6	117mls/m in	2	NO	NO	NO	NO	NO	NO
692 37	GALKI DEVI	60	F	51	0.8	60mls/mi n	2	NO	NO	NO	NO	NO	NO

701 42	ASHOK KUMAR	62	M	56	0.9	67mls/min	2	NO	NO	NO	NO	NO	NO
701 82	UMA SHANKAR MOHANTY	43	M	79	1	107mls/min	2	NO	NO	YES	NO	NO	YES
701 36	KEVAL KANWAR	50	M	78	0.8	122mls/min	2	YES	YES	YES	NO	NO	YES
702 20	UMLESH DEVI	55	F	68	0.9	76mls/min	2	NO	NO	NO	NO	NO	NO
703 39	BHANWAR SINGH VERMA	61	M	66	1	63mls/min	2	NO	NO	NO	NO	NO	NO
684 09	CHAMAN LAL SHARMA	76	M	60	1.1	49mls/min	YES	NO	NO	NO	NO	NO	YES
702 50	JANAK RAJ GUPTA	60	M	84	0.8	117mls/min	YES	NO	NO	YES	NO	NO	YES
704 27	DHIRENDRA PRASAD SHARMA	77	M	73	1.8	36mls/min	YES	NO	NO	NO	NO	NO	YES

702 55	HARI MOHAN RAAWAT	56	M	54	1	63mls/mi n	YES	NO	YES	NO	NO	NO	NO
696 04	KISHAN SINGH RATHORE	71	M	70	1.1	61mls/mi n	YES	NO	NO	NO	NO	NO	YES
706 47	SITARAM	65	M	60	1.1	57mls/mi n	YES	NO	NO	NO	NO	NO	NO
711 97	GOPAL PRASAD SONI	50	M	53	0.8	83mls/mi n	YES	NO	NO	NO	NO	NO	YES
682 12	MUMTAZ	55	M	66	1	78mls/mi n	YES	NO	NO	YES	NO	NO	YES

2) CARDIAC RELATED FACTORS

CARDIAC RELATED FACTORS				
NYHA CLASSIFICATION	CCS Class 4 Angina	LV Function	RECENT MI	PULMONARY HYPERTENSION (YES/NO)
1	NO	1	NO	YES
1	NO	1	NO	YES
2	NO	2	NO	YES
1	NO	1	NO	YES
1	NO	2	NO	YES
1	NO	1	NO	NO
1	NO	1	NO	YES
1	NO	2	NO	YES
1	NO	1	NO	NO
1	NO	1	NO	YES
1	NO	1	NO	NO
1	NO	2	NO	YES
1	NO	2	NO	NO
1	NO	2	NO	NO
1	NO	2	NO	NO
1	NO	1	NO	YES

1	NO	1	NO	NO
1	NO	1	NO	NO
1	NO	2	NO	YES
1	NO	3	NO	YES
2	NO	1	NO	YES
2	NO	2	NO	YES
2	NO	3	NO	NO
2	NO	2	NO	YES
1	NO	2	NO	NO
1	NO	1	NO	YES
1	NO	2	NO	YES
2	NO	2	NO	YES
1	NO	1	NO	NO
1	NO	1	NO	NO
1	NO	1	NO	NO
1	NO	1	NO	NO
1	NO	1	NO	YES
1	NO	1	NO	NO
1	NO	1	NO	NO
1	NO	2	NO	YES
2	NO	1	NO	YES
2	NO	1	NO	NO
1	NO	3	NO	YES

1	NO	1	NO	NO
2	NO	2	NO	NO
1	NO	1	NO	YES
1	NO	2	NO	YES
1	NO	2	NO	YES
1	NO	1	NO	YES
2	NO	3	NO	NO
1	NO	3	NO	YES
1	NO	1	NO	NO
2	NO	1	NO	NO
1	NO	2	NO	NO
1	NO	1	NO	NO
2	NO	2	NO	YES
1	NO	2	YES	NO
3	NO	1	NO	YES
2	NO	1	NO	NO
2	NO	2	YES	YES
1	NO	1	NO	YES
1	NO	1	NO	YES
1	NO	2	NO	YES
1	NO	1	NO	YES
2	YES	1	NO	YES
2	NO	1	NO	YES
1	NO	2	NO	NO
2	NO	1	NO	YES

1	NO	1	NO	YES
2	NO	1	NO	NO
1	NO	2	NO	YES
1	NO	1	NO	YES
1	NO	1	NO	YES
3	NO	2	NO	YES
1	NO	1	NO	YES
2	NO	2	NO	YES
1	NO	1	NO	YES
1	NO	1	NO	YES
1	NO	1	NO	NO
2	NO	2	NO	YES
2	NO	2	NO	YES
1	NO	1	NO	YES
2	NO	1	NO	NO
1	NO	1	NO	NO
2	NO	2	NO	NO
1	NO	1	NO	YES
2	NO	3	NO	NO
2	NO	1	NO	NO
1	NO	1	NO	NO
1	NO	1	YES	YES
1	NO	2	NO	YES

1	NO	1	NO	YES
2	NO	1	NO	YES
1	NO	1	NO	NO
2	NO	1	NO	NO
1	NO	3	NO	NO
1	NO	1	NO	YES
2	NO	2	NO	NO
2	NO	1	YES	YES
1	NO	2	NO	YES
1	NO	2	YES	NO
1	NO	2	NO	NO
1	NO	2	NO	YES
1	NO	2	NO	NO
1	NO	2	NO	NO
1	NO	1	NO	YES
3	YES	1	YES	NO
1	NO	1	NO	YES
1	NO	1	NO	NO
1	NO	1	NO	YES
2	NO	1	NO	NO
1	NO	1	NO	YES
1	NO	1	NO	NO
2	NO	2	NO	NO
2	NO	4	NO	NO

1	NO	1	NO	NO
2	NO	1	YES	NO
1	NO	1	NO	YES
1	NO	1	NO	NO
2	NO	1	NO	NO
1	NO	1	NO	YES
1	NO	2	NO	NO
1	NO	1	NO	YES
1	NO	3	NO	YES
1	NO	2	NO	YES
2	NO	1	YES	YES
1	NO	1	NO	NO
2	NO	2	NO	NO
1	NO	2	NO	NO
1	NO	1	NO	NO
1	NO	1	NO	YES
1	NO	1	YES	NO
2	NO	2	YES	NO
2	NO	2	YES	NO
3	NO	1	NO	NO
1	NO	1	YES	NO
1	NO	1	NO	YES
3	NO	3	NO	NO
2	NO	1	YES	NO
1	NO	1	NO	YES

2	NO	2	NO	NO
2	NO	1	YES	NO
2	NO	1	NO	YES
1	NO	1	NO	YES
1	NO	1	NO	YES
2	NO	1	NO	NO
2	NO	1	YES	YES
2	NO	1	NO	YES
2	NO	1	NO	YES
2	NO	1	YES	NO
2	NO	2	YES	NO
1	NO	2	NO	NO
3	YES	2	YES	YES
3	NO	3	NO	YES

3) OPERATION RELATED FACTORS

OPERATION RELATED FACTORS		
URGENCY	PROCEDURES DONE	SURGERY ON THORACIC AORTA
1	1	NO
1	1	NO
3	1	NO
1	1	NO
3	1	NO
1	1	NO
1	1	NO
1	1	NO
1	1	NO
1	1	NO
1	1	NO
1	1,2	NO
1	1	NO
1	1	NO
1	1	NO

3	1	NO
1	1	NO
1	1	NO
1	1	NO
1	1	NO
1	1	NO
1	1	NO
1	1	NO
1	1	NO
1	1	NO
1	1	NO
1	1	NO
1	1, 2	NO
1	1	NO
1	1	NO
1	1	NO
1	1	NO
1	2	NO
1	1	NO
1	1	NO
1	1	NO
1	1	NO
1	1	NO

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2	1	NO
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1	2	NO
1	1	NO
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1	1	NO
1	1	NO
1	2	NO
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1	1 & 2	NO
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1	1	NO
1	1	NO
1	1	NO
1	1	NO
1	1	NO
1	1 & 2	NO
1	1	NO
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1	1	NO
1	1	NO
1	1	NO
1	1	NO
1	1	NO
1	1	NO
1	1	NO

4) OTHER ADDITIONAL FACTORS

NASAL SWAB TEST	BLOOD CONSUMPTION DURING SURGERY	POST OP PER DAY BLOOD DRAINAGE
NEGATIVE	2	350/ 200 / -
NEGATIVE	NIL	250/150/50
NEGATIVE	1	250/250
NEGATIVE	1	200/ 200/ 200
NEGATIVE	NIL	400/200/250
NEGATIVE	1	250/200
NEGATIVE	1	200/450
NEGATIVE	1	150/100
NEGATIVE	1	200/450/250
NEGATIVE	1	250/300/200
NEGATIVE	3	300 / 500 / 450
NEGATIVE	2	200 / 150 / 100
NEGATIVE	2	500/300/200
NEGATIVE	1	400 / 350 / 350
	3	200 / 300 / 200
NEGATIVE	2	500 / 250 / 100

NEGATIVE	1	300/250/500
NEGATIVE	3	250/250/-/100/200
NEGATIVE	NIL	250/150
NEGATIVE	NIL	300/100/100/100/-
NEGATIVE	4	50/300/250/-
NEGATIVE	2	250/250/200/-
NEGATIVE	1	450/50/50/100/400/100
POSITIVE Klebsiella pneumoniae	1	
POSITIVE MRSA	3	250/550/250/-
POSITIVE MRSA	1	250/400/250
NEGATIVE	1	100/600/100
NEGATIVE	2	100/400/400/250
NEGATIVE	3	250/150/400/150
NEGATIVE	1	150/300/200
NEGATIVE	4	800/250/450/150/300
NEGATIVE	1	300/300/150
NEGATIVE	1	300/200/100
NEGATIVE	NIL	150/200/100
NEGATIVE	NIL	200/200
NEGATIVE	2	/ / 250/250
POSITIVE (MRSA)	1	150/550/350/400
NEGATIVE	1	250/250/350

NEGATIVE	2	250/250/200/750/300/150
NEGATIVE	NIL	200/300/200
NEGATIVE	NIL	400/300/50
NEGATIVE	1	400/350/150
NEGATIVE	2	150/250/300/150
NEGATIVE	1	300/100
NEGATIVE	1	300/500/250
NEGATIVE	1	350/450/700/150/100
NEGATIVE	1	150/100/200
NEGATIVE	NIL	100/300/200
NEGATIVE	1	350/150/200
POSITIVE MRSA	1	450/300
POSITIVE MRSA	NIL	150/150/300
POSITIVE MRSA	NIL	200/150
NEGATIVE	NIL	400/200/250
NEGATIVE	NIL	350/150
NEGATIVE	1	150/200/150
NEGATIVE	1	450/450/450
NEGATIVE	NIL	150/200
NEGATIVE	4	250/250/200
NEGATIVE	NIL	200/450
NEGATIVE	1	50/100/200
NEGATIVE	2	150/350/200

NEGATIVE	NIL	300/300/300
NEGATIVE	NIL	300/650/250
NEGATIVE	1	600/250/150
NEGATIVE	1	300/500/250
NEGATIVE	NIL	200/300/500/500
MRSA POSITIVE	NIL	400/300
NEGATIVE	1	350/250
NEGATIVE	NIL	250/150
NEGATIVE	NIL	250/100/150
NEGATIVE	NIL	150/250
NEGATIVE	2	400/200/100
NEGATIVE	2	650/300/300
POSITIVE MRSA	2	150/200/200
NEGATIVE	2	100/50/100/50
NEGATIVE	1	250/500/50
POSITIVE MRSA	NIL	300/100
POSITIVE MRSA	4	1100/250/100
POSITIVE MRSA	3	400/300/250/100
NEGATIVE	3	150/450/600/200
NEGATIVE	NIL	300/150/50
NEGATIVE	NIL	250/400/400/300

NEGATIVE	3	250/400/350/50
NEGATIVE	1	300/500/500
NEGATIVE	1	50/150/100
NEGATIVE	NIL	200/300/200
NEGATIVE	2	300/250
NEGATIVE	NIL	450/700/450/250
NEGATIVE	1	100/250/300/100
NEGATIVE	NIL	150/150/100/100
NEGATIVE		350/50/50/100
NEGATIVE	1	550/400/250
NEGATIVE	1	150/250/100
NEGATIVE	3	300/500/500/100
NEGATIVE	1	350/250/200
NEGATIVE	1	200/300
NEGATIVE	1	300/200
NEGATIVE	NIL	250/250
NEGATIVE	1	200/200
NEGATIVE	NIL	350/200/200
NEGATIVE	NIL	600/300/100
NEGATIVE	1	450/500
NEGATIVE	NIL	500/150
NEGATIVE	NIL	300/350
NEGATIVE	NIL	100/100
NEGATIVE	NIL	300/250/100

NEGATIVE	NIL	200/350/300
NEGATIVE	1	400/200
NEGATIVE	1	300/450/450/400
NEGATIVE	2	
NEGATIVE	NIL	150/150/50/100
NEGATIVE	NIL	300/300/250
NEGATIVE	1	300/200
NEGATIVE	NIL	150/100
NEGATIVE	1	500/400/150
NEGATIVE	1	200/200
NEGATIVE	NIL	300/200
NEGATIVE	NIL	400/150
NEGATIVE	2	250/350/150
NEGATIVE	NIL	150/150/200/350
NEGATIVE	NIL	200/400/100
NEGATIVE	1	250/300/300
NEGATIVE	NIL	400/300
NEGATIVE	NIL	350/100/150
NEGATIVE	1	500/200/400
NEGATIVE	4	700/150/200/200/200
NEGATIVE	NIL	150/150
NEGATIVE	NIL	200/150/100
NEGATIVE	NIL	200/400/500
NEGATIVE	1	350/150
NEGATIVE	NIL	100/150

NEGATIVE	1	250/450/250
NEGATIVE	NIL	150/100/150
NEGATIVE	2	500/100/150/150
NEGATIVE	NIL	300/150
NEGATIVE	1	300/400/150
NEGATIVE	2	300/150
NEGATIVE	1	250/350
NEGATIVE	NIL	200/650/200
NEGATIVE	2	500/300/200
NEGATIVE	NIL	300/100
NEGATIVE	NIL	250/200/300
NEGATIVE	1	150/250
NEGATIVE	NIL	200/500/350/200
NEGATIVE	1	200/100
NEGATIVE	2	400/250/300
NEGATIVE	1	150/200/250
NEGATIVE	NIL	250/200
NEGATIVE	1	400/500/300
NEGATIVE	1	350/150

RECOMMENDATION

- Since prediction of EuroSCORE sometimes overestimates or underestimates the risk, so the care to be provided should be regardless the EuroSCORE's estimation.
- There are other risk factors which should also be added to the parameters of EuroSCORE according to one's own modification or prevalence in the sample/population.
- The model can also be used for other operative procedures with modifications regarding their own risk parameters. For example, in PCI (Percutaneous Coronary Interventions.) and other surgical procedures.

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ANNEXURE

1) CHECKLIST/ TOOLKIT

[illegible]

Notes about euroSCORE II

[1] **Age** - in completed years. Some of the weighting for age is now incorporated into the renal impairment risk factor, so it is important that all risk factors are entered to give reliable risk. In patients in the EuroSCORE database, only 21 patients were aged over 90 - therefore the risk model may not be accurate in these patients. Please exercise clinical discretion in interpreting EuroSCORE database was 95 - EuroSCORE II is not validated in patients over this age.

[2] **Renal impairment** - there are now 3 categories based on creatinine clearance calculated using Cockcroft-Gault formula. Unlike serum creatinine in the old EuroSCORE model, some is incorporated into this factor, as *age* is a component of *creatinine clearance*. The 3 categories are:

- on dialysis (regardless of serum creatinine level)
- moderately impaired renal function (50-85 ml/min)
- severely impaired renal function (<50 ml/min) off dialysis

$$\text{Creatinine clearance (ml/min)} = \frac{(140 - \text{age (years)}) \times \text{weight (kg)} \times (0.85 \text{ if female})}{72 \times \text{serum creatinine (mg/dl)}}$$

Cockcroft-Gault creatinine clearance calculator - for euroSCORE II renal impairment			
Plasma creatinine* (µmol/L only) note: 1 mg/dL = 88.4 µmol/L		Weight* (kg)	
Age (years) note: 18 - 95 for EuroSCORE II		Sex m or f - lowercase only	
Clear			
Creatinine clearance (ml/min)			
		Click in box for result	

* **Weight** (and **creatinine**) have not been directly included in the main EuroSCORE II calculator because they are not *direct* risk factors in the EuroSCORE II model, other than they cont