

## Role of Revised Baux Score in Burns

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### Abstract

Burns is one of the risk factors contributing to the mortality and morbidity burden of developing countries. Even though advancements in burn patient management have significantly decreased the mortality. Predicting the outcome of severe burns patient at presentation plays a paramount role in guiding clinical judgment. Multiple scoring systems are available to predict mortality in burns patients in developed countries. In this article, the Revised Baux score has been applied in predicting mortality in burns patients.

**Keyword:** Revised Baux Score; Burns; Mortality.

## INTRODUCTION

Burn profile closely follows the socio-economic flux of a country. Judicious extrapolation suggests that India, with a population of over 1 billion, has 700,000 to 800,000 burn admissions annually. The exact number of burns is difficult to determine because of lack of a central burn registry system in India.<sup>1</sup> Despite many medical advances, burns continue to remain a challenging problem due to

the lack of infrastructure and trained professionals as well as the increases cost of treatment, all of which have an impact on the outcome.<sup>2</sup>

Various mortality or survival prediction models have been developed and verified in developed countries. Revised Baux score<sup>3</sup>, Abbreviated Burn Scoring Index (ABSI)<sup>4</sup>, Ryan et al.<sup>5</sup>, Belgium Outcome of Burn Injury (BOBI)<sup>6</sup>, Smith et al.<sup>7</sup>, McGwin et al.<sup>8</sup> are some of the scoring systems used to predict the burn mortality. The exigency of an appropriate scoring system that can assess risk at presentation accurately is soaring in developing countries. In this study, the Revised Baux score has been applied to predict mortality in burns patients.

## MATERIALS AND METHODS

This study was conducted in the Department of Plastic Surgery in a tertiary care institute. Informed consent was obtained from the patients under study. Department scientific committee approval was obtained. It is a single centre, non-randomized, non-controlled study.

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The first patient was a 1 year male, admitted with history of alleged accidental scald burn of 20% with involvement of chest and abdomen at admission, Revised Baux score of 21 (age-1, TBSA-20, inhalational injury-0) with a predicted mortality of 0%. Patient burn wound bed preparation done with Autologous platelet rich plasma (APRP), collagen scaffold dressing. Patient underwent Wound debridement, tangential excision followed by split skin grafting and discharged successfully at 4 weeks (fig. 1).

The second patient was a 16-year-old female with no known comorbidities who presented with flame burn over both leg and both thighs. At presentation, Revised Baux score of 52 (age-16, inhalational injury-0, %TBSA- 36) with a predicted mortality of



Fig. 1: 1-year-old male with 20% burns



Fig. 3: 2-year-old female with 20% thermal burns

## RESULTS

Revised Baux scoring used in our patients, showed an accurate outcome. Revised Baux Score useful in predicting the outcome of the patients successfully.

## DISCUSSION

Despite progress in diagnosis and treatment, mortality rate among patients with severe burns remain high, especially in developing countries.

2.90%. The patient underwent tangential excision, Split thickness skin grafting, and collagen scaffold dressing. The patient discharged successfully at 4 weeks (fig. 2).

The third patient was a 2 year-old female child admitted with history of alleged accidental scald burn of 20% with involvement of chest and abdomen. On presentation, Revised Baux score of 22 (age-2, inhalational injury-0, %TBSA-20) with a predicted mortality of zero percent. Patient burn wound bed preparation done with Autologous platelet rich plasma (APRP), collagen scaffold dressing. Patient underwent Wound debridement, tangential excision followed by split skin grafting and discharged successfully at 4 weeks (fig. 3).



Fig. 2: 16-year-old female with 36% burns

The use of prognosis score may help the health facility to evaluate and optimally use resources in burn care and therapy. The Baux score which predicts mortality based on the sum of the patient's age and burn extent was introduced and widely used since 1961. On that basis, the revised Baux (rBaux) score was proposed in 2010 by Osler and has been evaluated and widely applied in developed countries.

Currently, the Revised Baux score has not been widely evaluated in developing countries, where there are limitations in the application of advanced techniques and resources in burn care. As compared to Baux score, the revised Baux score is significantly higher accuracy in developing countries. However, revised Baux score should only be recommended to use for adult and elderly burn patients. It is necessary to propose a separate prognostic scale for burns in children<sup>9</sup>. Woods JF et al., the most accurate, reliable, and therefore, useful predictors of mortality were considered to be the Revised Baux score and the Belgian Outcome in Burn Injury scoring system<sup>10</sup>

In the present study, we have applied the Revised Baux Score to predict mortality in three cases in which two were children. Scores incorporating the well-known significant independent risk factors like Age, total body surface area burnt, and inhalational injury was found to have performed well in predicting burn mortality in various populations.

Revised Baux score was chosen as it is a simpler scale to calculate bedside with good specificity when compared to other mortality predictor scales. Our patients had Revised Baux scores of 21, 36 and 22 with a probability of death of 0%, 2.90% and zero respectively. All the patients survived which shows accuracy of Baux score even in children.

Fig. 4: Revised Baux Score

|                                    | Factor | Score   | Total Score                | Probability of death in percent |
|------------------------------------|--------|---------|----------------------------|---------------------------------|
| <b>Revised Baux Score</b>          | TBA    | -       | 10-50                      | 0                               |
|                                    |        |         | 50-60                      | 2.90                            |
|                                    |        |         | 60-70                      | 16.67                           |
|                                    |        |         | 70-80                      | 47.83                           |
| R-Baux score=(TBSA + age + [17xR]) | Age    | -       | 80-90                      | 82.35                           |
|                                    |        |         | 90-100                     | 76.92                           |
|                                    |        |         | 100-110                    | 100                             |
|                                    |        |         |                            | 100                             |
|                                    |        |         | Inhalational Injury<br>yes | 1                               |
| No                                 | 0      | 120-130 | 100                        |                                 |

**CONCLUSION**

The study shows that Revised Baux Score can be used as a mortality predictor of burn patients and help in triaging the patient for the best use of resources available in developing countries like India with simple parameters.

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