

## **Estimation of total body surface area burned: a comparison between burn unit and referring facilities**

### **ABSTRACT**

Accuracy of burn size estimation is critical in acute burn management because it directly affects the patient's outcome and prognosis. This study aims to quantify the discrepancies of total body surface area (TBSA) burned between the burn unit (TBSAb) and the referring facilities (TBSAr). Data of all referred adult and paediatric patients admitted to the Hospital Universiti Sains Malaysia Burn Unit within 24 hours post burn were retrospectively reviewed from 2015 to 2019. %TBSA discrepancies were calculated by the differences between TBSAb and TBSAr. A total of 208 patients (111 adults and 97 paediatric patients) were recruited in this study. Of these, the TBSA was overestimated in 60.58% cases, underestimated in 13.46% cases, accurate in 7.69% cases, and in 18.27% cases the referrals had no TBSAr stated. The %TBSA discrepancy was the highest in severe burns (mean 10.80% in adults and 7.59 in paediatric patients;  $P < 0.001$ ). The time interval between referral and reassessment and patients' body mass index (BMI) were not statistically significant for the magnitude of TBSA discrepancy. The number of burn areas involved correlated with the %TBSA discrepancies, with the highest recorded discrepancy being 21.50% in whole body involvement. There were significant discrepancies in TBSA estimations between the referring facilities and those of the Hospital Universiti Sains Malaysia (USM) burn unit, especially among the paediatric patients and those with severe burns. Implementation of educational programs by burn care experts and agreement on a universal method of TBSA assessment are necessary in reducing the discrepancies.