**SUPPLEMENTAL DIGITAL CONTENT**

***Independent variable/model selection process***

Highly correlated variables were tested separately in the regression models.

*Age, burn type, weight, BMI-for-age z-score*: Age was highly correlated with both weight and burn type, with younger patients being more likely to have suffered a scald burn. In most models, all 3 variables were significant predictors of the outcomes; however, when all 3 or any 2 of them were included, the models suffered from multicollinearity. When each variable was tested while the other two were excluded, models with age or weight had lower BIC. Therefore, burn type was excluded. In an attempt to investigate a potential effect of body weight independent of age, we calculated the BMI-for-age z-scores for each patient. BMI-for-age z-score was not a significant predictor of any outcome. Likelihood ratio test was used to assess the effect of BMI-for-age z-score when added to models including age. BMI-for-age z-score did not significantly improve any of the models, and thus, only age was included in the final analysis.

*TBSA-b, TBSA-3rd*: When both TBSA-b and TBSA-3rd were included in the analysis, models suffered from multicollinearity. In almost all cases, TBSA-3rd was a better predictor of the outcome than TBSA-b, and therefore TBSA-3rd, was used in the final analysis.

*Sepsis and Inhalation injury*: Presence of sepsis but not inhalation injury was significantly associated with the outcome and was included in the final models.

*A2S, B2S*: Models including A2S had lower BIC than models with B2S; therefore A2S was used. A2S was used to assess the effect of time and adjust for the varying time points of mitochondrial studies.

No non-linear associations of the predictors with the outcomes were found. The final models included 5 independent variables: age, sex, sepsis, TBSA-3rd, and A2S.

*Where:*

A2S was defined as time from admission to study, and B2S was defined as time from burn injury to study. Body mass index (BMI) was calculated as weight divided by height squared (kg/m2), using the weight recorded nearest to the study day. Since BMI varies with age and sex in children, comparison of BMI to a reference standard that adjusts for age and sex is critical for using BMI as a meaningful assessment tool of weight status. BMI *z*-scores serve as measures of relative weight adjusted for child age and sex ([1](#_ENREF_1)). Hence, BMI-for-age z-scores were calculated, using the WHO Child Growth Standards, for boys and girls 0 to 5 years of age and 5 to 19 years of age ([2](#_ENREF_2)). TBSA-b was defined as the percent TBSA that was burned, serving as an index of burn size. TBSA-3rd was defined as the percent TBSA with full-thickness burns, serving as an index of full-thickness burn size.

*References:*

1. Must A,Anderson SE: Body mass index in children and adolescents: considerations for population-based applications. *Int J Obes (Lond)* 30(4):590-4, 2006.

2. World Health Organization: The WHO Child Growth Standards. Vol. March. 2017.