Introduction:
The Abbreviated Injury Score (AIS) grading system is the most widely used bronchoscopic classification for assessing the severity of burns inhalation injury. However, there is a lack of clarity regarding the effect of AIS-graded inhalation injury on mortality. This systematic review evaluated whether more severe injury grades were associated with increased mortality.

Methods:
OVID MEDLINE, EMBASE and CENTRAL were searched from inception to 5th April 2020. Clinical studies utilising the AIS system to grade inhalation injury were deemed eligible if mortality data were reported by AIS grade. For comparison, AIS grades 0, 1 and 2 constituted a low-grade (milder) injury and AIS grades 3 and 4 constituted a high-grade (severe) injury. The level of evidence of each study was assessed as per the Oxford Centre for Evidence-Based Medicine guidelines. This systematic review adhered to the PRISMA statement.

Results:
The search identified 177 papers, of which 13 underwent full-text review. Six single-centre, comparative studies (1 prospective and 5 retrospective designs) were included for descriptive analysis. The total number of patients was 715. Inter-grade differences in age and total body surface area burned were non-significant in five studies. Two studies demonstrated a statistically significant increase in mortality for more severe grades, with a further two demonstrating a non-significant trend (p ≤ 0.10). Five studies facilitated the comparison of low-grade (n=513) versus high-grade (n=122) inhalation injury. Mortality rates ranged from 13% (range 4-26%) in low-grade injuries to 27% (range 15-32%) in high-grade injuries. The use of AIS was inconsistent between studies, with all papers performing some further stratification to minimise clinician bias or for statistical purposes. The median level of evidence of included studies was 3.

Conclusion:
Mortality rates were higher in more severe AIS-graded burns inhalation injury. Refinement of the AIS is recommended to enable standardised use.