Background Smoking continues to pose a huge cost to an individual's health and the healthcare economy. Healthcare professionals are known to have an authoritative influence over patients and are well placed to promote abstinence from tobacco. Indeed, Articles 12 and 14 of the Framework Convention on Tobacco Control (FCTC) make several recommendations concerning smoking behaviour and cessation training amongst healthcare professionals. The current study estimates the prevalence of smoking in healthcare students, healthcare professionals of the future, across the six World Health Organisation regions.

Methods Five databases (Medline, Embase, CINAHL, CAB abstracts, Lilacs and the WHO Global Healthcare Professional Survey database) were searched to identify studies including any profession of healthcare students. Studies were published between January 2000 and March 2016, and no restrictions were placed on language of publication. Titles, abstracts and full texts were checked for eligibility independently by two authors and the quality of the included studies was assessed. Pooled prevalence with 95% confidence intervals (CI) were estimated using random effect models, with heterogeneity quantified using $I^2$.

Results 417 papers were included: 214 studies and 203 Global Health Professional student surveys. Healthcare professions included medicine, nursing, dentistry, pharmacy, and mixed groups. The prevalence of smoking across all healthcare students was 19% (95% CI 17%–21%, $I^2$ 99.98%). Subgroup analysis by year shows the prevalence of smoking in healthcare students appears to be increasing; from 16% (95% CI 16%–17%), $I^2$ 99.23) up to and including 2010 to 19% (95% CI 6%–31%, $I^2$ 99.99) between 2011 and 2016. Pooled estimated smoking prevalence within the WHO regions for medical students ranged from 10% to 25%, and nursing students from 0% to 30%. Estimates for both were highest in Europe and lowest in Africa.

Conclusion Smoking prevalence among healthcare students varies widely across professions and WHO regions, however remains worryingly high in light of the key role healthcare professionals play in tackling the global smoking epidemic. In order to continue to make progress with implementation of the FCTC, urgent efforts need to be made to reduce smoking behaviour amongst healthcare students, which will ultimately contribute to the reduction of smoking prevalence amongst their patients.