Background A positive cardiac troponin (cTn) is an independent predictor of short-term mortality in individuals presenting with acute pulmonary embolism (PE). However, there is limited evidence regarding the impact age has on the association between cTn levels and mortality in patients with PE. The aim of our study was to investigate the relationship between cTn level, age, and all-cause mortality, in hospitalised patients with a PE.

Methods A retrospective cohort study using the National Institute for Health Research Health Informatics Collaborative Cardiovascular dataset of all consecutive patients who had a troponin measured at five hospitals (Imperial, University College London, Oxford, King's and St Thomas') between 2010 and 2017. Patients admitted to hospital with a primary diagnosis of PE with at least one cTn measurement were included. Survival analyses were performed using multivariate Cox-Regression analyses. The peak cTn level (highest level measured), standardised to the upper limit of normal (ULN), was used for all analyses. Results 1,477 patients with at least one cTn measurement and a diagnosis of PE were included. During a median follow-up of 34.8 months, there were 290 (19.6%) deaths. Elevated cTn (>1xULN) was associated with a positive cTn of 2.94 (95% CI 1.48–5.82) despite having the lowest troponin levels (mean 7.01xULN) on admission (Figure 1). Younger patients (<55 years), compared with those aged over 55, had the highest 3-year HR associated with a positive cTn of 2.94 (95% CI 1.48–5.82) despite having the lowest troponin levels (mean 7.01xULN) on admission (Figure 2).

Conclusion Elevated cTn, at all ages, is associated with an increased mortality risk in patients presenting with PE, with increasing cTn levels conferring a progressively worse long-term prognosis. Elevated cTn, no matter how small, needs to be taken seriously, particularly in young patients with an acute PE.

Conflict of Interest No conflicts of interest