

RCoA Research, Education & Travel Grants 2018

Award: Ernest Leach Fund

Applicant: Dr Andrew Georgiou

Project Title: *The impact of frailty on the outcome of critical care admission*

Project Description:

With an increasingly frail population, the demand placed on critical care beds by frail patients continues to increase both in the UK and across the globe. Data supports the association of frailty with poor outcomes following critical illness, however current mortality prediction tools (such as ICNARC or APACHE II) may not adequately reflect the impact of frailty within their respective models. We aim to study the degree to which frailty impacts on the outcome of patients following critical illness, and compare that to the outcome predicted through the ICNARC and APACHE II models. In this way, we are seeking to examine the degree to which frailty may skew the reliability of these mortality prediction models used in critical care. Through a detailed examination of organ support data across the various grades of frailty, we hope to gain an in depth understanding of the organ failures which impart the greatest skew on these mortality prediction models. This may impact on how critical care data is collected in the future and may help clinicians build a clearer picture of the interplay between frailty, organ failure and the anticipated outcome from critical illness. It may also provide the initial data required to launch a larger trial. Following appropriate consideration by the South-Central Research Ethics committee, ethical approval was not deemed necessary. Health Research Authority was granted in September 2017.

This is a retrospective study, examining every admission to a single 13 bedded UK critical care unit between the 1st January 2016 and 31st March 2017. All data was captured prospectively over this time as part of routine data capture. The data included: age, the Rockwood frailty score, significant co-morbidities, primary and secondary admission diagnoses, need for surgery, ICNARC and APACHE II score, ICNARC and APACHE II risk of death, daily organ support data, the maximum number of organs supported, length of stay in the critical care unit and in the hospital, survival status at hospital discharge and hospital discharge destination. Data was collected through interrogation of the unit database and by sequential analysis of patient notes and was collated in Excel (Microsoft corporation). Data collection is now complete with 869 patient data episodes. Funding is sought to enable construction of multivariate logistic regression models by a professional statistician. It is anticipated that these statistical analyses will be lengthy and complex. For this reason application is made, in order to enable this project (which commenced 13 months ago) to continue.