

# LONG -TERM SURVIVAL IN END STAGE RENAL DISEASE PATIENTS ADMITTED TO INTENSIVE CARE UNIT IN A LARGE TEACHING HOSPITAL.

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## Introduction

Prevalence of chronic kidney disease (CKD) is reported in the UK adult population as 14%. The UK Renal Registry reported an incidence rate of 109 per million population of patients with end stage renal disease (ESRD) requiring long-term renal replacement therapy (RRT) in 2013.<sup>1</sup> Mortality is high among these patients compared to the general population, however this is improved with optimal patient care which includes increased demand for intensive care provision. 1.3% of admissions to adult ICUs in UK between 1995 & 2004 were ESRD patients.<sup>3</sup> Knowledge of long term mortality rates in this group of patients remains deficient.

## Aim

To identify the long term mortality rates in ESRD patients admitted to intensive care unit.

## Methods

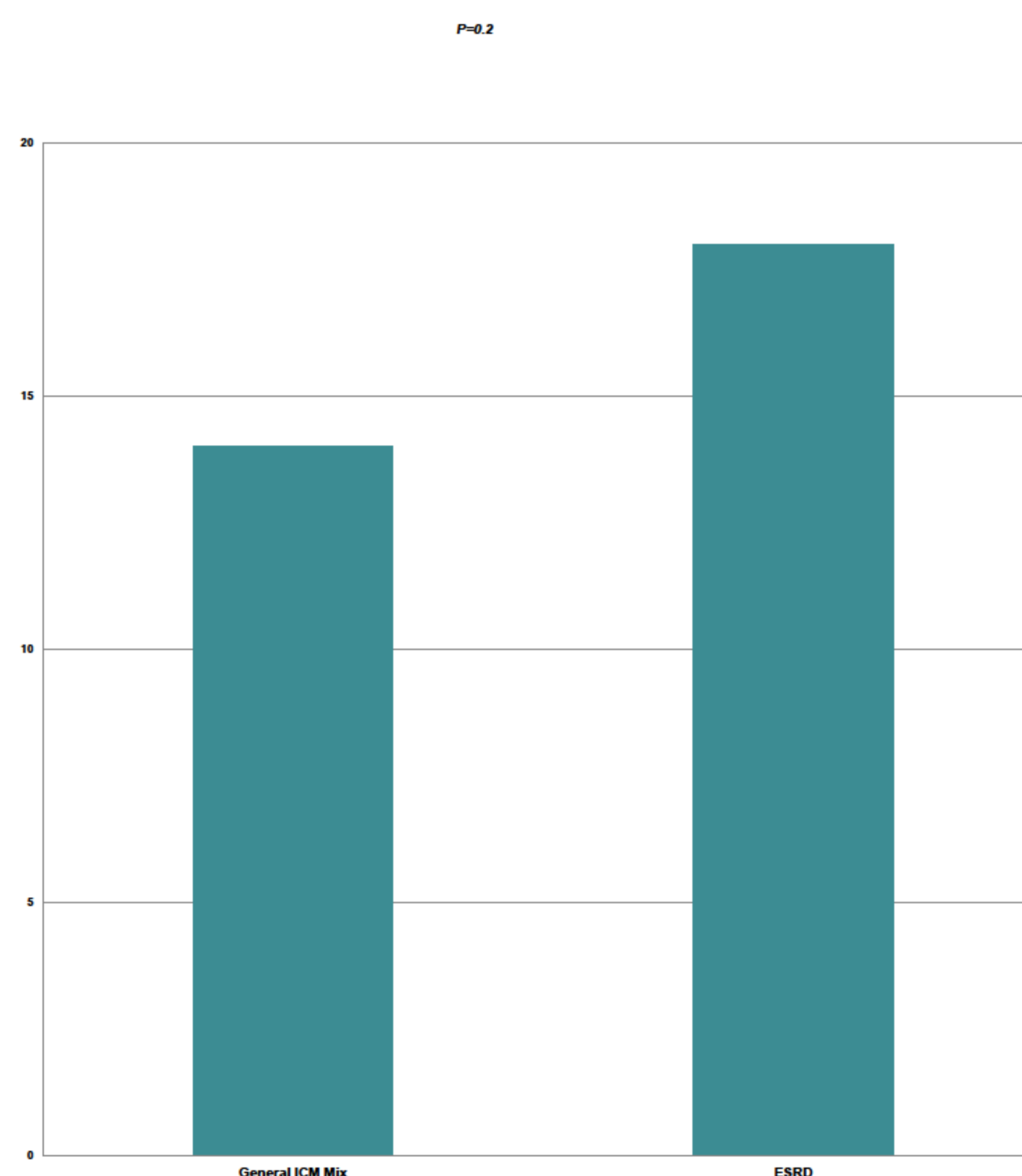
A retrospective review was conducted of all ESRD patients admitted to our ICU between Oct 2008 & Oct 2013. Data was collected from the ICU database (Metavision ©). Data collected included demographics, APACHE II scores on admission to ICU, ICU length of stay in days (LOS) & patient survival at discharge from ICU, 28 days, 90 days & 12 months after ICU discharge. A Cox proportional hazard multivariate model was used for survival analysis while descriptive statistics (median & inter-quartile ranges (IQR)) were used for numerical data, using SPSS statistical package version 22.

## Results

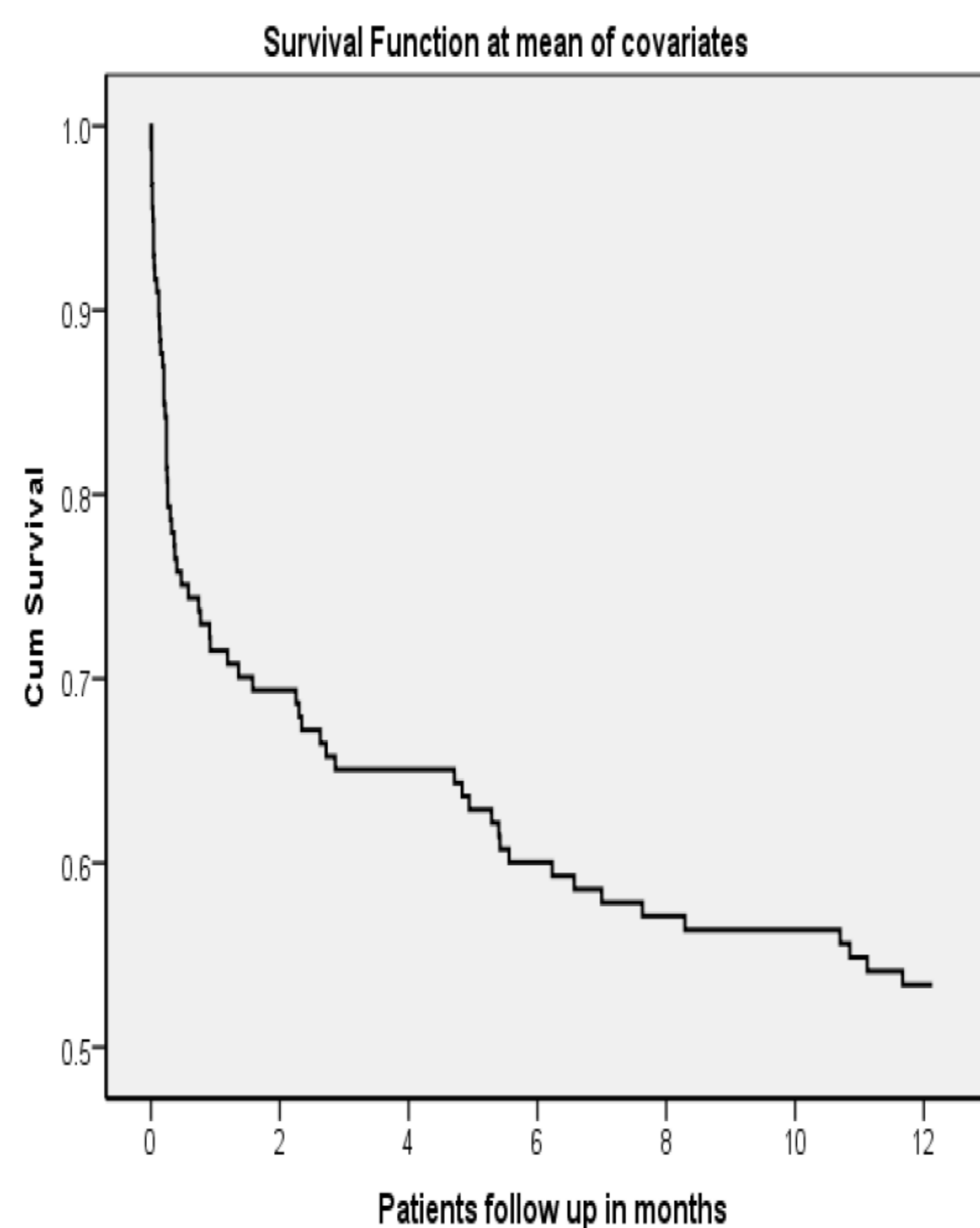
- 141 ESRD patients were admitted to our ICU between Oct 2008 & Oct 2013.
- 94% of the patients were admitted as emergency; unplanned admissions.
- Adjusting for age & sex; APACHE II score was associated with worse survival at;
  - a) Discharge from ICU (HR: 1.12, 95% CI: 1.04-1.2,  $p=0.001$ )
  - b) 28 days (HR: 1.1, 95% CI: 1.03-1.16,  $p=0.002$ )
  - c) 90 days (HR: 1.08, 95% CI: 1.04-1.2,  $p=0.008$ )
  - d) 12 months (HR: 1.07, 95% CI: 1.02-1.13,  $p=0.005$ )
- No correlation between either age and LOS ( $r=0.067$ ,  $p=0.427$ ) or APACHE II scores and LOS ( $r=0.112$ ,  $p=0.197$ ).

		Age	APACHE II score	ICU LOS days	Patient Survival (mnts)	Patient Survival (days)
N	Valid	141	141	141	141	141
	Missing	0	0	0	0	0
Median		63.00	24.00	3.75	13.39	401.65
Min		21	14	.54	0.00	.02
Max		87	46	52.30	72.82	2184.59
IQR	25	50.50	21.00	1.90	.38	11.65
	50	63.00	24.00	3.75	13.39	401.65
	75	74.00	27.00	6.42	32.83	985.09

## Mortality at ICU discharge



## ESRD patients survival at 12 months



Time	Survival
At ICU discharge	116 (82%)
28 days	99 (70%)
90 days	90 (64%)
12 months	74 (52%)

## Conclusions

- A significant proportion of ESRD patients admitted to ICU survive to ICU discharge.
- The difference in their ICU mortality (18%) was not statistically different from the general ICU case mix mortality (14%)<sup>4</sup> over the same period ( $p=0.2$ ). APACHE II scores were higher in the ESRD patients (Mean: 24.4, SD=4.6) compared to the general ICU case mix (Mean: 16.1, SD=6.6).<sup>4</sup>
- One year mortality in this group of patients (48%) is significantly higher than the adjusted one year mortality in prevalent dialysis patients (11%)<sup>1</sup>, however the one year mortality after ICU discharges in the general ICU case mix shows great variability in reported studies (11-61%) necessitating further research in this area.

## References

1. www.renalreg.org
2. Hutchison CA, Crowe AV, Stevens PE, Harrison DA, Lipkin GW Case mix, outcome and activity for patients admitted to intensive care units requiring chronic renal dialysis: a secondary analysis of the ICNARC Case Mix Programme Database, Crit Care 2007;11(2)
3. ICNARC Case Mix Programme Database: www.icnarc.org/

