Introduction
Survival rates following intensive care (ICU) admission have steadily increased throughout recent decades.1 Meanwhile, numerous studies have reported reduced functional quality of life (QOL) following an ICU stay when compared to patients’ pre-admission status2,3,4,6,11. The aim of this systematic review was to summarise the current literature documenting QOL and functional capacity of ICU survivors.

Methods
A systematic review was conducted to investigate the outcomes of ICU survivors post discharge specifically focusing on QOL and functional ability with activities of daily living (ADL).

Search strategy
MEDLINE, CINAHL, CENTRAL and PubMed databases were searched on 22nd March 2014 using search parameters outlined and agreed upon by all reviewers prior to the search. The parameters were: “Intensive care unit OR ICU OR critical care” AND (follow up OR discharge) AND (quality of life OR function OR cognition) AND (adult).”

Eligibility criteria
Studies were assessed for inclusion under the following criteria:
- Admitted to ICU or critical care unit
- Discharged from hospital with follow up on QOL and/or ADLs

Studies were excluded if they met any of the following criteria:
- Trial registration
- Systematic/literature review
- Opinion pieces
- Non-English full text articles
- Paediatric population (<16 years old)
- A focus on the psychological effects of ICU
- A focus solely on the effects of a particular treatment or specific disease
- Studies evaluating the use of outcome measures

Quality appraisal
Methodological quality was assessed using the Critical Appraisal Skills Programme (CASP) tool for cohort studies10 and the PEDro criteria11 for RCTs. The National Health and Medical Research Council (NHMRC) tool was used to describe study design with regard to levels of evidence.12

Results
Search results
The search parameters returned an initial result of 681 articles. After duplicates were removed, 500 articles remained. 48 articles satisfied the criteria and full-text documents were obtained. After full-text review, 27 articles remained for inclusion in the study (Fig. 1).

Quality appraisal
Using the CASP tool, all the cohort studies evaluated ranged between 7 and 8 out of 10, indicating studies of ‘high quality’. The RCT evaluated by PEDro scored 6/10, indicating a trial of ‘moderate quality’.12

Outcome measures
A variety of outcome measures were used to assess QOL, the most commonly used was the Short Form-36 (SF-36). The heterogeneity of outcome measures used prohibited meta-analysis.

Major findings
- Of the 27 studies included for review, 11 articles reported patients experienced a decreased or unsatisfactory QOL post admission, specifically relating to physical function,6,11,15-22
- 11 articles included in the review found that patients either returned to pre-admission QOL or to a satisfactory QOL11,12,14-20
- The remaining 5 articles found mixed results,6,12,13,16-22 with some patients recovering to a good functional status and others being unable to care for themselves2.
- Length of follow up was adequate in the majority of studies reviewed (at least 12 months).
- Age did not appear to be a reliable marker of long-term survival, as patients over 65 years showed minimal functional impairment post ICU admission21 while good recovery was also observed in patients over 80 years of age.17

Discussion
Although this review revealed mixed results regarding functional outcomes for ICU survivors, impaired QOL appears important for a large proportion of these patients following discharge. This is consistent with recent evidence of poor functional quality of life in survivors of sepsis (a subgroup of ICU survivors)31.

Interventions aiming to improve functional recovery should be targeted in the first 6 months following ICU discharge, as Sacanella et al8 found most functional recovery was achieved in the first 3-6 months with little improvements thereafter.

Consistently highlighted in both interventional studies was the necessity for psychological and emotional health to be addressed14-16.

A grounded theory study found that following ICU admission, patients expressed their primary goals related to improving functional independence13,33.

Conclusions
For many ICU survivors, functional quality of life is poor following ICU discharge and this is not age-dependent. ICU survivors’ main goals typically relate to improving functional independence. Targeted therapy to address patients’ goals should focus on the first 3-6 months following ICU discharge.

References