

**Roberts, B.L., Eastwood, G., Raunow, H., Howe, B., Rickard, C.M, The intensive care research coordinator position in Australia and New Zealand: Self-perception of professional development priorities and "best" and "worst" aspects of the position. A cross-sectional web-based study. *Intensive & Critical Care Nursing*. 2011 Mar 2. [Epub ahead of print]**

### SUMMARY

**Background:** Many Intensive Care (ICU) Research Coordinators (RC) work in isolation with limited access to professional development and peer support.

**Aims:** (1) To map professional development priorities and “best” and “worst” aspects of the ICU RC role.

(2) To compare results of “best” and “worst” aspects to a similar 2004 study.

**Methods:** On-line study conducted from July 2009 to October 2009. Respondents scored 26 individual items related to professional development and described in free text “best” and “worst” aspects.

**Results:** 56 RCs participated. Maintaining high ethical standards for the research participant was ranked the highest priority. RCs had considerable interest but less confidence in completing own research.

The “best” and “worst” aspects exposed three thematic clusters: *Work Conditions*; *Work Environment*; *Work Role*. Most often recorded notations were *Work Conditions* for “best” and *Work Environment* for “worst” aspects.

**Conclusion:** RCs judge adherence to international research guidelines the most important pre-requisite for the position, and wish involvement in research design and dissemination. With little change from 2004, inadequate peer support and unsatisfactory employment conditions constituted most of the “worst” aspects. Autonomy and working in the ICU team are the “best” aspects of the role in addition to the intellectual stimulation of research.

## **INTRODUCTION**

Research Coordinators (RCs) play a key role in implementing rigorous and ethically sound research in many specialities including the intensive care setting. The position requires much more than data collection and administrative support. The RC's role includes but is not limited to education, advocacy for the trial participant, and as caregiver/clinician (Jellen et al. 2008; Hill and MacArthur 2006). This requires a high level of organisation with attention to minute details, excellent communication skills and clinical insight into the implications and adverse effects of the treatment involved in the trial (Fowler and Stack 2007). In Australia and New Zealand Intensive Care Units (ICU) RCs are usually employed by the department on either permanent tenure or contract basis. They work in a multi-disciplinary environment and often collaborate with researchers from a variety of health and science professions. Typically, the RCs work on multiple concurrent projects including pharmaceutically sponsored clinical trials, multi-centred investigator led trials and departmental-initiated studies. The input into each study may vary from minor administrative or data collection assistance, to significant research design and coordination responsibility. The RCs work closely with the ICU senior medical staff, particularly the designated "Director of Research" (Roberts and Rickard 2005).

RCs must have a thorough understanding of ethical principles to ensure that all research within their area is conducted according to appropriate protocols, regulations and guidelines of the "International Conference on Harmonisation" and "Good Clinical Research Practice" (GCRP) (National Health and Medical Research Council 2007; World Health Organization 2002). This is of particular importance as these guidelines relate to informed consent and the rights and safety of the trial participant, but also with regards to protocol adherence and to ensure that data generated from the research are completed in a scientifically rigorous manner (Fowler and Stack 2007). Anderson (2008) conducted a web-based survey of 55 RCs from the United States (US) involved in gene therapy research and reported that 38% (n=20) ranked ethical issues and protection of participants as a top priority and recognised the need for education related to ethics and regulatory reporting.

Similar to experiences from Australia and New Zealand, Chester et al. (2007), describe from a European perspective how commercial research, by its prescriptive nature and need to satisfy rigid regulatory requirements, has been instrumental in RCs developing sound ethical and

scientific research skills. They state that the RC must be an expert in his or her particular clinical speciality, a project manager, an expert in methodologies, and a skilled communicator. Despite needing these attributes, the RC position remains insecure with a lack of training and prospect for career advancements and the authors argue that one way of overcoming this shortfall could be the development and expansion of networks either by speciality and/or region (Roberts and Rickard 2005).

Hill and MacArthur (2006) surveyed research nurses in two studies in Scotland with 72 and 29 respondents respectively and endorsed many of the concerns raised in the literature above. From their results they recommended clarification of contractual arrangements, support mechanisms be put in place for RCs with provision for relevant and affordable education opportunities and encouragement to develop nurse-led research. They found the experienced RC is skilled in terms of clinical and research expertise, including comprehensive understanding of the complete research process and this should be valued and used to foster nursing research capacity and capability.

Research into the ICU RCs' perceptions of and experience with their role remains limited although the position has now been well-established for nearly twenty years. In 2004, two of the current researchers conducted a study of 49 (71%) of their peers examining "best" and "worst" aspects associated with the ICU RC role within Australia and New Zealand (Rickard et al. 2007; Roberts et al. 2006). This study concluded that RCs were highly qualified and experienced nurses who undertook pharmaceutical trials, multicentre projects, departmental medical and nursing research, audits and data registries. They were satisfied with structural aspects of the position and dissatisfied with their remuneration packages and level of recognition. The worst aspects of the job related to number of hours on call and stress and isolation and the best aspect were autonomy and flexibility of the work structure.

In this paper, we describe the skills that ICU RCs believe are necessary to be able to function in the role, and the best and worst aspects associated with the position. We also make comparisons to the above mentioned study performed in 2004.

## **METHODS**

### **Objectives**

The primary aim of this study was to:

- Perform a mapping exercise of Research Coordinators employed in ICU research including
  - priorities of professional development and expertise
  - best and “worst” aspects

The secondary aim of the study was to:

- Evaluate changes in positive and negative aspects of ICU RCs in Australia and New Zealand from a similar study in 2004

#### Development of the questionnaire

This cross-sectional study used an anonymous structured, multi-choice questionnaire modified from an earlier Australian and New Zealand study of ICU RCs (Rickard et al. 2006; Roberts et al. 2006).

The respondents rated 26 pre-selected items related to demography, proficiency and professional development when working as an ICU RC. The items were derived from the literature (Anderson 2008; Hill and MacArthur 2006; Rico-Villademoros et al. 2004), expert consultation and from the previous study in 2004. 22 items related to demographic composition of the cohort, 1 item with 28 sub-headings related to proficiency and 3 items with 14, 4 and 4 sub-headings respectively asked about professional development. The checklist of the latter 4 items (including sub-headings) required a score on a scale of 1 to 10, where 1 equalled no relevance and 10 the greatest relevance for each item. The respondents also were asked to describe in free-text the best and worst aspects of the role.

#### Target population, recruitment and administration of the questionnaire

RCs were identified using the Intensive Care Research Coordinators' Interest Group (IRCIG) database, a subsidiary of the Australia and New Zealand Intensive Care Society-Clinical Trials Group (ANZICS-CTG). Prior to posting the study, the authors obtained permission from the IRCIG Board to distribute the study via their closed e-mailing list. Each RC was invited by email to respond to questions on an online study site. A reminder email was sent 4 weeks later allowing RCs who had not responded to the initial email, but who had intended to

respond, an additional opportunity to do so. The email contained a hyperlink to the study website for the study to be completed on-line. Participation was voluntary, anonymous and took approximately 30 minutes to complete. Responses were recorded during a 10-week period from 27<sup>th</sup> July 2009 to 1<sup>st</sup> October 2009. It is highly likely that some of the respondents in the current survey had completed the previous survey in 2004, considering many RCs have been employed in the same position in excess of five years. However, the authors deliberately did not ask the respondents whether they had participated in the previous survey in 2004 as it was decided that it would not add value to the results.

#### Ethical considerations

Prospective approval from the Institutional Human Research Ethics Committee at Griffith University, Queensland, Australia was obtained for the study to be conducted. An explanatory information letter was attached to the study and clearly stated that participation was voluntary and anonymous. Responding to the study implied participant consent. The computer server delivered the de-identified completed studies electronically over the Internet to the researchers. Internet protocol (IP) addresses were not collected.

#### Data Analysis

Quantitative data were analysed using simple mean calculations with GraphPad QuickCalcs 2002-2005 by GraphPad Software, Inc. Qualitative data were analysed using descriptive content analysis allowing for findings of emergent themes and patterns among the themes and for quantification of the results (Polit and Hungler 1995). Two investigators (HR and BR), one of those (BR) an investigator from the survey in 2004, reviewed the data separately and then jointly examined the data to finalise categories and themes. Following repeated consultation the investigators came to agreement in the grouping of themes.

## **RESULTS**

Fifty six of 104 members of IRCIG (54%) responded, of whom 51 (91%) were females. Figure 1 shows the age distribution of the cohort with the majority being in the age groups 31-40 and

41-50 years. Figure 2 outlines the distribution of years for ICU research experience. There is a concentration in the short to middle term (1-3 years and 4-6 years) practice and 27% with more than 10 years experience in ICU research.

Table 1 reviews the RCs' perception of priorities of professional development and expertise for performing the role in ICU. All except for two items were scored by all study respondents with only one person omitting answering these two items. Eleven out of 14 items had a mean score equal to or greater than 9 and the remaining three items had a mean score greater than 8. Protection of research participants under GCRP guidelines and safety matters was the most important priority, but sound communication and organisational skills and acting as patient advocate were also classed as very important. The lowest scores were given to items of technical patient assessment and public speaking skills, although these were all still rated as >8 out of 10.

Table 2 evaluates the interest and confidence that RCs expressed in areas of disseminating research such as developing a protocol, presenting at national and international conferences and writing up the results. All respondents scored the interest, whereas 2 respondents did not answer the confidence items. The mean score (out of 10) for the four items with regard to interest ranked from 6.34 to 8.29 and the score for confidence ranging from 5.46 to 6.93. For all four items, interest exceeded confidence with a mean value of 0.52 to 1.36 indicating that although there was reasonable interest in being able to develop a research project and present and write up results, many RCs were less confident in their ability to do so.

The questions on the 'best' and 'worst' aspects of the RC role resulted in a total of 204 comments from 47 respondents.

### *Categories*

The 'best' and 'worst' aspects formed one category each.

### *Themes*

The free text identified three thematic clusters after analysis for similarity in both categories: (1) work condition, (2) work environment and (3) work role. These themes are mapped in

Table 3 and describe seeming contradictions inherent in the role such as flexibility versus excessive work hours; fulfilling patient care/contact and peer support in the ICU environment combined with lack of support and recognition; and satisfying intellectual stimulation versus bureaucratic administrative demands from the pharmaceutical industry.

The 'best/worst' comments were received in comparable numbers for the 'best' and 'worst' aspects. Individual statements have been summarised in Tables 4 and 5.

#### *The 'best' aspect*

There were 107 statements (52%) relating to this category, with most entries n=50 (47%) relating to 'work condition'. Autonomy ranked the most valued aspect, mentioned by 22 respondents, but aspects of variability and challenges were also a bonus for the job with 19 statements such as *"it changes so frequently, it is always challenging"*. The thematic cluster relating to 'work role' received nearly a third of the statements (n=32), where 'making a difference' with one respondent stating *"being part of improvement of medical treatment for people"* and 'intellectual stimulation' e.g. *"opportunities to gain more knowledge"* each had 14 responses. The 'work environment' had the least entries (n=25) but peer support afforded by the intensive care environment was seen as a positive aspect for 11 respondents saying *"the ability to work within the critical care team within a different framework"* and 7 entries enjoyed patient care and contact in relation to the RC role such as *"ability to provide care to extremely ill patients holistically"*. See Table 4.

#### *The 'worst' aspect*

Just under half of the statements n=97 (48%) related to the worst aspects associated with the role. Most entries related to the work environment n=48 (49%) with a lack of support accounting for 40 statements. This was further broken down to lack of support in general n=19 with comments such as *"lack of support and appreciation from the organisation and management"*, from doctors n=12 *"trying to foster enthusiasm and involvement by clinical staff who view research as an abstract entity with no impact on their practice"* and nurses n=9 with comments like *"no recognition from general nursing population that research and data make contribution to the unit."* 'Work condition' came second with 39% (n=38) comments of which 'work hours' had 14 entries, *"overwhelming amount of work and long hours, many unpaid"*,

and 'lack of job security' had 13 *"uncertainty about job future, no revenue-no job"*. Issues in relation to remuneration showed 9 quotes *"the pay, for the amount of knowledge, skill, teaching, time and my life that goes into this job"*. There were only 11 statements under the 'work role' heading mainly concerning requirements from the pharmaceutical industry n=6 *"pedantic requests from pharmaceutical companies"* and 'data entry' saying *"tedious data collection that is not well thought out"*. Table 5 displays selected excerpts.

## **DISCUSSION**

This study demonstrated a remarkable consensus amongst the respondents regarding the core-priorities necessary to function as a RC, with most items on the list scoring a mean above 9 out of 10. No particular age group or level of experience dominated either end of the scales for any of the questions, strengthening the agreement on these skills amongst the respondents. In many instances RCs work without job descriptions but nevertheless have a firm idea of what is important for the role to function and prosper. The cornerstone in their work revolves around GCRP guidelines which ensure that patients' rights, safety and protection through advocacy are maintained at all times. These guidelines also require the RC to be able to identify ethical and legal issues that may arise during the course of a trial, not the least due to increased demand for research governance and an exponential rise in the prescriptive nature of pharmaceutically sponsored trials. Hill and MacArthur (2006) came to similar conclusions stating that experienced research nurses have a comprehensive understanding of all aspects of the research process, including methodological, ethical and practical issues.

Equally, in order for a study to be successful, the study respondents agreed with the need for good communication and organisational skills to guarantee all staff involved in patient care, including allied health care staff, are comfortable with all the study procedures. However, much communication and nearly all aspects of trial management take place away from the bed-side. It involves the individual or group, which have formulated the protocol be it within their own institution or an international study, inter-departmental consultations, regulatory authorities and the patient and his/her family (Fowler and Stack 2007). The RCs also deemed it necessary to be proficient in creative problem solving and to have good teaching abilities.

Thus, there are many similarities between the role of a RC and that of a project manager (Shields and LaRue 2010).

It surprised the authors that assessment of critically ill patient and practical hands-on skills rated a little lower, though still highly important. This may be due to RCs having moved away from the clinical field and taken on a more managerial role overlooking the total conduct of the trial leaving some trial specific procedures to the clinical staff, or it may be the minimal amount of laboratory (basic science) research which these RCs are involved in, in comparison to clinical research.

Professional development is an important aspect of all occupations. RCs are by nature of their profession qualified to work in a research orientated and stimulating environment, so as a logical progression from conducting trials generated by other investigators can come the point of developing their own research. Thus, there was considerable interest in being able to develop a research protocol; however, the confidence in doing so was somewhat less. A similar pattern was evident when asked about other aspects of conducting own research such as publishing and presenting results at scientific fora. It is perhaps not a surprising result, as most RCs are nurses by primary training, a profession that does not generally put much emphasis on public speaking and delivery of published work. Mori et al. (2007) found a similar pattern with participants in their study being less likely to participate in protocol planning prior to study initiation. Other reasons would include time and/or budgetary constraints in developing their own research protocols and lack of opportunities to add a sub-study to especially a pharmaceutically sponsored trial.

The RCs had almost an equal amount of positive and negative statements relating to the role with 52% "best" (n=107) versus 48% "worst" (n=97) accounts. This contrasted with the study in 2004 where the split was 60% versus 40% for the two categories. All RCs have a background in nursing where they are usually nurtured through any changes such as coming into ICU or new procedures and equipment, but they are often just "thrown in" to the RC position without adequate orientation and support. It is possible that the arrival of RCs in recent years could account for this shift in perception of "best" and "worst" or the many RCs having been employed in the position for a longer period are now with time finding flaws in the

system. In the 2004 study 'work conditions' was the most cited theme for both categories, and then 'work role' followed by 'work environment' for 'best' category. In the current study 'work environment' enlisted more statements than 'work condition' when it came to 'worst' aspects, underpinning the sense of lack of support.

The current study showed that RCs value their autonomy very highly as many RCs work without direct supervision for most of the time and are able to make decisions with regards to many aspects of their workload and conditions. This corresponded with the emphasis the RCs put on organisational, managerial and creative problem solving skills as necessary to carry out the RC position. Most RCs would be engaged in several projects at any given time, requiring them to move between these in the course of a working day, providing variability, flexibility and also challenges. These aspects may also reflect the smaller subspecialty of "research" within the larger ICU environment, where often there may be one director of research and generally one or two RCs, compared to large numbers of clinical, educational and other staff. Fowler and Stack (2007) came to the same conclusions when they described the role of the study coordinators using terms such as 'autonomy' 'diversity of tasks' and 'flexibility of involvement'. In an Anonymous (2003) brief describing the role of the RC the author concluded that life was challenging "I never know what to expect next.". These findings are similar to the results from 2004 where both autonomy and flexibility rated very highly.

Research is an important aspect for the advancement of clinical care and improvement of outcome for patients and many researchers enjoy much recognition and respect within their speciality as well as in the community. Very little research is completed solely by the investigator and infinite collaborative work goes into the completion of a project. The whole team will usually have a strong sense of achievement and pride in the result. The RCs are essential members of this important team, so it is concerning that many of the respondents expressed a definite lack of recognition and support for their work. This was not only in general terms with lack of acknowledgement and understanding about the variety of skills that are involved, but also how much effort and overtime go into making the role successful. Others experienced difficulties with fostering enthusiasm and involvement from principal investigators, clinical staff and colleagues for research projects in addition to having to justify their own existence to hospital management, which was felt particularly from the nursing

stream. These feelings echo the expressions from the 2004 study, where nearly a quarter of “worst aspect” statements related to lack of recognition. Hill and MacArthur (2006) stated similarly that the role of the RC was multi-faceted but often ill understood and often led to isolation. One explanation is that patient care over the last decade has become so complex and comprehensive, that by adding a research protocol to the care plan reaches the tipping point for the bed side care giver who then becomes distant towards the project and the RC delivering this “added” burden. Another mitigating factor could be related to increased personnel development requirements from health care jurisdictions, which will impact on the time available to clinical staff for engaging in research.

Many RCs felt strongly that they contributed to the provision of evidence based best practice for their patients and improvement in the delivery of patient care corresponding to the results from 2004 where 25 out of 164 statements described this response. They derived great satisfaction from being a part of this process and equally found the role stimulated them intellectually as they would question current practice and then attempt to find the answers. Anecdotally, RCs will often mention that their position provides the opportunity to look at the bigger picture and evaluate the broad evidence available through their research network.

Many RC positions were still dependent on creating income from pharmaceutically sponsored trials to pay for their wages and research infrastructure. This is fraught with uncertainty since it is impossible to predict the proposal of new trials and existing trials may be terminated prematurely causing an end to further funding. This situation may change as a result of a proposal from the Joint Faculty of Intensive Care Medicine regarding the employment of RCs as one of their requirements for accreditation, which would then support a business case to hospital management (College of Intensive Care Medicine of Australia and New Zealand 2010).

Furthermore, the current study was completed at the time of the global financial crisis, which has seen a dearth in new trials in the Australian and New Zealand ICU community as well as health-care spending cuts. However, similar conditions were put forward in the 2004 study, so little improvement has been achieved in this area. Chester et al. (2007) also noted similar concerns regarding funding arrangements for research nurses involved in diabetic research. Where on-call was a major negative aspect in 2004 with 23 notations, “work hours” only

received 14 negative statements. There could be several reasons for this decrease such as reduction in number of large-scale pharmaceutical trials, more units employing additional RCs thus sharing the burden of on-call requirements or community expectations of the necessity for longer working hours. Similarly, isolation was a major negative aspect in the 2004 study with 14 statements but 'isolation' scored only two mentions in the current study. The explanation may be that units are employing more than one RC, or regional and bi-national collaboration and interaction by organisations such as IRCIG has provided improved teamwork.

A number of RCs were dissatisfied with the level of remuneration they received for the additional skills and degree of responsibility involved in managing clinical trials, in particular the many hours of unpaid overtime and unsocial hours when they had to enrol patients into trials and attend to protocol specific requirements. Again, many units only employed one RC so these tasks fell on the same person with little possibility for compensation later. Shields and LaRue (2010) reached the same assumption noting the downside to the role was the need for the RC to be available for the study participants on evenings and weekends.

Just over two thirds of RCs had been involved in ICU research setting for over four years and belonging to the ICU environment is clearly an important part of job satisfaction. They saw themselves as team members and valued their different role within this structure. Other authors as well as the 2004 study have noted the similar importance of maintaining a sense of belonging (Chester et al. 2007; Fowler and Stack 2007). However, the 2004 study, the current study and the literature at the same time note the despondency of isolation and lack of recognition (Hill and MacArthur 2006; Roberts et al. 2006).

Despite ever increasing requests for data and regulatory statutes from research governance committees and the pharmaceutical industry only few statements painted a negative picture of the "work role" and indeed a slight decrease in statements from the result in 2004 was observed. It is likely that RCs view these protocol requirements as necessary to protect the ethical interests of the research participants and therefore are not negative factors of their work loads. Other authors have noted that rigid regulatory requirements were the base for RCs to develop their skills in attention to detail and exactitude, which are pivotal skills for the RC position (Chester et al. 2007).

## **LIMITATIONS**

The 54% response rate was lower than anticipated, however the distribution of age and experience amongst the respondents indicate a good overall spread and may therefore be reasonably representative of the Australian and New Zealand RCs. Our investigation into what skills are needed to function appropriately in the RC role was limited only to the perceptions of RCs themselves. It may be beneficial to explore the satisfaction and competency of RCs in relation to being trial patient advocates, the ability to undertake study feasibility and data analysis.

A number of respondents (n=9) did not take the opportunity to add a free text comment on “best” and “worst” aspect. It may have added valuable insight into the thoughts of the cohort with further comments from this group. However, the total questionnaire was lengthy and therefore inclusion of free text would have added extra time for completion and hence, not within the respondents available time frame.

Given the perceived lack of support and recognition for the RCs within the ICU environment it may be prudent to consider further research, perhaps in the form of a survey of clinical staff's and management's perception of the RCs position.

## **CONCLUSION**

In conclusion, the Australian and New Zealand RCs have firm agreement on which skills constitute the key aspect of their role with adherence to GCRP as the cornerstone for their work. They are generally interested in further developing their own research as a way to develop their career; however are a little less confident in doing so. Increased recognition and support for RCs are required to further harness the potential of these roles to contribute to research and ultimately patient outcomes.

The evaluation of “best” and “worst” aspects demonstrated generally little change in the RCs' perceptions of their position between the 2004 and current study. Dissatisfaction with inadequate peer support was a major issue in the current study compared to 2004. The RCs did not express any improvements in employment condition, however, the infinite value of

autonomy, challenge and variability, and the intellectual stimulation still top the list of positive aspects associated with being an ICU RC.

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TABLE 1

Priorities of professional development and expertise as perceived necessary by the RCs for functioning in their role

Item	N	Mean
Protection of research participants under GCRP* guidelines and safety matters	55	9.76
Communication skills	56	9.66
Organisational / planning / management skills	56	9.50
Patient advocacy skills	55	9.44
Clinical research skills	56	9.43
Ability to identify ethical issues	56	9.29
Objectivity / avoid professional bias	56	9.25
Creative problem solving	56	9.25
Ability to identify legal concerns	56	9.02
Teaching skills	56	9.02
Ability to advance research objectives	56	9.00
Assessment of critically ill patients	56	8.86
Technical / practical hands-on skills	56	8.52
Public speaking skills	56	8.25

\* GCRP: Good Clinical Research Practice

TABLE 2 Interest and confidence in dissemination of research

Item	N	Mean	Mean difference between <i>Interested</i> and <i>Confidence</i>
<b><i>Interested:</i></b> ability to present research findings at local or national conferences	56	6.50	0.52
<b><i>Confidence:</i></b> ability to present research findings at local or national conferences	54	5.98	
<b><i>Interested:</i></b> ability to present research findings at international conferences	56	6.34	0.88
<b><i>Confidence:</i></b> ability to present research findings at international conferences	54	5.46	
<b><i>Interested:</i></b> being author on published articles reporting research results	56	7.45	0.84
<b><i>Confidence:</i></b> being author on published articles reporting research results	54	6.61	
<b><i>Interested:</i></b> developing research protocol from the beginning	56	8.29	1.36
<b><i>Confidence:</i></b> developing research protocol from the beginning	54	6.93	

TABLE 3 “Best” and “worst” categories and themes from participant free text statement

Thematic clusters	Categories	
	Best things n=107 statements (52%)	Worst things n=97 statements (48%)
Work conditions	Total [n=50 (47%)]	Total [n=38 (39%)]
	Autonomy (n=22)	Work hours (n=14)
	Variability (n=10)	Lack of job security (n=13)
	Challenges (n=9)	Remuneration (n=9)
	Flexibility (n=8)	Isolation (n=2)
	Job satisfaction (n=1)	
Work role	Total [n=32 (30%)]	Total [n=11 (11%)]
	Making a difference (n=14)	Requirements from pharmaceutical industry (n=6)
	Intellectual stimulation (n=14)	Data entry (n=3)
	Teaching (n=4)	Protocol compliance (n=2)
Work environment	Total [n=25 (23%)]	Total [n=48 (49%)]
	Peer support in the Intensive care environment (n=11)	Lack of support/recognition in general (n=19)
	Patient care and contact (n=7)	Lack of support/recognition from doctors (n=12)
	Intensive care colleagues (n=4)	Lack of support/recognition from nurses (n=9)
	Respect (n=2)	Lack of training opportunities (n=4)
	Travel (n=1)	Lack of orientation (n=4)

TABLE 4 Selected respondents' quotes from 'best' aspect category

Thematic clusters and themes	Respondents quotes
Work conditions	
Autonomy (n=22)	Certain amount of autonomy to develop and run a research programme
Variability (n=10)	Interesting, every day is different
Challenges (n=9)	Potential to change critical care practice
Flexibility (n=8)	Doing something "different" but in the same place that I enjoy working
Job satisfaction (n=1)	Just 'job satisfaction'
Work role	
Making a difference (n=14)	Showing what we do is best practice so we can make a difference to our patients and their families
Intellectual stimulation (n=14)	Being part of evidence based medicine
Teaching (n=4)	Being involved in the "research philosophy" of helping other people to achieve their goals
Work environment	
Peer support in the Intensive care environment (n=11)	Being involved in a dynamic area
Patient care and contact (n=7)	Interaction with patients and families and having the follow up once they leave ICU
Intensive care colleagues (n=4)	Seeing the nurses getting excited about a nurse-led study
Respect (n=2)	The respect I have gained from the medical staff
Travel (n=1)	Education conference attendance

TABLE 5 Selected respondents' quotes from 'worst' aspect category

Thematic clusters and themes	Respondents quotes
Work environment	
Lack of support/recognition in general (n=19)	Lack of understanding and acknowledgement about how much effort and overtime go into making the role successful
Lack of support/recognition from doctors (n=12)	Having little or no help from the Principal Investigators and they get all the credit
Lack of support/recognition from nurses (n=9)	Nurses regarding patients being enrolled on a study as a nuisance and not following instructions
Lack of training opportunities (n=4)	Left up to the RC to seek opportunities to attend conferences etc. in own time and self-funded even though presenting hospital's research
Lack of orientation (n=4)	Having to learn on the job while doing the job
Work conditions	
Work hours (n=14)	Unpaid unsociable hours when need to come in (for patients enrolled into studies)
Lack of job security (n=13)	Rely on grant money. –the constant pressure for funding of RC positions
Remuneration (n=9)	Unrealistic heavy workloads with lots of unpaid overtime required –poor pay that is not commensurate with additional skills required to be an ICU RC
Isolation (n=2)	Very isolating job
Work role	
Requirements from pharmaceutical industry (n=6)	Pharmaceutical companies are shafting more mindless paperwork onto RCs in the name of Good Clinical Research Practice
Data entry (n=3)	Entering paper CRF's# into electronic CRFs. Feel this is double-handling
Protocol compliance (n=2)	Depending on others to complete tasks accurately (eg follow protocol, identify any study related risk)

# CRF Case record form