Participant perceptions of a rapid response team training course

Richard Chalwin, Sam Radford, Alex Psirides, Russell Laver, Petra Bierer, Sumeet Rai, Cameron Knott, John Dyett and Daryl Jones

ABSTRACT

Background: Rapid response team (RRT) responders would benefit from training, to ensure competent and efficient management of the deteriorating patient.

Design, setting and participants: We obtained delegate feedback on a pilot training course for RRTs, commissioned by the Australian and New Zealand Intensive Care Society (ANZICS), at the second ANZICS: The Deteriorating Patient Conference.

Methods: We surveyed participants on their perceptions of the course overall, and their perceptions of sessions containing presentations and videotaped and live demonstrations of simulated scenarios of patients whose conditions were deteriorating.

Results: The survey response rate was 64% (96 of 150 potential attendees). Responses were positive, with 79.8% of responses (912/1143) agreeing that the participants had learnt something new, that the course would increase their confidence and competence during RRT calls, and that it had assisted them as an educator. The course was well received overall, with the interactive and live demonstration components of the course garnering positive feedback in the comments section of surveys.

Conclusions: There was unanimous agreement by participants for further development of a formalised RRT training course for responding to the deteriorating patient. Participants who were RRT educators also supported the development of an RRT train-the-trainer course.

Components to elicit perceptions of all components of the training sessions, as well as free space for open-ended responses and unsolicited comments.

Setting

We conducted the study at the second ANZICS: The Deteriorating Patient Conference, held at the Gold Coast on 6–7 July 2015. This conference was targeted at a multidisciplinary audience of clinicians involved in the delivery, education and administration of hospital-based RRSs. The team training model involved a “roles and goals” approach and the concept of RRT syndromes, based on the physiological trigger leading to RRT activation.
The training course was one day of concurrent sessions covering a range of topics relating to education on RRSs (see Appendix 1). The four sessions addressed the following themes:

- **Session 1:** an approach to an RRT call and RRT syndromes
- **Session 2:** RRT training priorities and logistics of training
- **Session 3:** RRT performance, assessment and feedback
- **Session 4:** practical examples of delivering RRT teaching

All sessions were developed and delivered by expert RRT educators accredited in RRT simulation, in conjunction with clinicians and researchers with an interest in the RRT.

The first two sessions were a series of lecture presentations. During Session 3, pre-recorded mock RRT training simulations were shown as video presentations. All members of the audience were invited to engage in facilitated interactive feedback and critique of team performance observed in the videos, prompted by a single-page proforma assessment tool. The development and assessment of this will be the subject of a separate study.

In Session 4, live demonstrations of delivering RRT training were provided on stage. Audience members were engaged in facilitated practice at debrief and feedback, this time to the physically present participants of the scenario.

**Participants**

All attendees of the conference were eligible to participate. The survey was offered to delegates attending any session of the pilot training program. All responses were anonymous.

**Data collection and survey format**

A paper questionnaire was distributed at the start of each session included in the training program. Participants were permitted to submit partially completed surveys if unable to attend all sessions. Remaining submissions were sought and collected at the end of the final session.

No personally identifiable data were collected but, to enable some inferences about the training program audience, respondents were queried about whether they attended RRT calls, held an educator role, or both. They were also asked if their hospital provided training to the RRT.

Thereafter, each session was assessed identically using four statements:

- I learned something new in this session.
- This session will improve my confidence managing RRT calls.
- This session will improve my competence managing RRT calls.
- As an educator, I intend to implement or modify RRT training at my hospital as a result of this session.

Responses to these were obtained using a five-level Likert response ("strongly disagree" to "strongly agree"). For the fourth statement, there was also a "not applicable" option for respondents who held no educator role.

Summary questions covered the utility of the training program overall and its applicability to other RRT members. The potential utility and uptake of dedicated RRT training courses were also queried, aimed separately at RRT members and educators, and were ranked on a Likert scale.

Finally, free text comments were invited to gauge respondents’ perceptions of the best aspects of the program and areas for improvement to refine future delivery of the sessions.

All completed surveys were assigned a study number for tracking purposes. Data were transcribed by one of us (R C) into a spreadsheet (Excel, version 15.0 [Microsoft]) for analysis.

**Statistical analysis**

There were 150 seats in the training course room and we chose that as the denominator for the survey response rate. Demographic data are reported as descriptive data, Likert item data are reported as frequencies and percentages, and Likert levels were transcoded into integers, where 1 = strongly disagree through to 5 = strongly agree, which we report as percentiles. We compared ordinal categorical variables using the Kendall tau-C test. We performed consistency testing using the Cronbach alpha and repeated-measures ANOVA tests. Missing data were handled as such with no inferences made about responses. We performed statistical analysis with SPSS, version 22.0 (IBM). A two-sided P value of < 0.05 was taken to indicate statistical significance.

Qualitative data from comments were transcribed for thematic analysis. These were coded into nodes by theme and reported by frequency of referencing. NVivo qualitative data analysis software, version 10 (QSR International), was used.

**Results**

**Response rate**

The conference was attended by 321 delegates (Jennifer Holmes, Executive Officer, ANZICS, 1 June 2016, personal communication). Most delegates were nurses (204 [63.6%]) or specialist doctors (68 [21.2%]). The remainder were trainee doctors (24 [7.5%]), industry or organisational representatives (18 [5.6%]) and allied health professionals (7 [2.2%]).

Of 150 potential attendees at the training sessions, 96 (64.0%) submitted survey responses. From a total of 2208 potential datapoints, there were 298 (15.6%) missing overall. The median number of missing entries per question was 15 (interquartile range [IQR], 3–22). One question (on RRT educator role) was answered by all participants. Two
participants indicated that they were unable to attend the first session, two were unable to attend the second session, 10 were unable to attend the third session and 11 were unable to attend the fourth session.

Demographic data of delegates attending the training course

Among the 96 respondents, 32 (33.3%) reported being a member of an RRT as the main role in their job description, 51 (53.1%) were rostered to the RRT alongside other duties, 12 (12.5%) did not attend RRT calls and one respondent declined to answer. Twenty respondents (20.8%) held dedicated educational roles, 48 (50.0%) provided some education to colleagues as part of their job, and the remaining 28 (29.2%) did not train RRT clinicians. Two respondents were neither a member of an RRT nor an RRT educator.

Within their hospital, 37 respondents (38.5%) had access to training specific to RRTs, including scenarios on deteriorating ward patients and syndromes relating to RRT calls. In addition, 11 respondents (11.5%) trained on clinical scenarios not specific to a typical RRT caseload, 18 (18.8%) received cardiopulmonary resuscitation training, three (3.1%) only had theoretical or non-practical education, and 25 (26.0%) received no RRT education. The remaining two participants did not submit a response. These data are shown in Table 1.

Perceptions of training sessions

The median response for all sessions was to agree with the statements, “I learned something new in this session,” “This session will improve my confidence managing RRT calls,” “This session will improve my competence managing RRT calls,” and “As an educator, I intend to implement or modify RRT training at my hospital as a result of this session”. From the 1143 individual responses to the statements about the sessions, 912 (79.8%) were “agree” or “strongly agree”. There were 18 responses that disagreed and eight that strongly disagreed (1.6% and 0.7%, respectively). These data are shown in Table 2.

Perceptions of training program

The provision of a training program at the conference was perceived as useful, with 70 of 74 respondents (94.6%) to that question agreeing or strongly agreeing. In addition, 72 of 74 (97.3%) stated that they would recommend it to others.

Most respondents (68 of 75 [90.7%]) agreed or strongly agreed that they would like to receive training specific to RRT members. There was no correlation based on whether or not these respondents were already rostered to an RRT (P = 0.54).

Similarly, 64 of 73 respondents (87.7%) indicated agreement or strong agreement for establishing a dedicated RRT educator course. There was a significant association between being an educator and agreeing with the need for this training (P = 0.01). These data are shown in Table 3.

Table 1. Demographic data

<table>
<thead>
<tr>
<th>Questions and response options</th>
<th>n (%)</th>
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<tbody>
<tr>
<td>Do you attend RRT calls?</td>
<td></td>
</tr>
<tr>
<td>Yes as main role</td>
<td>32 (33.3%)</td>
</tr>
<tr>
<td>Yes but not as main role</td>
<td>51 (53.1%)</td>
</tr>
<tr>
<td>No</td>
<td>12 (12.5%)</td>
</tr>
<tr>
<td>No response provided</td>
<td>1 (1.0%)</td>
</tr>
<tr>
<td>Do you educate or train the RRT?</td>
<td></td>
</tr>
<tr>
<td>Yes as main role</td>
<td>20 (20.8%)</td>
</tr>
<tr>
<td>Yes but not as main role</td>
<td>48 (50.0%)</td>
</tr>
<tr>
<td>No</td>
<td>28 (29.2%)</td>
</tr>
<tr>
<td>No response provided</td>
<td>0</td>
</tr>
<tr>
<td>Does your hospital provide training for the RRT?</td>
<td></td>
</tr>
<tr>
<td>Specific deteriorating RRT patient scenarios</td>
<td>37 (38.5%)</td>
</tr>
<tr>
<td>Generic patient scenarios</td>
<td>11 (11.5%)</td>
</tr>
<tr>
<td>Cardiac arrest scenarios only</td>
<td>18 (18.8%)</td>
</tr>
<tr>
<td>Theoretical or online training only</td>
<td>3 (3.1%)</td>
</tr>
<tr>
<td>None</td>
<td>25 (26.0%)</td>
</tr>
<tr>
<td>No response provided</td>
<td>2 (2.1%)</td>
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</tbody>
</table>

RRT = rapid response team.

Table 2. Likert scale responses to statements about sessions*

<table>
<thead>
<tr>
<th>Response to statement (n; median [IQR])</th>
</tr>
</thead>
<tbody>
<tr>
<td>I learned something new in this session</td>
</tr>
<tr>
<td>This session will improve my confidence managing RRT calls</td>
</tr>
<tr>
<td>This session will improve my competence managing RRT calls</td>
</tr>
<tr>
<td>As an educator, I intend to implement or modify RRT training at my hospital as a result of this session</td>
</tr>
</tbody>
</table>

IQR = interquartile range. RRT = rapid response team. * 1 = strongly disagree. 2 = disagree. 3 = neutral. 4 = agree. 5 = strongly agree.
Data consistency

There was good within-subject consistency across the four sessions as sphericity testing detected no significant differences, with $P$ values of 0.66, 0.41, 0.57 and 0.22, respectively, for the statements shown in Table 2. There was reasonable between-subject consistency, as suggested by the small IQRs. The Cronbach alpha for the four statements was 0.686, 0.775, 0.814 and 0.862, respectively.

Free text comments

There were 51 comments entered in the space provided for the best aspects of the training program, 15 in the section for improvements from the perspective of RRT members, and 10 in the section for improvements for RRT educators. These were filtered during coding into positive perceptions of the training program, the need for improvement or direct criticism, and suggestions. The full coding and node arrangements are shown in Appendix 2 (online at cicm.org.au/Resources/Publications/Journal).

Overall, most comments (86 of 118 codings [72.9%]) indicated general satisfaction, with most of these (53 of 86 codings [61.6%]) relating to delivery methods in the sessions. In particular, delegates commented positively on the use of videos for teaching RRT scenarios and the use of live simulation demonstrations with comments such as: “video sessions were very helpful” and “I loved the practical aspect of the session — it enhanced the realism”. There was also appreciation of audience involvement during sessions, with five comments in the best aspects section containing the word “interaction” or “interactive”.

There were only eight comments or parts of comments that were coded as indicating dissatisfaction, with no consistent or recurring theme. As an example, one critique perceived a metropolitan focus and requested more relevance for “regional/remote areas not just the tertiary centres”.

Suggestions for improvement concentrated on development of educator training. Five of 24 comments (20.8%) specifically requested an RRT train-the-trainer workshop and four (16.7%) asked for a more expert pitch. A typical example requested “a more advanced level for those teaching simulation as a main role”. Another key suggestion by four respondents was to develop an RRT educator network.

Discussion

Findings

Our study showed high levels of satisfaction for a pilot training course for RRT responders and educators. Course participants most valued the interactive components and live demonstrations. These findings confirm the feasibility of delivering lecture-based and practical training in a conference setting. Despite wide disparities in background, level of involvement with RRT calls and RRT education, most delegates indicated that they had learnt something new and felt empowered in their roles. The most common critique suggested that future delivery of the training program could be pitched at a more advanced level, but this was reflected by five respondents only.

Participants overwhelmingly supported the notion of a dedicated RRT member training course to improve confidence and competence during RRT calls. Furthermore, there was almost unanimous endorsement, from educators covering RRT as part of their portfolio, for a train-the-trainer course. There were several comments requesting the establishment of an Australasian educator network to reinforce RRT practice and harmonise training.

Area of need

Studies of training programs have consistently shown improved team performance at clinical tasks and patient management in the simulated environment. The addition of non-technical skills training further helps development of communication, team working and decision making. Participants at such courses report satisfaction with training and indicate utility for their clinical roles in managing critically unwell patients.

These findings suggest that education is provided for RRT members, but there is currently no formal guidance from college organisations or governing bodies on content, scope or frequency. In Standard 9 of the National Safety and Quality Health Service Standards, the Australian Commission on Safety and Quality in Health Care requires that at least one member of an RRT be able to “practise advanced life support”. But this emphasises management of patients in cardiac arrest, who comprise a minority of a typical RRS caseload. The ethos of an RRS is to detect and prevent...
Strong senior clinical leadership and demonstrable executive-level support will help minimise or eliminate these challenges. Local course evaluation and subsequent evolution could be detailed at a hospital level by reporting to the relevant resuscitation or clinical deterioration committees. This may represent a valuable strategy for gaining and broadening support and ensuring it is logically integrated into existing structures and processes. Further distribution of such a course to participants who were not wholly supportive of RRSs would likely require some adjustment of content and delivery format.

Conclusions
Feedback from the inaugural ANZICS RRT training program was overwhelmingly positive, particularly for the more interactive components. We determined a need to develop a train-the-trainer course for educators of RRT responders. The effect of our program on responder performance and patient outcomes remains unknown.

Competing interests
None declared.

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References

Original Articles

Appendix 1. Overview of rapid response team (RRT) training program

Session 1. RRT syndromes and training
- How I manage an RRT call (Alex Psirides)
- How I manage an RRT call for a patient with respiratory distress (Sam Radford)
- How I manage an RRT call for a patient with hypotension (Russell Laver)
- Principles of non-technical skills and crisis resource management (Sumeet Rai)

Session 2. RRT training
- The concept of roles and goals (Daryl Jones)
- How to run team training safely (Russell Laver, Petra Bierer)
- Centralised team training (Rick Chalwin)
- Team training on a budget (Sam Radford)

Session 3. Review and feedback of two video scenarios
- A patient with septic shock (Alex Psirides)
- Intubation (Sam Radford)
- Facilitators: Rick Chalwin, Cameron Knott

Session 4. Live demonstration of RRT simulation training
- Immersive team training (Rick Chalwin, Russell Laver, Petra Bierer)
- In-situ team training (Sam Radford, Cameron Knott)
- Facilitator: Alex Psirides