

# Satisfaction of nurses and physicians with the introduction of the Rapid Response System in Dutch hospitals

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## Abstract

**Background:** Rapid Response Systems (RRSs) have been introduced in hospitals to improve recognition of and response to deteriorating hospital ward patients. The value of an RRS depends not only on relevant patient outcomes but also on how satisfied nurses and physicians are with the system. The aim of the study was to measure the degree of satisfaction with an RRS and analyse factors influencing the degree of implementation.

**Methods:** Questionnaires were distributed among physicians and nurses on medical and surgical wards participating in the COMET study at 7 and 14 months after introduction of a Rapid Response Team (RRT). The questionnaires included 24 questions regarding the use and the degree of satisfaction with the Modified Early Warning Score MEWS/SBAR tool and the RRT.

**Results:** The response rate was 1005/1920 (52%). Satisfaction with implementation of the RRS was generally higher at t=14 compared with t=7 months and in respondents working on surgical versus medical wards. In a multivariate analysis, independent predictors of high satisfaction were timing of the questionnaire (14 months versus 7 months after the start of an RRT), the support of the RRT system by local ward management, and having an RRT that was considered to be open and approachable.

**Conclusions:** Our findings show that healthcare workers on hospital wards are generally very satisfied with the services offered by the RRT, the use of the MEWS instrument to recognise deteriorating patients and the SBAR communication tool to improve communication between nurses and doctors. Satisfaction with the RRT was higher at 14 months compared with 7 months.

## Introduction

Rapid Response Systems have been introduced in hospitals to improve recognition of and response to deteriorating hospital ward patients.<sup>[1]</sup> An RRS can be seen as an intensive care-based, organisation-wide preventive approach to the management

of deteriorating patients, and implementing the RRS requires more than just standardisation of 'calling criteria' and the rapid response of a dedicated acute care team. The RRS consists of three important components. The afferent limb is designed to identify the deteriorating patient by using calling criteria such as the Modified Early Warning Score (MEWS) card and to trigger a response. The efferent limb involves directed action of the Rapid Response Team (RRT) and the third component includes measures to improve the quality of care on the ward, training and feedback.<sup>[1,2]</sup>

An optimal RRS should ensure 1) the support of all physicians and nurses, 2) leadership and support from senior hospital executives, 3) 24/7 response by staff with appropriate skills, knowledge and experience, and 4) the promotion of hospital-wide awareness of the system.<sup>[3]</sup>

The effectiveness of RRSs has not yet been proven conclusively. So far, the effectiveness of the introduction of RRSs in hospitals was shown in only two studies. The study by Priestly<sup>[4]</sup> showed a reduction in hospital mortality, while the study by Ludikhuizen et al.<sup>[5]</sup> showed a reduction of the composite endpoint including cardiac arrest, death and unplanned ICU admission. Another multicentre randomised study conducted by Hillman<sup>[6]</sup> in Australia could not demonstrate a benefit of the introduction of a medical emergency team based RRS.

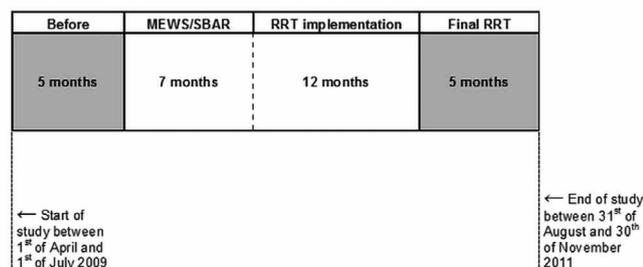
Besides effects on relevant patient outcomes, the value of an RRS also depends on how satisfied nurses and physicians are with the system. Satisfaction of healthcare workers with the RRSs is not only a subjective measure of contentment with the support the RRS offers to the care of their patients, it also is a prerequisite for a good implementation and performance of the RRS. Nurses will only call an RRT if they expect to be supported by it. Fear of being criticised by members of an RRT for their care of deteriorating patients was reported to be a barrier for implementing an RRS.<sup>[7-9]</sup> In the Netherlands, we recently implemented an RRS in 12 hospitals. The aim of this study was to measure the degree of

satisfaction of nurses and physicians with the implementation of an RRS and the perceived benefit of the system.

## Material and methods

### Design, setting, participants

This study is part of the Cost and Outcome Medical Emergency Team (COMET) study which was conducted in the Netherlands from 2009 to 2011. The COMET study was a pragmatic prospective before-after multicentre study in which 12 Dutch hospitals participated. The before period in which baseline characteristics were collected lasted five months. Subsequently, the RRS was introduced in a two-step fashion. First, in the MEWS/SBAR phase, which lasted 7 months, the Modified Early Warning Score (MEWS) card and the Situation Background Assessment Recommendation (SBAR) communication tool were introduced to identify patients at risk and to facilitate communication between nurses and physicians. Secondly, the RRT was implemented and this phase lasted 17 months; it was divided into two periods, namely RRT implementation and the Final RRT phase. In each participating hospital, patients of 18 years and older who were admitted to two surgical and two medical wards, the so-called COMET wards, were included. A full description of the study design (*figure 1*) has been published previously.<sup>[5,10]</sup>



**Figure 1.** Design of the COMET study

Following the baseline period of 5 months, the Modified Early Warning Score (MEWS)/Situation-Background-Assessment-Recommendation (SBAR) was implemented for 7 months and subsequently followed up for 17 months in which the rapid response team (RRT) was available. Effects of the RRT on outcomes were measured during the last 5 months and compared with the 5-month baseline period. During the entire length of the study, data were collected on all the endpoints. For further clarification, hospitals were able to start the study in a 3-month time period. The total study took 30 months, in which each hospital participated for 27 months. Log Rank (Mantel-Cox analysis)  $p=0.004$

During the second phase of the COMET study, questionnaires were distributed to nurses and physicians in all 12 participating hospitals to measure the satisfaction with the RRS on two different time points: 7 and 14 months after introduction of the RRT. On each occasion, participating hospitals distributed 80 questionnaires on the four COMET wards to nurses and physicians. The questionnaires were completed anonymously.

### Intervention

The questionnaires included 24 questions covering three aspects: 1) questions on how respondents used the MEWS/SBAR tools and RRT; 2) level of satisfaction with MEWS/SBAR and RRT; and 3) characteristics of the respondents (physician/nurse, working on medical/surgical ward, gender, age, experience since graduation (years), employment in the hospital and current ward (years)). Responses to the questions were scored on a scale from 0-10 (0 = totally disagree or never, 10 = totally agree or always).

### Ethical consideration

The medical ethics committee of the Academic Medical Centre in Amsterdam waived the need for formal evaluation of the study due to the observational nature of the study. Consequently, the need for informed consent was not applicable.

### Statistical analysis

Descriptive analyses are presented as raw numbers and percentages. Continuous data were presented as medians with interquartile range (IQR) due to non-normally distributed data. A bootstrap independent t-test was used for comparison of the time points, drawing 1000 samples of the same size as the original samples and with replacement, stratified by the timing of questionnaire. The generalised estimating equation (GEE) was applied to estimate the univariable association between predictors as measured by the questionnaire and satisfaction. The predictors used in GEE were 1) timing of questionnaire (7 and 14 months), 2) gender of respondent, 3) surgical/medical ward, 4) number of patients with MEWS  $\geq 3$  assessed by nurse or physician in the last 2 weeks, 5) age (years) of respondent, and 6) work experience (years) of respondent.

In the GEE, a binomial distribution was assumed after recoding the questions scored on a scale from 0 to 10 into a dichotomous

**Table 1.** Demographics

Questionnaire	RRT implementation phase	
	7 months	14 months
Respondent, n (% of total)	492 (51)	513 (53)
Gender, male, n (%)	55 (11)	73 (14)
Age, mean $\pm$ SD	32.8 $\pm$ 10.5	32.6 $\pm$ 10.5
Reporter, n (%)		
	Physicians	56 (11)
	Nurses	438 (85)
	Other or unknown	19 (4)
Ward		
	Non-surgical ward	248 (48)
	Surgical ward	246 (48)
	Not reported	19 (4)
Experience since graduation (years), mean $\pm$ SD	8.6 $\pm$ 9.2	8.15 $\pm$ 8.9
Employment in the hospital (months), mean $\pm$ SD	96.9 $\pm$ 105.2	81.57 $\pm$ 90.9
Employment on current ward (months), mean $\pm$ SD	65.9 $\pm$ 74.7	57.04 $\pm$ 66.3

**Table 2.** Characteristics of questionnaires, answers given by professionals

Questionnaire	7 Months	14 Months	p-value
<b>Use of MEWS/SBAR</b>			
If my patient has a MEWS $\geq 3$ , I always call the ward physician immediately	6.44 (6.19-6.66)	6.87 (6.65-7.06)	0.006
I always use the SBAR communication tool in the communication between the nurse and physician	5.29 (5.05-5.54)	5.49 (5.23-5.73)	0.245
The RRS is fully incorporated in the daily care we provide to our patients on the ward	5.49 (5.28-5.68)	6.26 (6.06-6.46)	0.001
The ward management supports the RRS concept	7.55 (7.36-7.74)	7.87 (7.71-8.03)	0.006
Explaining the MEWS/SBAR and RRT procedure to a new colleague is not a problem	6.52 (6.31-6.74)	6.91 (6.75-7.09)	0.006
<b>Satisfaction using MEWS/SBAR and RRT procedure</b>			
What is your general opinion about the MEWS tool?	7.17 (7.05-7.31)	7.55 (7.42-7.67)	0.001
What is your general opinion about the use of SBAR communication tool?	6.99 (6.85-7.16)	7.08 (6.93-7.21)	0.462
What is your general opinion about the RRT?	7.33 (7.18-7.47)	7.69 (7.56-7.81)	0.001
The use of the MEWS/SBAR tool and RRT procedure creates an unbalanced increase in workload	3.71 (3.46-3.93)	3.32 (3.11-3.54)	0.016
Using the MEWS/SBAR tool, deteriorating patients were identified earlier	6.74 (6.56-6.91)	7.16 (6.99-7.31)	0.002
The RRT is of added value over using the MEWS/SBAR tool in early recognition and treatment of deteriorating patients	6.73 (6.55-6.91)	7.02 (6.87-7.17)	0.015
The presence of the RRT procedure in our hospital ensures that physicians review deteriorating patients earlier than before	6.68 (6.49-6.88)	6.79 (6.63-6.95)	0.352
The RRS is very relevant for my daily activities and I will keep using this in the future	7.01 (6.82-7.18)	7.44 (7.28-7.58)	0.001
The RRS is an essential part of the daily care and should be employed in all hospitals	7.28 (7.12-7.43)	7.72 (7.58-7.84)	0.001
<b>Rapid Response Team</b>			
The members of the RRT are kind and helpful during consultation	7.19 (7.03-7.35)	7.54 (7.41-7.76)	0.001
The members of the RRT have a low threshold to contact and are approachable	7.22 (7.04-7.38)	7.48 (7.37-7.60)	0.017
The members of the RRT give sufficient and high-quality bedside teaching during consultation	6.43 (6.23-6.62)	6.51 (6.34-6.68)	0.583
<i>Negative experiences with the members of the RRT in the previous three months?</i>			
The members of the RRT are unfriendly and not cooperative to the ward nurse and physician during consultation	2.14 (1.90-2.41)	2.09 (1.88-2.31)	0.799
Members of the RRT give the feeling that they were called unnecessarily	2.52 (2.29-2.77)	2.39 (2.18-2.60)	0.424
The members of the RRT give the impression that the daily care on the ward is insufficient	2.56 (2.32-2.80)	2.64 (2.45-2.86)	0.555
<b>Possible delays in the RRS protocol</b>			
Nurses frequently activate the RRT instead of physicians	3.27 (3.04-3.49)	3.74 (3.54-3.96)	0.005
The ward physicians adhere to the timeframe to call the RRT	4.91 (4.72-5.09)	4.78 (4.57-4.97)	0.350
The RRT is always present within 10 minutes after the RRT call	6.87 (6.69-7.07)	6.98 (6.80-7.16)	0.142

Questionnaire 7 and 14 months after implementation of RRT. Response to questions was scored on a scale from 0-10 (0=totally disagree or never, 10=totally agree or always. All data are presented as mean and 95% CI. Data were derived from answers to questions 3-21 of the questionnaire.

one. Score from 0 to 5 meant never or totally disagree and score from 6 to 10 meant always or totally agree. We indicated the reference category as the one which contained the most answers. Furthermore, a GEE was applied to estimate the multivariable association between demographic and process related items and overall satisfaction with the RRT. Associations were reported as relative risks (RR). Associations with p-values  $>0.1$  were manually removed (backward stepwise) from the GEE. The level of significance was set at  $p < 0.05$ . Statistical analysis was done using SPSS version 20.0 (Armonk, New York, USA).

## Results

The response rate was 51% at 7 months and 53% at 14 months after RRT implementation. Of the returned questionnaires, 85% were filled in by nurses. Further details on the respondents are given in *table 1*.

Responses to the questionnaires at 7 months and 14 months are

given in *table 2*. According to their own answers, respondents were more likely to call the RRT if patients had a MEWS  $\geq 3$  points, and the RRS was more fully incorporated on the wards at 14 months compared with 7 months after its introduction. Also, at 14 compared with 7 months, support by the management on the ward was higher and it was more often considered 'no problem' to explain the RRS to colleagues. Satisfaction with the RRS was generally higher at 14 months. Concerning the perceived attitudes of members of the RRT, respondents tended to be more positive at 14 months than at 7 months.

*Table 3* reports the results of the GEE analysis. In the table, the RR for agreement with a certain statement of the survey is given for time of questionnaire (14 months versus 7 months), gender (female versus male), ward (surgical versus medical), observing patients with a MEWS  $\geq 3$  in the last week ( $\geq 1$  patient versus 0 patients), age and work experience (years) are reported. For almost all statements, compliance of respondents and ward

**Table 3.** Association of characteristics of respondents with Rapid Response System-related behaviour and satisfaction

Use of MEWS/SBAR	Timing (14 months vs. 7 months)		Female vs. male		Surgical vs. medical		Experience with patients with MEWS >3		Age (years)		Work experience (years)	
	RR (95%CI)	p-value	RR (95%CI)	p-value	RR (95%CI)	p-value	RR (95%CI)	p-value	RR (95%CI)	p-value	RR (95%CI)	p-value
If my patient has a MEWS ≥3, I always call the ward physician immediately	1.182 (0.974-1.034)	0.091	NS		1.389 (1.168-1.650)	0.000	NS		NS		NS	
I always use the SBAR communication tool in the communication between the nurse and physician	NS		NS		1.157 (1.029-1.302)	0.015	NS		NS		1.008 (1.004-1.013)	0.000
The RRS is fully incorporated in the daily care we provide to our patients on the ward	1.429 (1.271-1.605)	0.000	NS		1.406 (1.179-1.678)	0.000	NS		NS		NS	
The ward management supports the RRS concept	NS		NS		4.878 (2.597-9.091)	0.000	1.326 (0.959-1.835)	0,089	1.018 (0.998-1.038)	0.084	0.979 (0.959-1.000)	0.051
Explaining the MEWS/SBAR and RRT procedure to a new colleague is not a problem	1.311 (1.086-1.605)	0.005	1.383 (1.001-1.908)	0,049	1.585 (1.2591.996)	0.000	NS		NS		NS	
<b>Satisfaction using MEWS/SBAR and RRT procedure</b>												
What is your general opinion about the MEWS tool?	1.479 (1.059-2.066)	0.021	NS		2.141 (1.277-3.597)	0.004	NS		NS		NS	
What is your general opinion about the use of SBAR communication tool?	NS		NS		NS		NS		0.982 (0.962-1.004)	0.110	1.024 (1.002-1.047)	0.036
What is your general opinion about the RRT?	1.887 (1.403-2.532)	0.000	NS		2.475 (1.479-4.149)	0.001	NS		NS		NS	
The use of the MEWS/SBAR tool and RRT procedure creates an unbalanced increase in workload	0.723 (0.873-0.598)	0.001	NS		NS		NS		NS		0.985 (0.975-0.995)	0.004
Using the MEWS/SBAR tool, deteriorating patients are identified earlier	1.344 (1.044-1.733)	0.022	NS		1.451 (1.156-1.821)	0.001	NS		1.013 (1.002-1.025)	0.021	NS	
The RRT is of added value over using the MEWS/SBAR tool in early recognition and treatment of deteriorating patients	1.460 (1.209-1.761)	0.000	NS		1.855 (1.600-2.146)	0.000	NS		NS		NS	
The presence of the RRT procedure in our hospital ensures that physicians review deteriorating patients earlier than before	NS		NS		1.957 (1.634-2.347)	0.000	NS		NS		1.013 (1.003-1.024)	0.010
The RRS is very relevant for my daily activities and I will keep using this in the future	1.773 (1.294-2.427)	0.000	NS		2.793 (1.887-4.132)	0.000	NS		NS		NS	
The RRS is an essential part of the daily care and should be employed in all hospitals	1.520 (1.224-1.887)	0.000	NS		2.801 (1.898-4.132)	0.000	NS		0.979 (0.956-1.003)	0.087	1.025 (1.002-1.049)	0.037
<b>Rapid Response Team</b>												
The members of the RRT are kind and helpful during consultation?	1.848 (1.253-2.725)	0.002	1.821 (1.295-2.564)	0.001	1.645 (1.095-2.463)	0.016	1.534 (0.980-2.398)	0.061	NS		NS	
The members of the RRT have a low threshold to contact and are easily reachable	1.555 (1.175-2.058)	0.002	1.502 (1.013-2.227)	0.043	1.563 (1.171-2.088)	0.002	1.412 (1.048-1.923)	0.028	NS		NS	
The members of the RRT give sufficient and high-quality bedside teaching during consultation	NS		NS		1.524 (1.181-1.969)	0.001	NS		NS		NS	
<b>In the last three months negative experiences with the members of the RRT?</b>												
The members of the RRT were unfriendly and not cooperative to the ward nurse and physician during consultation	NS		NS		0.618 (0.321-1.190)	0.150	NS		NS		NS	
Members of the RRT gave the feeling that they were called unnecessarily	NS		NS		0.613 (0.421-0.894)	0.011	NS		1.018 (1.001-1.035)	0.040	NS	
The members of the RRT gave the impression that the daily care on the ward is insufficient	NS		NS		NS		NS		1.000 (0.990-1.010)	0.962	NS	
<b>Is there any delay in the process?</b>												
Nurses frequently activate the RRT instead of physicians	1.073 (1.013-1.138)	0.017	NS		1.093 (0.999-1.196)	0.053	0.872 (0.822-0.925)	0.000	0.994 (0.991-0.997)	0,000	1.004 (1.000-1.008)	0.037
The ward physician adhere to the time frame to call the RRT	NS		NS		NS		NS		1.008 (1.000-1.016)	0.045	0.993 (1.000-1.001)	0.097
The RRT is always present within 10 minutes after the RRT call	1.200 (0.996-1.449)	0.056	NS		1.307 (1.124-1.522)	0.001	NS		NS		NS	

Relative risk (RR) of characteristics of respondents with RRS-related behaviours and satisfaction. RR >1 indicates higher satisfaction or agreement with statement. Response to questions was originally scored on a scale from 0-10 (0=totally disagree or never, 10=totally agree or always). For this analysis answers were dichotomously recoded in a way that scores from 0=5 mean no or disagree and 6-10 means yes or agree. Data were derived from answers to question 3-21 of the questionnaire

**Table 4.** Multivariate analysis exploring the association of different aspects of the Rapid Response System (demographic and process related items) and overall satisfaction with RRS

	RR (95% CI)
Support of RRS by ward management	3.497 (1.802-6.803)
The members of the RRT are kind and helpful during consultation	4.149 (1.825-9.434)
The members of the RRT have a low threshold to contact and are easily reachable	NS
The members of the RRT give sufficient and high-quality bedside teaching during consultation	NS
Members of the RRT give the feeling that they were called unnecessarily	NS
The members of the RRT give the impression that the daily care on the ward is insufficient	NS
Nurses frequently activate the RRT instead of physicians	NS
The ward physician sticks to the timeframe to call the RRT	NS
The RRT is always present within 10 minutes after the RRT call	NS
Timing of questionnaire (14 months versus 7 months)	1.495 (0.959-2.331)
Surgical versus medical ward	NS

Relative risk (RR) of characteristics of respondents with RRS-related behaviours and satisfaction. RR > 1 indicates higher satisfaction of agreement statement. Response to questions was originally scored on a scale from 0-10 (0=totally disagree or never, 10=totally agree or always). For this analysis answers were dichotomously recoded in a way that scores from 0-5 mean 'no or disagree' and 6-10 means 'yes or agree'. Data were derived from answers to questions that were related in our opinion to the process.

management with the RRS as well as satisfaction with the RRS was higher at 14 months compared with 7 months, and also higher in respondents working on surgical versus medical wards. More years of experience as nurse or physician were associated with higher compliance and satisfaction for some but not all statements. Gender, age and experience with patients with MEWS  $\geq 3$  showed no association with agreement with the given statements.

The multivariable analysis on factors associated with overall satisfaction with the RRT is shown in *table 4*. Independent predictors of satisfaction were duration of experience with the RRS (14 versus 7 months after implementation of the RRS), support of the RRS by local ward management, and having an RRT considered to be 'open' and 'approachable'.

## Discussion

In this study we found that nurses and physicians working on hospital wards in the Netherlands are generally very satisfied with the services offered by the RRT, with the MEWS instrument to recognise patients at risk and with the SBAR communication tool to improve communication about deteriorating patients between nurses and doctors. At 14 months after implementation of the RRT, respondents valued these components of the RRS even more than at 7 months after implementation. Accordingly,

we found high agreement of respondents with the statement that RRTs should be installed in all hospitals and that they were willing to use it in the future.

Our findings from the Netherlands are in agreement with earlier reports on attitudes of healthcare workers regarding RRTs. Studies from Saudi Arabia,<sup>[11]</sup> Australia,<sup>[9,12]</sup> Italy<sup>[13]</sup> and Canada<sup>[8]</sup> and the USA<sup>[14]</sup> all reported very high satisfaction with RRTs by nurses and doctors. RRTs were believed to prevent cardiac arrests<sup>[8,12]</sup> and allowed nurses to seek help if they were worried about their patients.<sup>[8]</sup> We found that nurses and physicians on surgical wards expressed higher satisfaction with the RRT than colleagues on medical wards. The use of the different components of the RRT system was also higher on surgical wards and the management on the surgical ward was more supportive regarding the RRT than on medical wards. The same difference in attitudes towards the RRT between surgical and medical wards was also reported in studies from Italy, Australia and Canada.<sup>[8,13,15]</sup> It has been suggested that the benefits from an RRT may be more pronounced on a surgical ward because surgeons are more often busy in the operating room and not available for care on the ward. Furthermore, many doctors and nurses of surgical wards feel inadequate in managing critical patients and are accustomed to relying on external consultants for managing medical problems.<sup>[13]</sup> As severe adverse events are common after surgery, RRTs may be especially beneficial in these patients. Indeed, Bellomo and co-workers reported that an RRT resulted in a 58% relative risk reduction in adverse outcomes and a 44% reduction in emergency ICU admissions after major surgery.<sup>[16]</sup>

In general, no association was found between satisfaction with RRT and either gender, experience with more than one deteriorating patient in the last two weeks, age of the respondent or years of experience in healthcare. Only a few individual statements showed such an association. More years of experience were associated with more agreement with the statement 'I always use the SBAR communication tool in the communication between nurse and physician', and also with the statement 'an RRT in the hospital means that deteriorating patients are reviewed earlier'. In other studies seniority of nurses was shown to be associated with a higher appreciation of the RRT.<sup>[13]</sup> In our multivariate analysis, an RRT considered to be 'open' and 'approachable' during consultation was associated with higher overall satisfaction with the RRT by healthcare workers. This can be a direct positive effect of being kind and helpful. If so, RRTs should be urged to be kind and helpful to facilitate implementation of the rapid response system in hospitals. Alternatively, it is also possible that nurses and doctors who are satisfied with the RRT for other reasons are also more positive about how the RRT operates.

The high satisfaction with an RRT found in our study is not necessarily representative for large-scale implementation in real-life settings. We cannot exclude that implementation

measures such as information and education were more intense and local management was more involved because our implementation of RRTs was part of a scientific study. However, we believe that this was unlikely. First, as this was a large study in 12 hospitals involving 166,569 patients, without external funding, implementation measures were mostly limited to informing all nurses and physicians and offering pocket cards with a MEWS and SBAR summary. This would not be very different in 'normal' implementations. Second, implementation was mainly done in the first months before and after the start of the RRT; if our study had applied unrealistic implementation measures, one would expect the highest appreciation of the RRT in the first period. In contrast, we found that satisfaction with the RRT actually increased over time between 7 and 14 months after the start of the RRT. In our study, questionnaires were distributed anonymously among physicians and nurses.

Clearly, satisfaction by healthcare workers alone does not justify the implementation of RRTs. The effect of RRTs has been studied in the Netherlands in the COMET study in which a total of 166,569 patients were included. The composite endpoint which consisted of resuscitation, unplanned ICU admission or death was significantly reduced in the rapid response phase compared with the phase before implementation, adjusted OR 0.847; 95% CI 0.725-0.989,  $p=0.036$ .<sup>[5]</sup> Thus, RRTs improve the outcome of patients admitted to hospital, and are also highly appreciated by nurses and physicians.

In this study there are some limitations. First, because of the anonymity, we could not establish who returned the questionnaires during the two time points. We considered the questionnaires as unrelated and used the independent samples t-test for analysis. Second, the response rate in this study was 52%. We cannot rule out that larger hospitals returned more questionnaires. However, we sent 80 questionnaires to each hospital independent of hospital size, making this potential bias less likely.

### Conclusion

Our findings show that healthcare workers on hospital wards are generally very satisfied with the services offered by the RRT, the use of the MEWS instrument to recognise deteriorating patients and the SBAR communication tool to improve communication between nurses and doctors. Satisfaction with the RRT was higher at 14 months compared with 7 months.

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### Questionnaire

You will find the questionnaire: <http://njcc.nl/25/5/appendix.pdf>

### Disclosures

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