

# The Rural Trauma Team Development Course in Pakistan – Potential for Improving Trauma Care

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## ABSTRACT

*Objective* To determine the feasibility, acceptability and potential for improving trauma care in Pakistan through the Rural Trauma Team Development Course (RTTDC).

*Study design* Mixed method approach. Pre and post test, Questionnaire based survey.

*Place & Duration of study* The course was held at the College of Physicians & Surgeons Pakistan in Karachi over a 2-day period in year 2012.

*Methodology* Input from participants in one RTTDC instructor course and one provider course conducted in Pakistan was reviewed. On the first day a course for instructors who trained providers on the second day, was conducted. *t*-test was used to compare pre and post MCQ scores of both instructors and participants. A 5-point Likert scale was used to assess the educational value of the course based on a 16 item questionnaire. Relevance and applicability of the Performance Improvement and Patient Safety (PIPS), Communication and Scenario Modules were also assessed through questionnaires. General Comments on the applicability and potential for trauma care improvement in Pakistan through the program were solicited and analyzed.

*Results* Mean percent scores in the MCQs improved for both instructors and participants but both pre and post RTTDC scores were higher in the instructor group ( $p=.006$ ).

On 5-point Likert scale 75% faculty and 100% participants strongly agreed/agreed that the course educational content was relevant to their needs. PIPS was graded “very relevant” by 100% faculty and 35% participants with 65% student grading PIPS as “relevant”. Communication module was rated “very relevant” by 100% faculty and 68% participants. Scenarios were “very relevant” to 100% faculty and 50% participants. Both faculty and providers recommended widespread promulgation of RTTDC training in Pakistan to improve trauma outcome.

*Conclusion* Assessment showed improvement in knowledge and a very positive attitude towards the program.

*Key words* Trauma education, Rural trauma, Trauma care in Pakistan.

## INTRODUCTION:

Middle and low income countries like Pakistan account for the highest percentage of the world

burden of injury with attendant mortality.<sup>1-3</sup> Although most trauma occurs in non rural settings, trauma mortality is higher in rural areas partially because of delay due to distance, dense traffic and poor resources including personnel, training and physical equipment.<sup>4-6</sup> Although programs like the Advanced Trauma Life Support (ATLS) course is expected to improve trauma outcome in tertiary care centres,<sup>7,8</sup> many injured patients arrive in these centres inadequately resuscitated leading to increased

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mortality.<sup>9</sup> Improvement in immediate early simple resuscitative measures could improve outcome as demonstrated by the impact of the Prehospital Trauma Life Support (PHTLS) program on trauma mortality.<sup>10</sup>

Recognition of the factors contributing to the extra ordinarily high rural trauma mortality, has led to the formulation of the Rural Trauma Team Development Course by the American College of Surgeons Committee on Trauma. This program provides training to rural trauma care givers on the concepts of trauma resuscitation based on the principles of the ATLS course utilizing the minimal resources in terms of personnel, education, skills and equipment commonly found in these rural environments.<sup>11</sup> The purpose of this project was to explore the feasibility of introducing the RTTDC in Pakistan, while examining its acceptability and potential for improving trauma outcomes by focusing on improved education of rural trauma care givers to ensure better trauma resuscitation and safe early transfer to tertiary trauma care centres.

#### **METHODOLOGY:**

An initial RTTDC instructor course for training 8 faculty was followed by a provider course for 12 participants conducted by these newly trained RTTDC instructors in Karachi, Pakistan on November 11 – 12, 2012. There were seven surgeons and one registered nurse among the 8 instructor candidates. Of the twelve students attending the Provider course, two were nurses, 8 primary physicians and two surgeons. The nurses and 2 physicians were from rural communities and the rest from non rural settings.

Paired t-tests for paired data and unpaired t-tests for unpaired data were used to compare mean percent pre and post RTTDC scores in MCQ tests focusing on pre-hospital trauma care with a p value of .05 being considered statistically significant. Sixteen items on assessing the educational value of the course were completed by both instructor candidates and participants. Responses on the relevance and applicability of the Performance Improvement and Patient safety (PIPS), Clinical Trauma Scenarios and Communication modules were analyzed using a 5 point Likert scale. General comments on the applicability and potential for trauma care improvement in Pakistan through the program were solicited and analyzed.

Supplemental questionnaires were mailed to the participants after the course enquiring about the degree of knowledge gain (poor, fair, average, very good, excellent), whether new skills/knowledge were

developed (yes, no), what percent of the course was new, the percent of the course applicable to their practice and whether they had attended any type of rural trauma course before.

All participants signed disclosure and consent forms indicating no conflict of interest.

#### **RESULTS:**

As demonstrated in table I, mean percent MCQ scores improved ( $p < .05$ ) post RTTDC in both instructor and participant courses. The scores were lower with participant group than in the instructor group, both pre and post ( $p < .05$ ). The improvement in scores post RTTDC was greater in the instructor group ( $p = .006$ ).

**Educational Relevance Questionnaire:** The responses for the participants are summarized in table II and those of the faculty in table III, where it is seen that the majority of both participants and faculty rated the educational value of the different aspects of the program, very highly.

**Evaluation of PIPS:** As seen on table IV – four of the 12 participants considered the PIPS module “very relevant” and 8 considered it “relevant” while all faculty considered the PIPS module very relevant.

**Evaluation of Communication Module:** Table IV also shows that 7 participants considered this module “very relevant” and 5 considered it “relevant” while all 8 faculty considered it “very relevant”.

**Evaluation of Clinical Scenarios:** Fifty percent of participants considered the scenarios “very relevant” and the rest “relevant” while all 8 faculty considered the scenarios “very relevant” (table IV).

**Supplementary Questionnaire:** Because this questionnaire was mailed after the course, the response was only in the instructor group (75%). Of those who responded 100% indicated knowledge gain was very good to excellent, and 100% indicated they developed new skills/knowledge from the course. Overall, 80% indicated that at least 50% of the course was new. None of the participants had attended a rural trauma course previously and only one of the instructors indicated that 90% of the course was relevant to his practice, perhaps because the others were not directly involved in rural practice.

**General Comments by the Participants:** There were over 150 comments from participants that were essentially positive and supportive with almost unanimous suggestion that the RTTDC be widely disseminated in rural Pakistan. The general

Table I: MCQ Results

Students			Instructor		
Pre (%)	Post (%)	Delta	Pre (%)	Post (%)	Delta
60	68	08	72	82	10
55	58	03	74	80	06
58	64	08	76	84	08
62.5	70	7.5	80	88	08
70	74	04	85	90	05
70	76	06	88	96	08
68	70	02	82	98	16
69	74	05	80	100	20
70	74	04			
72	74	02			
65	70	05			
65	70	05			
<b>Mean Scores</b>					
65.4	70.2	4.96	79.6	89.8	10.13

consensus was that the program will improve trauma care by improving resuscitation of trauma victims in rural communities so that when they arrive at the trauma centre their chances of survival would be enhanced. There were very strong supportive comments for the PIPS module which was seen as promoting improvement in care by examining the reasons for good and bad outcomes as well as implementing measures for improving trauma care.

The communication module was regarded as very positive in increasing the need for team work between the referring and referral centres towards better trauma care and education.

#### DISCUSSION:

The RTTDC begins with viewing and critiquing a video on the management of a trauma victim in a rural emergency room. This is followed by interactive lectures covering the same topics as the ATLS course but scaled down for caregivers in the rural setting. Apart from didactic lectures, scenario based discussion of trauma management utilizing local treatment resources, videos on trauma care principles, communication principles between referring and referral personnel as well as the important principles of Performance Improvement and Patient Safety (PIPS) are presented. Emphasis is placed on the team concept of management with

the ideal team identified as a minimum of 3 members with one designated as the team leader.

The data from our project demonstrated that knowledge on rural trauma care improved with the RTTDC program with increasing awareness of the higher trauma mortality in the rural environment and that simple measures that were within the scope of minimally trained care givers could make a difference in outcome in these patients. The PIPS and Communication modules emphasized the need for closer cooperation and a collegial helpful attitude between rural care givers and the referral centre staff by avoiding a search for blame and replacing this by a positive approach in which errors were analyzed and plans put in place for prevention of future repeated errors in a positive educational strategic framework. The results are similar to those from a previously reported experience in India.<sup>12</sup> Previous study in a North American rural trauma setting has shown that improvement in communication through implementation of the Communication module has resulted in significant reduction in time for resuscitation in the rural setting thus improving the likelihood of survival of the transported victim from the rural setting.<sup>13</sup> The general concept in trauma system organization is to get the right patient to the right place at the right time.<sup>14,15</sup> In developing countries the recognized very high prehospital trauma mortality has been

**Table II: Participant Course Evaluation Form Summary**

Topics	Strongly Agree	Agree	Neutral	Strongly Disagree	Disagree
1. Overall, this educational activity was excellent	06	06			
2. Program topics and content met the stated objectives	08	03			
3. Content was relevant to my educational needs	08	04			
4. Educational format was conducive to learning	06	05	01		
5. Acquired knowledge will be applied in my practice environment	05	06			
6. I will seek additional information on this subject	09	03			
7. Program was fair, objective, and unbiased towards any product or program.	07	05			
8. Course manual is well written, visually appealing, and a good reference.	07	04	01		
9. The audiovisuals enhance the presentation	03	07	01	01	
10. Course format (lecture/ skill station scenarios) stimulates critical thinking	04	06	02		
11. Content is organized in a concise, logical sequence	06	04	02		
12. Instructor has knowledge about content	02	08	02		
13. Instructor presentation style keeps learner's attention	03	06	03		
14. Instructor uses examples to illustrate major points	03	07	01	01	
15. Instructor presents content accurately and confidently	03	06	02	01	
16 Instructor answers questions in a supportive manner	06	05	01		

shown to decrease with the implementation of prehospital trauma systems.<sup>16, 17</sup> Implementation of the RTTDC in these developing countries as part of prehospital trauma systems development could potentially further improve trauma outcome. The RTTDC allows the patient in the rural setting to be more adequately resuscitated by making an otherwise wrong place for resuscitation more prepared for this task so that the rural trauma patient could be taken to the right place in the right time after proper initial resuscitation in spite of minimal resources in the rural setting.

**Limitations of the study:**

(1) Generalizing conclusions from one program with only 20 participants should be done with extreme caution and could be therefore considered only preliminary. However, the almost unanimous support of the participants in this course for wide dissemination of the RTTDC in Pakistan cannot be ignored.

(2) The majority of course participants were not from rural communities and a larger rural representation would have been more relevant. However, all participants indicated awareness of problems with rural trauma care in Pakistan as well as the need for, and interest in, improving rural trauma care there. They also identified specific issues in rural trauma care which are addressed in the RTTDC.

**CONCLUSION:**

This RTTDC instructor and participant programs in Pakistan were very highly rated by the participants who generally indicated that this program changed their attitude towards rural trauma care.

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Topics	Strongly Agree	Agree	Neutral	Strongly Disagree	Disagree
1. Overall, this educational activity was excellent	02	05	01		
2. Program topics and content met the stated objectives	01	07			
3. Content was relevant to my educational needs	02	04	02		
4. Educational format was conducive to learning	03	02	03		
5. Acquired knowledge will be applied in my practice environment	01	03	03		
6. I will seek additional information on this subject	02	03	03		
7. Program was fair, objective, and unbiased towards any product or program.	02	01	05		
8. Course manual is well written, visually appealing, and a good reference.	03	03	02		
9. The audiovisuals enhance the presentation		06	02		
10. Course format (lecture/ skill station scenarios) stimulates critical thinking		06	02		
11. Content is organized in a concise, logical sequence		06	02		
12. Instructor has knowledge about content	05	03			
13. Instructor presentation style keeps learner's attention	02	05	01		
14. Instructor uses examples to illustrate major points	01	06	01		
15. Instructor presents content accurately and confidently	01	07			
16. Instructor answers questions in a supportive manner	02	06			

	PIPS		Communication		Scenarios	
	P	F	P	F	P	F
<b>Very Relevant</b>	04	08	07	08	06	08
<b>Relevant</b>	08	00	05	00	06	00

P=Provider, F=Faculty

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