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A&E Staff on the Level of  
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Operations with Emergency  
Ambulance Service, Sri Lanka

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# Perceived Satisfaction of A&E Staff on the Level of Integration of Patient Care Operations with Emergency Ambulance Service, Sri Lanka

Ravindra Pathirathna, Pamila S Adikari\*, Sunil de Alwis  
Ministry of Health and Indigenous Medical Services, Colombo, Sri Lanka.

\*Correspondence: m19604@pgim.cmb.ac.lk

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## Abstract

Integration in operations between 1990 Suwa Seriya ambulance service and A&E services of hospitals in Sri Lanka was assessed qualitatively using the Mini Focus Group Discussion (Mini-FGD) technique and applying a Likert scale survey. Agreed group-perceived satisfaction of the A&E staff was recorded based on identified thematic areas. The technique of patient handling, reliability of vital sign recording, providing random blood sugar reading, and professional relationship with hospital staff of Suwa Seriya emergency ambulance service were the thematic areas that recorded positive agreed group-perceived satisfaction indicating a potential to broaden integration process with the A&E operations of the country. Quality of providing clinical history, administration of medication, and awareness of A&E operations of emergency ambulance service indicated least agreed group-perceived satisfaction. Moreover, providing clinical notes and investigation records such as electrocardiogram, sharing feedback about the patient, prehospital triaging, and pre-alert system were found to be non-operational. The health-care policymakers of Sri Lanka should exploit the positives and explore the negatives of the A&E staff perception on 1990 Suwa Seriya ambulance service, focusing on widening the integration process.

**Keywords:** Accident and Emergency Department; Ambulances; Suwa Seriya; Systems integration.

## 1. INTRODUCTION

Integration of services in health care would create opportunities to enhance service quality and service expansion. Integration is a basic concept which is applied frequently in the managerial context to aim to improve efficiency and effectiveness. In the health-care context, integration can be defined as the organization and management of health services so that people get the care they need, when they need it, and in ways that are user friendly, and the desired results are achieved and value for money is provided [1].

Benefits of integration are considerable, provide practical means of service delivery, improve the quality of service delivery enhancing equitable and client-oriented service delivery, improve coordination and flow of patients across specialties, improve technical and administrative collaboration within the institutes, and provide efficient use of resources [1].

For successful integration, financial and management support is essential. Although integration optimizes resource utilization, it is not a solution for scarce resources and demand systems being better resourced. As integration requires policies with a mix of political, technical, and administrative action, it appeals for behavioral change that can be further consolidated with incentives [1].

Sri Lankan citizens are fortunate to have prehospital response ambulance service that performs island-wide operations. The service is known as the 1990 Suwa Seriya emergency ambulance or "Suwa Seriya." It was established with the funds from the Indian Government. The Sri Lankan government positively gratified the need and approved funding of the service [2].

Emergency medical technician (EMT) training in Sri Lanka is not established within the Ministry of Health. Minimum standards for the training are set by the prehospital care sub-committee [3]. The EMTs of 1990 Suwa Seriya ambulance service are carried out by India's world-reputed GVK Emergency Response Institute.

The Accident and Emergency Care Policy (2016) of Sri Lanka highlights the importance of establishing A&Es of different calibre based on the levels of care of the hospital. A&Es are the receiving end of the prehospital care service after onsite stabilization of the patient [4]. The 1990 Suwa Seriya emergency ambulance service is the only established prehospital emergency care service that operates nearly 300 ambulances within all 9 provinces of the country [5]. Hospital A&E is the main connecting point with the ambulance services. The staff of the A&E comprises emergency medicine and other specialists, in-charge medical officer, medical doctors, nursing in-charge, nursing officers, and supportive staff working as a team round the clock. The composition of the staff is based on the hospital category as well as the workload [6].

The efficient and effective service integration of these two services would create opportunities to enhance service quality as well as service expansion. The appropriate level of integration of service operations concerning the patient care will

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increase the clinical outcome in many ways, namely, improving response time, appropriate patient referrals, commencing appropriate treatment, improving access to the technical advice, and improving the preparedness of the A&E for responses. This academic exercise would be justifiable to understand the existing opportunity for future improvement.

### 1.1. Aim of the study

To assess the agreed perceived satisfaction of staff on the level of integration of patient care operations between 1990 Suwa Seriya ambulance services and Accident and Emergency units in selected hospitals.

## 2. METHOD(S)

The study used qualitative research methods to explore the perceived satisfaction of A&E staff on the level of integration of operational transactions regarding 1990 Suwa Seriya ambulance services. The study was conducted in selected six tertiary care settings based on convenience to the study group. National Hospital Kandy, Teaching Hospital Peradeniya, Teaching Hospital Kegalle, Teaching Hospital Gampola, District General Hospital Nuwara Eliya, and Base Hospital Mawanella. Mini Focus Group Discussion (Mini-FGD) technique was used in combination with a Likert scale survey questionnaire to identify a representative value for the agreed group-perceived satisfaction. The study sample was A&E staff comprising medical officers and nurses with a service exceeding 6-month duration. A mini-FGD guide and a Likert scale rating questionnaire were developed with the inputs of the expert comments and by the review of the literature. The expert panel consisted of senior medical administrators, emergency medicine consultants, hospital directors, senior medical officer, and nursing in-charge of A&E. The study team observed prehospital clinical assessment forms, prehospital clinical practice manuals, prehospital assessment sheets, and prehospital triage guidelines to identify the thematic areas for the study instrument [7-9].

The questionnaire included questions with a rating scale from 0 to 5: 0 indicating non-availability of described operational theme and 1–5 level of satisfaction—1 being least satisfaction and 5 being most satisfaction. Main thematic areas included were prehospital triaging, pre-alert system, patient-handling techniques, quality of providing clinical history, reliability of vital sign recording, providing clinical notes, providing random blood sugar reading, providing electrocardiogram findings, administration of medication, professional relationship, sharing feedback about the patient, and awareness of A&E operations. The mini-FGD guide was also developed based on the above-mentioned thematic areas.

Mini-FGD were held following permission from the hospital administration and with the consent of the participants. A study team member explained the procedure to the participants. Discussion themes were explained based on the discussion guide and the participants were requested to select the rating from the scale according to the agreed perceived satisfaction of the team members, considering information described in the Mini-FDG guide. Prehospital triaging was explained as having a process to categorize patients according to clinical severity at prehospital setting and determine to admit according to the categorization. The pre-alert system was identified as using a pre-planned organized mechanism to alert A&E in advance to the arrival. Patient-handling techniques were considered as correct techniques being followed for cervical stabilization and log rolling based on their existing knowledge. Quality of providing clinical history was determined as verbally transmitting patient's personal information, presenting complaint with the time of onset, history of presenting complaint, past medical history, and any history of allergy. Tallying blood pressure, pulse rate, respiratory rate, and peripheral capillary oxygen saturation on admission to A&E with the records of the ambulance staff were considered as the reliability of vital sign recording. Providing clinical notes was considered as handing over documented clinical notes. Providing random blood sugar reading was considered as a verbal expression of test results. Handing over of hard copy or electronic copy of the electrocardiogram report was taken as providing electrocardiogram findings. Administration of medication applied to administering drugs required to manage the clinical condition. Factors considered under professional relationship with staff were trustworthiness, confidentiality, and communication with the patients and relatives. Sharing feedback about the patient was mentioned as the availability of a formal mechanism to share feedback about the patient's condition with the ambulance crew. Lastly, awareness of A&E operations was described as being knowledgeable of patient flow map, the hierarchy of communication, location of equipment, and waste management practices. Five to six members of staff participated in a mini-FGD. A member of the group was appointed as a discussion group leader. Each member was allocated a time to express his/her ideas. The discussion group leader was requested to mark the agreed group-perceived satisfaction on the Likert scale.

## 3. RESULTS

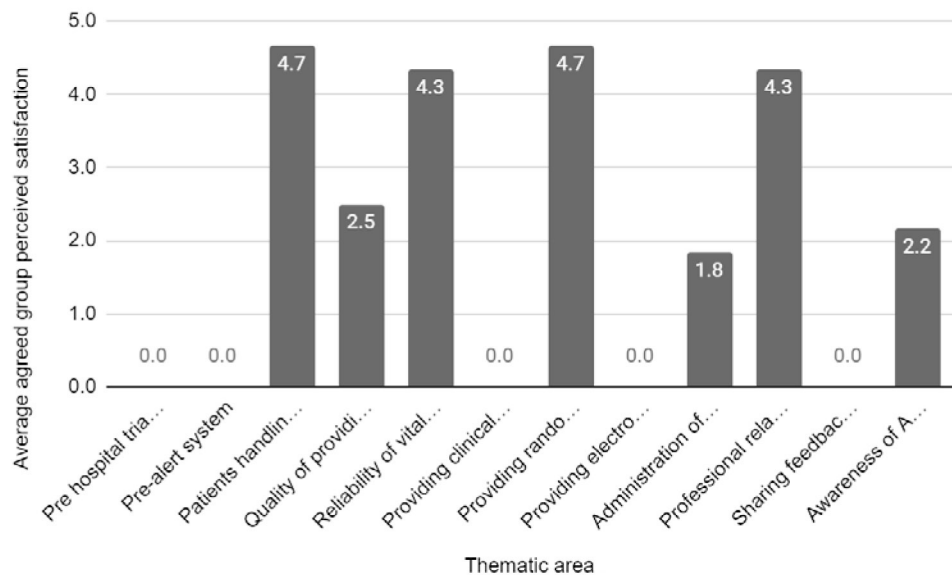
The agreed group-perceived satisfaction of the A&E staff on the level of integration of patient care operations between 1990 Suwa Seriya ambulance service and A&E units is listed in Table 1. Agreed group-perceived satisfaction on the technique of patient handling, reliability of vital sign recording, providing random blood sugar reading, and professional relationship with hospital staff showed most satisfaction and quality of providing clinical history, administration of medication, and awareness of A&E operations recorded the least satisfaction. It was revealed that providing clinical notes and investigation records such as electrocardiogram, sharing feedback about the patient, prehospital triaging, and pre-alert system were not available.

Figure 1 shows how average agreed perceived perception scored against each thematic area under study.

**Table 1: Agreed group-perceived satisfaction of staff on the level of integration of patient care operations between 1990 Suwa Seriya ambulances and A&E of the selected hospital.**

Thematic area	Hospital 1	Hospital 2	Hospital 3	Hospital 4	Hospital 5	Hospital 6	Average agreed group-perceived satisfaction
Prehospital triaging	0	0	0	0	0	0	0.0
Pre-alert system	0	0	0	0	0	0	0.0
Patient-handling techniques	4	5	5	4	5	5	4.7
Quality of providing clinical history	3	2	3	2	3	2	2.5
Reliability of vital sign recording	4	4	5	5	5	3	4.3
Providing clinical notes	0	0	0	0	0	0	0.0
Providing random blood sugar reading	5	5	5	4	4	5	4.7
Providing electrocardiogram findings	0	0	0	0	0	0	0.0
Administration of medication	1	1	2	4	1	2	1.8
Professional relationship with staff	4	5	5	4	3	5	4.3
Sharing feedback about the patient	0	0	0	0	0	0	0.0
Awareness of A&E operations	4	1	2	1	2	3	2.2

\*Scale 0: operation not available; 1–5: level of satisfaction—1 being least satisfaction and 5 being most satisfaction.

**Figure 1: Average agreed group-perceived satisfaction.**

#### 4. DISCUSSION

Staff-perceived satisfaction on the level of integration between Suwa Seriya ambulance service and A&E units of six selected hospitals of Sri Lanka was assessed by applying mini-FGD and Likert scale survey technique. The study revealed some extent of integration between ambulance and A&E operations, still with opportunity for improvement. Smooth integration of ambulance and A&E operations would enhance the patient care outcomes and improve the efficiency by coordinated utilization of resources [1].

The study revealed the most agreed group-perceived satisfaction of staff on the level of integration of patient care operations in the areas of the patient-handling techniques, reliability of vital sign recording, providing random blood sugar reading, and professional relationship with hospital staff. Scoring the most agreed group-perceived satisfaction in the themes were discussed—it invariably indicated assurance and better recognition placed on emergency technicians by the A&E staff.

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One of the key areas that marked most agreed group-perceived satisfaction was patient-handling techniques of the ambulance crew. Skills of critical patient handling need to have sound knowledge of different emergencies, awareness of complications [10], and the ability to handle emergency equipment used in the provision of on-site critical care [11]. The result of the study confirms that use of appropriate equipment, specifically, oxygen, face mask, cervical collars, spinal boards, and splints, and techniques, particularly, cervical stabilization and log rolling techniques, were within the expected degree of the A&E staff. This is a good proxy indicator of their skills and it gives the opportunity for enhancing integration and the quality of their service.

In this study, professional relationship with hospital staff and trustworthiness, confidentiality, and communication with patients and relatives displayed the most agreed group-perceived satisfaction. Positive professional relationships imply that the integration of these two services can be further extended. Positive recognition of this theme implies that the recruitment and training processes of the ambulance staff match the expected standard by the A&E staff.

Vital sign assessment is an integral part of prehospital emergency management [12]. This is one of the themes that indicated most perceived satisfaction by all the group of A&E staff. Correct monitoring of vital signs by emergency prehospital staff aids subsequent post-admission preparedness, decision making, and smooth transition of care. The positive agreed group-perceived satisfaction in this regard sets out the possibility of further strengthening of the services offered by the ambulance service.

Point of care testing is a recognized concept that guides the prehospital triaging, minimizes delays at emergency, and improves health system efficiency [13]. After all, only random blood sugar is tested presently by the ambulance teams in Sri Lanka. Point of care testing aids decision-making capacity of both the paramedic and the clinician in the A&E. Suwa Seriya ambulance service has proved its potential to expand by recording a high level of rating in the agreed group-perceived satisfaction on its point of care testing capacity with the future expansion of their service.

On the other hand, quality of providing clinical history, administration of medication, and awareness of A&E operations were the themes that recorded the least agreed group-perceived satisfaction among the participants.

Patient history taking related to the development and characteristics of presenting complaint is an important component of ambulance EMT training. Structured formats are used by many developed countries for this purpose to promote the taking of reliable notes, a key success feature of prehospital urgent care systems [14]. Similarly, early initiation of appropriate medication at a prehospital setting is essential for better patient outcomes [15]. Establishing a mechanism to provide proper training and authority on medication at prehospital settings through coordination between ambulance service and the Ministry of Health within the regulatory framework of Sri Lanka Medical Council (SLMC), the statutory body established for ensuring the maintenance of academic and professional standards, is identified as a key requirement to strengthen the mentioned aspects of the integration process between the services.

Non-availability of a system for providing clinical notes and investigation records such as electrocardiogram, sharing feedback about the patient, prehospital triaging, and the pre-alert system was revealed in the study.

Providing clinical notes and investigation records such as electrocardiogram records and transmitting critical findings have positive outcomes on patient survival [16]. However, this is one of the areas that showed the least group-perceived satisfaction by the A&E staff. Ambulance authorities should invent simple, yet robust, mechanisms to disseminate these vital elements of clinical information.

Prehospital triaging is a well-established mechanism in developed settings. It ensures an efficient and effective care system by categorizing patients based on their clinical severity and link with appropriate resources [17]. Furthermore, triaging helps to reduce avoidable A&E admissions [18]. The study unveiled having no established operation in the ambulance service for prehospital triaging. This underscored the need for developing a prehospital triage mechanism and appropriate referral and care system suitable for the country.

Pre-alert systems have been exercised by the developed countries' ambulance crew to inform the hospital A&E staff about the criticality of the transferring patients. Through this system, the hospital emergency department is preannounced to prepare for the incoming patient, avoiding a chaotic situation. Pre-alert ensures that appropriate specialist medical teams are within the A&E [19]. Transmission of clinical information from prehospital settings to the A&E clinicians is paramount for the continuity of care [20]. The revealed gap on the lack of pre-alert system and feedback about the patient indicates non-availability of a formal information system between the two services—a drawback that needs to be addressed by the health planners which will contribute to enhance the integration of operations.

Agreed group-perceived satisfaction on awareness of A&E operations of prehospital ambulance crew recorded a low level of rating by the study participants. This gap highlights the importance of health authorities in conducting collaborative interprofessional training sessions with staff categories to enhance patients' care coordination [21].

## 5. CONCLUSION

Integration in operations between 1990 Suwa Seriya ambulance service and A&E services of hospitals of the Ministry of Health, Sri Lanka, was assessed using the mini-FGD technique and Likert scale survey tool. Agreed group-perceived satisfaction of the A&E staff was recorded.

A mutually high-rated agreed group-perceived satisfaction between the two services on each other is the hallmark of building solid integration between the services. Taking collaborative action between ambulance and health authorities to

improve sharing of clinical information, strengthen prehospital triaging, organize interprofessional training, and professionally recognize EMT training can broaden integration between Suwa Seriya emergency ambulance services and A&Es of the hospitals.

Considering only a handful of convenient hospitals as the study setting and not considering client- and ambulance staff-perceived satisfaction on the integration of care with the A&E services are limitations of this study.

### Authors' Contributions

KGRVP and SDA conceptualized the study and PSA drafted the manuscript. All authors were involved in editing and reading the final manuscript.

### Conflict of Interest

There is no conflict of interest.

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