

## Research Article

# The current practice of clinical handover process in emergency departments in National Hospital, Kandy and University Teaching Hospital, Peradeniya: a descriptive cross-sectional study.

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## Abstract

The aim of establishing an accident and emergency department is prompt initial assessment, stabilization and early referral for definitive care. This study aims to describe the current practice of the clinical handover process at the emergency departments of the national hospital, Kandy and the teaching hospital, Peradeniya and to describe the adherence of the medical officer shift hand over to “iSoBAR” (identification, situation, observation, background, assessment, recommendation/ read back) handover method.

A descriptive cross-sectional study was conducted at the emergency treatment units (ETU) of the national hospital, Kandy, Sri Lanka and the teaching hospital, Peradeniya, Sri Lanka from February 2021 to April 2021. All medical handovers during the change of shifts of medical doctors in the ETUs were included in the current study. Handovers were observed by four observers, based on an iSoBAR checklist-based scoring system, giving equal weightage for each of its 22 components.

Three hundred and fifteen medical handovers that occurred during the study period were included for the study. We observed that at least one parameter relevant to patient identification or cardiovascular system was often missed during the handovers, with >50% handovers scoring less than 50% of the score and none of the handovers scoring above 75%. Comparatively higher scores were observed among patient handovers by female doctors compared to males ( $p < 0.001$ , student's t-test). Also, more successful patient handing over procedures were noted among medical officers having an only basic degree with no postgraduate qualifications ( $p < 0.001$ , Student's t-test) and with special training on patient transfers ( $p < 0.001$ , Student's t-test). Those who handover patients using their own pre-prepared methods scored more ( $p = 0.003$ , Student's t-test).

This study showed that most patient handovers in the study lacked important information, that potentially would have negatively affected patient care. Attention should be paid to the preparation of training modules regarding the handing over procedure at an ETU. ETU attached health care staff should be directed towards these training procedures.

**Keywords:** Emergency, handing over, ISOBAR guidelines

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## Introduction

Patient exchange is a relatively complex, methodical process that involves several steps. A very careful handing over process could have a profound positive effect on better and safer patient care service provision [1]. The most important function is communicating information and transferring the responsibility and accountability from one healthcare professional to another [2]. Accurately transferring information assures safe transition of health care from one professional to the next [3].

The method of the medical handing-over process in emergency departments has an impact on the outcome of the patients [4]. The handing over process takes place at the bedside of the patient in between changing shifts with the participation of the outgoing doctor and the incoming doctor. In the Sri Lankan setting, the outgoing doctors provide the clinical information to the incoming doctor mostly by memorizing the facts, sometimes using Bed Head Ticket (BHT), and usually, the incoming doctor neither takes any notes during the process nor uses any information technology methodologies to store this information [1,2].

Methodological procedures have been introduced in many countries around the world to make the handing-over of patients more efficient. Most of these procedures are checklists like “SBAR” (situation, background, assessment, recommendation/read back) or a tool such as the “iSoBAR” (identification, situation, observation, background, assessment, recommendation/ read back), which are well supported by clinicians [4,5]. A Western Australian study has suggested that the staff consider “iSoBAR” is well suited to their existing working process and will positively impact both clinicians and the patients [5].

The deficiencies in the patient information recording and lack of structural approach in doctor’s shift-based handover process are well documented in the medical literature [6]. In addition, good clinical practice to maintain standard care for the patient is hindered by the lack of standard training and a proven, recognized method of patient handover [7].

The identified problems of poor handover of patients resulting in poor communication of clinical data included undue delay in treatment, not delivering appropriate treatment, incorrect medical treatment, repetition of treatment, misuse of laboratory investigations and medical imaging, wasting of time, physical and human resources, physical and psychological harm to the patients, emotional distress and uncertainty of clinical data among the staff [5, 6]. This study aims to describe the current practice of the clinical handover process in emergency departments of

the national hospital, Kandy and teaching hospital, Peradeniya, and to describe the adherence of the medical officer shift handover to “iSoBAR” handover method [5].

## Methods

### Study setting

A descriptive cross-sectional study was conducted at the emergency treatment units (ETU) of the national hospital, Kandy, Sri Lanka, and the teaching hospital, Peradeniya, Sri Lanka, from February 2021 to April 2021. All medical handovers that occurred during a shift change in the ETUs in the study period were included for the current study. Handing over of patients who were already discharged from the ETU were excluded.

### Data collection

Each of the handing over events was carefully observed by an independent observer. Five medical doctors with MD qualification observed the handing over events on a roster. The observers did not participate in the data analysis of the study. Observer administered data collection sheets that were used for data collection.

The data collection sheet was developed based on a validated iSoBAR observatory tool developed to evaluate the patient handing over process [5]. Our tool included 22 components that are divided among six categories: identification, situation, observation, background, assessment, recommendation/read back (Table 1). A scoring system was developed to assess the adherence of each handing-over to the iSoBAR as follows. One mark was given for the presence of any component, and zero was given for the absence of any component, giving equal weightage for each of the 22 components with a maximum total score of 22. The total score in each handing over the event (which is equal to the total number of components adhered to) was divided by 22 and expressed as a percentage.

### Data analysis

Descriptive data were presented as percentages and the median with interquartile range. Comparison of iSoBAR scores between groups was performed using Student’s *t*-test, and  $p=0.05$  was considered statistically significant. Data analysis was conducted using SPSS version 25.0.

### Ethics approval

The project was ethically approved by the Ethics review committee of the national hospital, Kandy.

**Table 1: Scoring system adopted for this study from iSoBAR observatory tool to evaluate the studied patient handovers**

	Component	Yes	No
<b>I</b>	Name	1	0
	Sex	1	0
	Age	1	0
	Bed Head Ticket Number	1	0
<b>S</b>	Presenting Symptoms	1	0
	Problems Identified	1	0
<b>O</b>	Pulse rate	1	0
	Blood pressure	1	0
	Respiratory rate	1	0
	SpO <sub>2</sub>	1	0
	Glasgow coma scale	1	0
	Temperature	1	0
	BSL	1	0
<b>B</b>	History of Presentation	1	0
	Date / Time of Admission	1	0
	PMH/PSH Medications	1	0
<b>A</b>	Probable Diagnosis	1	0
	Overall Interpretation	1	0
	What Was Done	1	0
<b>R</b>	Further Investigations	1	0
	Further Referrals	1	0
	Further Management	1	0
	Total	22	

## Results

A total of 332 patients were included in the study, and of them, 69 were excluded (Figure 1). Out of the remaining 263 patients, the frequencies of handing over were 219 patients once, 36 patients twice, and eight patients over three times. Thus, 315 handing over events performed by 40 medical officers were used for analysis.

The information included and missed during handing over process of the studied 315 handing overs are summarized in Table 2. It was observed that among the identification characteristics of the patients, names and ages of the patients were left out at most of the handovers. Although the majority of handovers included presenting symptoms of the patients, the clinical condition that lead to the clinical problem(s) were minimally mentioned. Also, it was observed that treatment done was minimally mentioned during the handing over of shifts of medical officers. Also, relatively fewer observations were noted regarding the

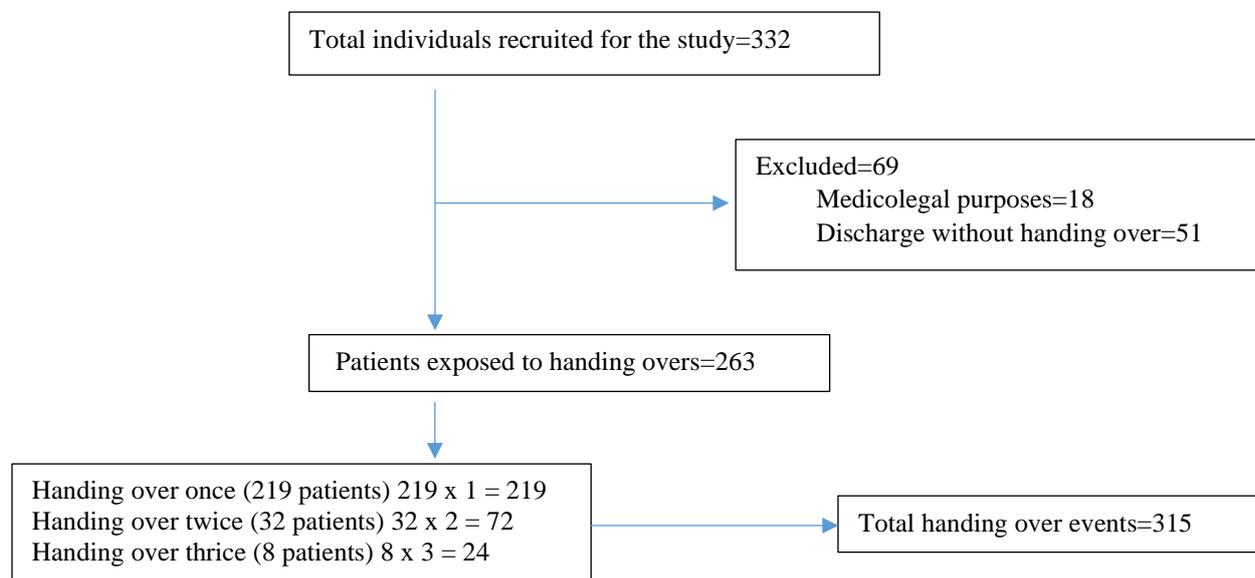
suggestions of future treatment methods and the plan of management of the patient.

More than half of the tested components were missed during most of the handover events. The median of the percentage scores of the observed handing over events was 45.4% (IQR=36.4% to 54.5%). More than 16 of the tested 22 components were not covered during any of the handing over events observed during the study (Table 3)

The median age of the participant doctors was 48 years (Interquartile range, IQR:33 to 52 years), their median duration of the service experience was 18 years (IQR: 7 to 22 years), and their median duration of the service experience in the ETU was three years (IQR: 1-year to 6-years) (Table 4). The age, overall service duration, and the service duration in ETU of the participant doctors and the scoring received by the studied handovers are presented in Figures 2, 3, and 4.

It was observed that it is possible to obtain significantly successful results by using a methodical and organised presentation process (special techniques) prepared for patient handing over.

The scores of handovers in the mornings were marginally higher compared to afternoons. No difference was observed in scores during weekdays and holidays (Table 5).



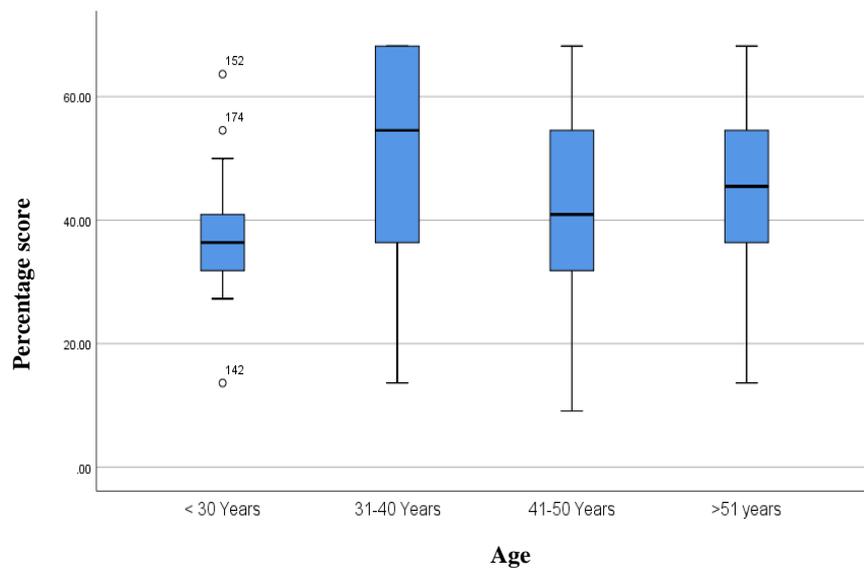
**Figure 1: Selection of patients and handing over incidences**

**Table 2: Information included and not included during handing over process of the studied 315 handovers.**

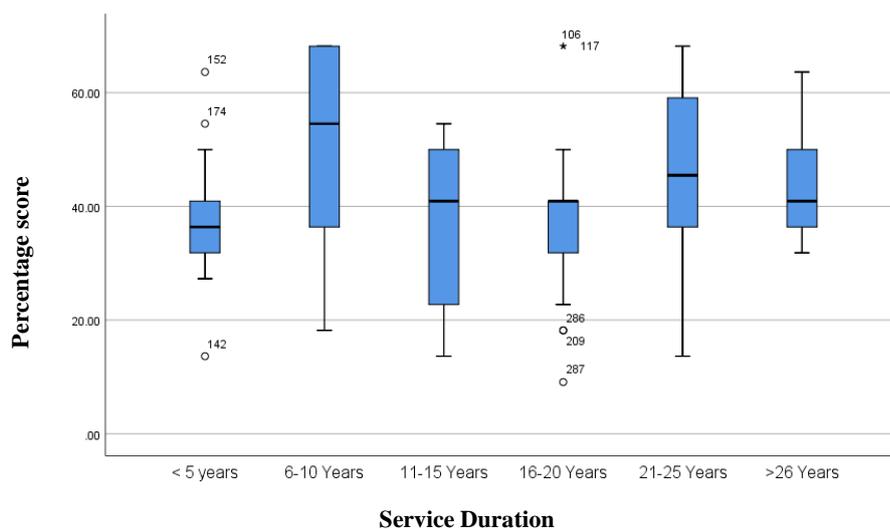
Scores		Included (%)	Not included (%)
<b>I</b>	Name	74 (23.5)	241 (76.5)
	Sex	169 (53.7)	146 (46.3)
	Age	104 (33.0)	211 (67.0)
	Bed Head Ticket Number	0 (00.0)	315 (100.0)
<b>S</b>	Presenting Symptoms	312 (99.0)	3 (1.0)
	Problems Identified	140 (44.0)	175 (55.6)
<b>O</b>	Pulse rate	189 (60.0)	126 (40.0)
	Blood pressure	174 (55.2)	141 (44.8)
	Respiratory rate	125 (39.7)	190 (60.3)
	SpO <sub>2</sub>	136 (43.2)	179 (56.8)
	Glasgow coma scale	112 (35.6)	203 (64.4)
	Temperature	117 (37.1)	198 (62.9)
	BSL	82 (26.0)	233(74.0)
<b>B</b>	History of Presentation	225(71.4)	90(28.6)
	Date / Time of Admission	73 (23.2)	242 (76.8)
	PMH/PSH Medications	210(66.7)	105 (33.3)
<b>A</b>	Probable Diagnosis	146(46.3)	169 (53.7)
	Overall Interpretation	121(38.4)	194 (61.6)
	What Was Done	242(76.8)	73 (23.2)
<b>R</b>	Further Investigations	134(42.5)	181 (57.5)
	Further Referrals	102(32.4)	213 (67.6)
	Further Management	123 39.0)	192 (61.0)

**Table 3: Overall scoring in all handing over sessions**

An overall score (%)	Frequency (N)	Percentage (%)
Less than 25	34	10.8
25 to 49	143	45.4
50 to 75	138	43.8
More than 75	0	0.0
Total	315	100.0



**Figure 2: The age of medical officers against the score of the studied handing overs.**



**Figure 3: Overall service duration of medical officers vs. score of the studied handing overs.**

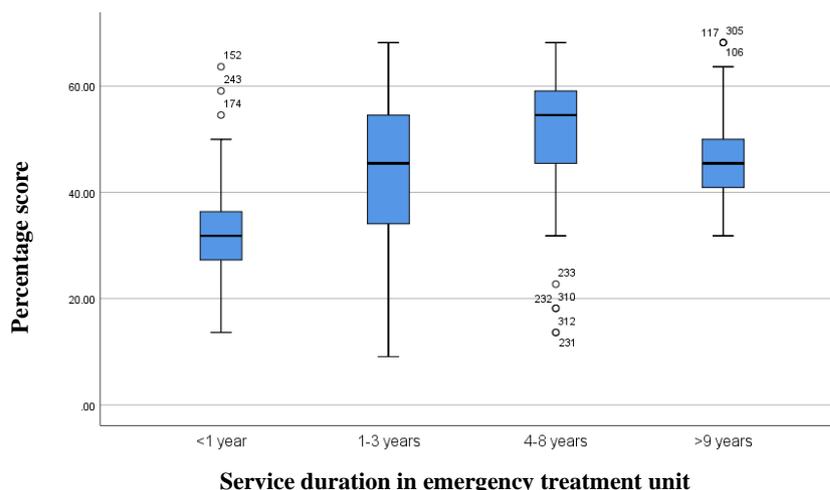


Figure 4: The service duration in ETU of the medical officers vs. score of the studied handing overs.

Table 4: Comparison of the score with selected variables associated with medical officer handing over

	Mean	SD	t	P
<b>Gender</b>				
<i>Male</i>	39.63	12.4	6.53	<0.001
<i>Female</i>	50.08	15.6		
<b>Educational Qualifications</b>				
<i>MBBS only</i>	47.98	14.2	5.71	<0.001
<i>MBBS &amp; postgraduate qualifications</i>	37.98	14.6		
<b>Special training in patient transfer</b>				
<i>Yes</i>	57.23	13.35	4.58	<0.001
<i>No</i>	43.71	14.74		

Table 5: Comparison of percentage score with characteristics associated with handing over session

	Mean	SD	t	p
<b>Time of the day</b>				
<i>before noon</i>	47.7	15.1	2.96	0.003
<i>afternoon</i>	42.7	14.8		
<b>Nature of the day</b>				
<i>Weekday</i>	43.9	15.1	1.17	0.311
<i>Weekend</i>	46.9	13.8		
<i>Public holiday</i>	44.3	16.9		
<b>Usage of own methodical presentation methods</b>				
<i>Yes</i>	60.6	8.5	5.5	0.003
<i>No</i>	43.5	14.8		

**Discussion**

Based on 315 clinical handovers, we observed that critical information that should be communicated during the patient handovers by the medical staff in the ETUs are often missed in our study settings. At least one parameter relevant to patient identification or the cardiovascular system were often missed during the

handovers, with more than 50% of handovers scoring less than 50% (less than 11/22 components) and none of the handovers scoring above 76% (more than 16/22) components. While handing over, less attention is paid to the clinical management procedures done on the patient and information related to the presenting conditions. Therefore, this study provides baseline information for improving the patient handover process

of the ETUs of the study setting and in Sri Lanka as a whole.

During a study done in Hobart of Australia using iSoBAR observatory tools, it was observed that the quality of patient handing over could be improved with a well-trained health care staff [5]. In the above study, both medical officers and nursing officers were studied together and had conducted a general analysis contrary to our study, where only medical officers were included in the study sample. Beament *et al.* had also observed that it is possible to achieve a more successful and effective patient handing over by conducting interprofessional educational programs based on the iSoBAR observatory tool, which appears to be equivalent with the observations of the current study findings [8]. Bomba and Prakash in 2005 [9] and Proteous *et al.*, in 2009 [10] had observed similar results during studies conducted at the emergency patient handing over processes in Australian public hospitals. However, Wilson in 2011 had demonstrated that most often, medical officers rely on their memory than available written documents [11]. Although this aspect was not directly addressed during the present study, it was clearly observed that during the patient handing over process, medical officers pay less attention to documented data on the BHT of the patient.

It is extremely difficult to find published data on studies done in Sri Lanka regarding the patient handing over process at the ETU set-up. Although it is possible to observe some disparities relevant to the specific characteristics of the handing over process practised in health systems of different countries, it is natural to generate some communication gaps within the patient handing over process. It is possible to identify from both the present study findings and previous study findings that it is imperative to use proper training with specific tools and practice more efficient human resource allocation to achieve the expected quality inpatient handing over process. However, with the increase in overall service duration, it seems that the likelihood of a quality patient transfer is declining. Therefore, it may be

relevant to look at the possibility of using age-related criteria in assigning medical officers to units that need to make immediate decisions, such as ETUs, and organize activities efficiently in the shortest possible time.

We observed that the patient handover performed by physicians trained in inpatient transfer accurately included most components. Therefore, such in-service training may pave the way for a successful patient care service. Our study did not evaluate the specific methods or technical criteria for patient exchange used by the participant doctors involved in the study. It seems that the use of a systematic instrumental tool should be promoted in the future. This has allowed them to achieve a successful patient handing over. The Sri Lanka health and human resource management system does not have the opportunity to consider selecting highly skilled personnel or persons with a special interest in the duties of the particular unit, especially when attaching physicians and other staff to the patient care units. Therefore, it is important to try to achieve successful results by setting criteria that everyone can use and making them always available in the emergency care unit.

There were several limitations of this study. Observer bias associated with reporting could not be eliminated. Further, the study lacked a qualitative component that could ideally be helpful in clearly understanding the reasons behind the missing information.

### Conclusions and Recommendations

It is appropriate to review policies regarding human resource allocations for ETUs and amend them to achieve a more effective outcome. Development of specific standard instrumental checklists regarding patient handing over and promotion of using them should be implemented. Attention should be paid to the preparation of training modules regarding the handing over procedure at ETUs. ETU attached health care staff should be directed towards these training procedures.

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