



## Evaluation of the Inter-Hospital Patient Transfer Process: A Study at District General Hospital Embilipitiya, Sri Lanka

*Bandara R.A.M.W.S<sup>1</sup>, Thotagamuwa T.W.A.N<sup>2</sup>, Dharmadasa A.G.M.M<sup>2</sup>, Denuwara L.B.H<sup>2</sup>*

<sup>1</sup>Base hospital, Eravur

<sup>2</sup>Postgraduate Institute of Medicine, University of Colombo

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### ABSTRACT

#### Background

The inter-hospital transfer process is a critical aspect of patient care aimed at improving management and maintaining continuity of care. However, inadequate resources, insufficient documentation, and the absence of proper guidelines often hinder the effectiveness of this process. In Sri Lanka, where the health system is recognized for its robust primary care, patient transfers frequently occur from primary to secondary care due to limitations in resources and expertise. This study assesses the inter-hospital transfer process from primary health care institutions to secondary health care institutions in Sri Lanka.

#### Objective

To evaluate the inter-hospital patient transfer process, profile the transferred patients, analyze reasons for transfers, assess the timeline and outcomes, and recommend guidelines to enhance the transfer process.

#### Methodology

A descriptive study was conducted using a systematic random sampling method at District General Hospital- Embilipitiya. The study examined data from 361 Bed Head Tickets of patients transferred over a year from 14 primary care institutions. Data were analyzed for transfer documentation, patient profiles, transfer reasons, and outcomes.

#### Results

The study revealed that 63.99% of transfer forms were adequately documented, while 30.47% lacked patient consent. Most transfers (60.94%) were classified as urgent. Males constituted 56.79% of the transferred patients. Transfers were predominantly for medical (48.48%) and surgical (34.07%) causes. Over 64% of patients were discharged the following day, with 93.91% undergoing special procedures. Consultant involvement was necessary in 61.22% of cases, while 98.61% received consultant opinions.

#### Discussion

The findings highlight lapses in documentation and patient autonomy, with many transfers being avoidable through better stabilization and management at primary care facilities. The study emphasizes the need for standardized transfer protocols, improved documentation practices, and enhanced communication between primary and secondary care institutions. Training programs for medical officers and resource augmentation in primary care settings are recommended to reduce the burden on secondary care institutions.

#### Conclusion

The patient transfer process in Sri Lanka requires systematic improvements to ensure efficiency, patient safety, and optimal utilization of healthcare resources. Modifying transfer forms, formulating guidelines, and strengthening primary-secondary care links can significantly enhance patient outcomes.

Keywords: Inter-hospital Transfer, Patient Documentation, Healthcare Continuity

\* Corresponding author. Tel.: +0-000-000-0000 ; fax: +0-000-000-0000.

E-mail address: [madhavadh@gmail.com](mailto:madhavadh@gmail.com)

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## 1. Introduction

Patient transfer, defined as the act of moving someone or something to another location (Lexico Dictionary), is a critical component of healthcare delivery. It ensures continuity of medical care and often improves patient outcomes, especially when advanced diagnostics, specialized care, or therapeutic interventions are required. However, the process is not without risks. Kulshrestha and Singh (2016) emphasize that transferring critically ill patients may alter physiological parameters, potentially worsening prognoses. Effective patient transfer requires careful decision-making, pre-transfer stabilization, clear communication with stakeholders, selection of appropriate transport modes, and meticulous documentation.

International guidelines on patient transfer, developed by professional bodies in resource-rich settings, are evidence-based and aim to mitigate transfer-associated risks. However, these guidelines often require adaptation to suit developing countries with variable healthcare infrastructure (Kulshrestha & Singh, 2016). In such contexts, innovative approaches are needed to ensure safe and efficient patient transfers.

Sri Lanka's healthcare system, renowned for its low-cost and effective primary healthcare model, has been the cornerstone of the country's health services since the late 1920s (Perera et al., 2019). While this model is globally recognized, challenges such as resource constraints and gaps in primary healthcare infrastructure frequently necessitate patient transfers to secondary or tertiary care facilities. These transfers, largely facilitated by ambulances, highlight the disparity between healthcare needs and the capabilities of primary institutions.

Historically, the evolution of patient transfer systems has been remarkable. The concept of "flying ambulances," introduced by Dominique Jean Larrey during Napoleon Bonaparte's era, set the foundation for modern patient transport systems (Skandalakis et al., 2006). In Sri Lanka, patient transfers date back to the Hendala Leprosy Hospital, where carts were used to move patients. Over time, both government and private healthcare sectors have developed advanced ambulance services, including the government-led "1990 Suwaseriya" initiative, which offers state-of-the-art ICU and CCU-equipped ambulances.

Despite these advancements, gaps in documentation, infrastructure, and the absence of comprehensive transfer data remain significant challenges. Transfers from primary to secondary care institutions often reflect either inadequate resources or insufficient expertise at the primary level. Furthermore, risks such as equipment malfunctions and increased transfer times are frequently reported, correlating with poorer patient outcomes (Blakeman & Branson, 2013; Waydhas, 1999).

To address these issues, it is critical to understand the dynamics of patient transfers within Sri Lanka, identify systemic inefficiencies, and propose targeted interventions. This study seeks to evaluate the patient transfer process, highlight deficiencies, and recommend strategies to optimize healthcare delivery.

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## 2. Literature Review

### 2.1. background – Sri Lankan health care

Sri Lanka occupies a unique position in South Asia as one of the first less-developed nations to provide universal healthcare, free education, strong gender equality, and opportunities for social mobility (Samarage, 2006). The country's healthcare system, established on the foundation of primary healthcare since the 1920s, has been recognized internationally for its cost-effectiveness and comprehensive care (Perera et al., 2019). However, Sri Lanka faces significant challenges, including a rapidly aging population and high premature mortality due to noncommunicable diseases (NCDs).

The healthcare system in Sri Lanka consists of state and private sectors, offering promotive, preventive, curative, and rehabilitative services through an extensive network of institutions. Each citizen has access to primary healthcare services within a 2 km radius, supported by government expenditure of 3.2% of GDP on health (WHO, 2016).

Curative care is delivered through a three-tiered system: primary institutions such as rural hospitals and central dispensaries; secondary institutions including base and provincial hospitals; and tertiary institutions comprising teaching and specialized hospitals (Annual Health Bulletin, 2014). Unlike the UK's healthcare model, Sri Lanka's system allows patients unrestricted access to any level of care, resulting in significant patient loads at higher-level institutions (Ministry of Health, 2017). Despite efforts to reorganize primary healthcare to act as a gatekeeper, disparities in resource allocation and service delivery remain a concern.

By 2014, Sri Lanka had 622 government medical institutions offering inpatient facilities with a combined bed strength of 80,105. However, the extent of services varies significantly among these institutions, necessitating the use of a robust patient transfer system (Annual Health Bulletin, 2014). Ambulance services, primarily managed by government hospitals, play a crucial role in transferring patients, although private services also contribute significantly.

### 2.2. patient transfer process

Patient transfer is an integral component of healthcare, ensuring continuity of medical care and access to specialized services. Kulshrestha and Singh (2016) outlined the key elements of a safe transfer process, including pre-transfer stabilization, communication with stakeholders, selection of transport mode, and proper documentation. Transfers may occur within or between institutions for diagnostic procedures or advanced care.

Despite the benefits, patient transfers pose significant risks. Adverse events, such as changes in heart rate, respiratory complications, and equipment malfunctions, occur in up to 70% of transfers (Waydhas, 1999). Proper adherence to guidelines, the presence of trained personnel, and appropriate equipment can minimize these risks. Additionally, patient transfers often necessitate balancing risks against anticipated benefits, such as improved diagnostic or therapeutic outcomes (Kulshrestha & Singh, 2016).

### 2.3. patient transfer in Sri Lanka

In Sri Lanka, patient transfer is a less-explored field despite its importance. Studies have highlighted inadequacies in documentation, consent processes, and the availability of accompanying personnel during transfers (Sellaheewa, Lamabadusuriya, & Edirisinghe, 2009). However, recent quality improvement programs have demonstrated the feasibility of enhancing inter-hospital patient transport systems (Pathirathna, 2016).

The Ministry of Health (2017) has proposed several measures to strengthen the patient transfer system, including the establishment of a nationwide ambulance network with vehicle tracking systems. Standardizing documentation, referral protocols, and health record formats is also recommended to ensure continuity of care and improve outcomes for patients with chronic diseases.

As patient transfers from primary to secondary or tertiary care institutions often reflect systemic gaps, addressing these issues through evidence-based practices and resource optimization is critical to enhancing Sri Lanka's healthcare delivery.

### 2.4. general objective

To assess the inter-hospital patient transfer process from primary health care institutions to secondary health care institutions

### 2.5. specific objectives

1. To study the profile of the patients transferred to secondary care hospitals
2. To find out the reasons for transferring the patients to secondary care hospitals
3. To study the timeline of the transfer process and the outcome of the patients transferred to secondary care institutions
4. To recommend guidelines to regulate the transfer process

## 3. Equations

### 3.1 study design

This research employed a descriptive study design using retrospective data collection. Data were gathered from Bed Head Tickets (BHTs) of patients transferred from primary healthcare institutions to the District General Hospital (DGH) -Embilipitiya. The study aimed to assess the patient transfer process, focusing on patient profiles, reasons for transfer, timelines, and outcomes.

### 3.2 study setting

The study was conducted at DGH-Embilipitiya, the second-largest hospital in Sri Lanka's Sabaragamuwa Province. This hospital, managed under the Sabaragamuwa Provincial Health Ministry, has 456 beds across 13 specialized wards, serving patients from three districts in three provinces. Approximately 26 specialized consultants are attached to the hospital.

### 3.3 study population

The study population included all patient transfers received by DGH Embilipitiya, during a one-year period starting from August 2018. The hospital receives an average of over 6,000 transfers annually, as reported by the Medical Superintendent of DGH-Embilipitiya.

### 3.4 inclusion criteria

All patients transferred to DGH Embilipitiya, during the study period were included.

### 3.5 exclusion criteria

1. Transfers received from higher-level institutions as back referrals.
2. Patients transferred at the request of the receiving institution (DGH-Embilipitiya).
3. Transfers requested by senior or superior authorities.

### Sample Size

The sample size was calculated using the formula by Lwanga and Lemeshow (1991):

$$n = z^2 \times p(1-p) / d^2$$

Where:

- $z = 1.96$  (for a 95% confidence interval),
- $p = 0.5$  (assumed proportion due to lack of prior data),
- $d = 0.05$  (precision level).

The calculated sample size was 384. Adjusting for the study population of 6,000 transfers, the final sample size was 361.

### 3.6 sampling method

A systematic random sampling technique was used. Based on the sampling interval ( $6000/361 \approx 16.626000/361 \approx 16.62$ ), every 16th patient transfer was selected. The first sample was randomly allocated to the 8th transfer of August 2018, and subsequent samples followed this interval.

### 3.7 data collection instrument

Data were collected using a pretested format developed from prior studies and study objectives. Variables included patient demographics, source hospital, condition on admission, transfer details (e.g., emergency or routine), transfer documentation adequacy, and patient outcomes.

### 3.8 data collection procedure

The principal investigator visited the hospital, traced patient records, and entered the data into an Excel spreadsheet. Data sources included the OPD admission book and the BHTs. Pretesting was conducted at Base Hospital Kahawatta to ensure feasibility.

### 3.9 data analysis

Data were analysed using Microsoft Excel and SPSS. Descriptive statistics were employed to summarize patient demographics, transfer timelines, and outcomes.

### 3.10 validity and reliability

Face and content validity of the tools were ensured through discussions with experts. Data collection was performed by the principal investigator to maintain consistency, and data were derived directly from hospital records, ensuring reliability.

## 4. Results

This section presents the results of the study conducted to evaluate the inter-hospital patient transfer process from primary healthcare institutions to the - District General Hospital (DGH) - Embilipitiya. Key findings related to the profile of transferred patients, transfer patterns, and management outcomes are detailed below.

### 4.1 primary healthcare institutions with percentage of transfers

The DGH Embilipitiya receives patients from 14 primary healthcare institutions across three adjacent districts. The percentage of transfers from each institution is shown in Table 4.1.

**Table 4.1**  
*Percentage of patients received from Primary Medical Care Institutions*

Health Institution	No. of Transfers	Percentage
Chandrikawewa	15	4.155%
Gonadeniya	11	3.047%
Hambegamuwa	14	3.878%
Kariyamaditta	24	6.648%
Katuwana	126	34.903%
Kirama	6	1.662%
Kolonna	55	15.235%
Middeniya	22	6.094%
Omalpe	13	3.601%
Pallebedda	11	3.047%
Sewanagala	11	3.047%
Suriyakanda	30	8.310%
Uda Walawa	8	2.216%
Urubokka	15	4.155%

The highest percentage of transfers came from Divisional Hospital Katuwana (34.903%), while the lowest was from Divisional Hospital Kirama (1.662%).

### 4.2 hospital category with percentage of transfers

The categorization of transfers by the type of hospital is shown in Table 4.2.

**Table 4.2**  
*Percentages of patients received according to the type of hospital*

Hospital Category	Institutions	No. of Transfers	Percentage
Divisional Hospital - A	Chandrikawewa, Katuwana, Kolonna	196	54.293%
Divisional Hospital - B	Kariyamaditta, Pallebedda, Sewanagala, Urubokka	61	16.897%
Divisional Hospital - C	Gonadeniya, Kirama, Hambegamuwa, Middeniya, Omalpe, Suriyakanda, Uda Walawa	104	28.808%

Divisional Hospital - A institutions contributed the highest number of transfers (54.293%), while Divisional Hospital - B institutions had the lowest (16.897%).

**4.3 transfers on weekends**

The distribution of transfers across the days of the week is shown in Table 4.3.

**Table 4.3**  
*Percentage of patients received according to the day of the week*

Day	No. of Transfers	Percentage
Sunday	28	7.756%
Monday	46	12.742%
Tuesday	52	14.404%
Wednesday	44	12.188%
Thursday	43	11.911%
Friday	78	21.606%
Saturday	70	19.390%
Public Holidays	11	3.047%

Fridays and Saturdays saw the highest number of transfers, accounting for 40.996% of the total.

**4.4 transfers according to the sex of patients**

**Table 4.4**  
*Transfer patients' profile by sex*

Sex	No. of Transfers	Percentage
Male	205	56.786%
Female	156	43.213%

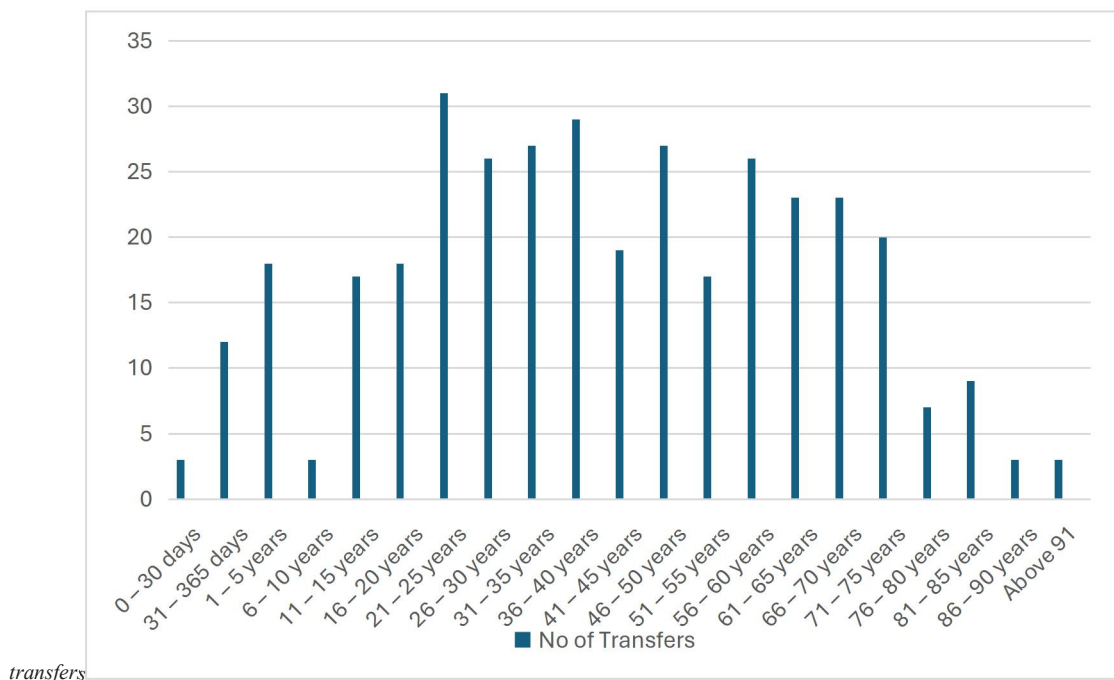
Male patients accounted for a higher proportion of transfers (56.786%).

**4.5 Transferred Patients' Age**

The distribution of transferred patients by age group is shown in figure 4.5

**Figure 4.5**

Age groups of the transferred patients with the number of



transfers

Patients aged 21–40 years formed the largest proportion of transfers.

#### 4.6 level of urgency of transfers

**Table 4.6**

*Nature of the transfer processes – urgent or not*

Nature of Transfer	No. of Transfers	Percentage
Urgent	220	60.941%
Not-urgent	141	39.058%

Most transfers (60.941%) were categorized as urgent.

#### 4.7 Documentation of Patient Transfers

**Table 4.7**

*Extent of details on the transfer form*

Parameter	Adequate	Inadequate	Percentage Adequate	Percentage Inadequate
Detail in Transfer Form	231	130	63.988%	36.011%
Management Details	220	141	60.941%	39.058%
Plan of Management	68	293	18.836%	81.163%

Only 63.988% of transfer forms contained adequate details, and only 18.836% included a plan of management.

#### 4.8 Speciality of Illness of Transferred Patients

**Table 4.8**

*Transferred patients by unit admitted*

Unit	No. of Patients	Percentage
Medicine Male	80	22.160%
Medicine Female	95	26.315%
Surgical Male	71	19.667%
Surgical Female	52	14.104%
Pediatrics	29	8.033%
Obstetrics	16	4.432%
Gynaecology	12	3.324%
Eye	3	0.831%
ENT	2	0.554%

Medical units accounted for the largest proportion of transfers (48.476%).

#### 4.9 consent to transfer a patient

**Table 4.9**

*Consent state of the Transferred patients*

State of Consent	Number of transfers	Percentage
Consent obtained on Transfer Form	251	69.529%
Consent not obtained	110	30.470%

As shown on the table, only 251 transfer cases accounting for 69.529% of the total have obtained written consent on the transfer form and the rest 110 transfers accounting for 30.470% of the transfers were without obtained written consent on the transfer form.

#### 4.10 management interventions of transferred patients

**Table 4.10**

*Management of the Transferred Patients at the DGH- Embilipitiya*

Measurement		Unit				
		Surgical	Medic	Paed	Gynae	Obs
Consultant Opinion	Essential	97 (78.22%)	166 (94.85%)	29 (100%)	12 (100%)	16 (100%)
	Routine	24 (19.35%)	7 (4%)			
	Not needed	3 (2.419%)	2 (1.14%)	0	0	0
Consultant Intervention	Needed	73 (58.87%)	118 (67.42%)	16 (55.17%)	6 (50%)	9 (56.25%)
	Not needed	51 (41.12%)	57 (32.57%)	13 (44.82%)	6 (50%)	7 (43.75%)
Special Investigations	Done	119 (95.96%)	168 (96%)	29 (100%)	12 (100%)	16 (100%)
	Not done	5 (4.03%)	7 (4%)	0	0	0
Special Procedures	Done	118 (95.16%)	165 (94.28%)	29 (100%)	12 (100%)	16 (100%)
	Not done	6 (4.838%)	10 (5.68%)	0	0	0
Length of stay in days	< 2	86 (69.35%)	109 (62.28%)	16 (55.17%)	10 (83.3%)	11 (68.75%)
	3 – 5	16 (12.90%)	30 (17.14%)	3 (10.34%)	2 (16.6%)	0
	> 5	22 (17.74%)	36 (20.57%)	10 (34.48%)		5 (31.25%)

## 5. Discussion

### 5.1 transfer process from primary to secondary healthcare institutions

Inter-hospital patient transfer is a critical component of healthcare systems, facilitating the sharing of patient care responsibilities and the provision of specialized resources unavailable in primary institutions. Pathirathna (2016) categorized transfers into two types: urgent, which address immediate needs, and non-urgent, which are pre-planned for specialized procedures or consultations. This study revealed that 60.941% of transfers were urgent, indicating a high demand for timely and resource-intensive care.

The study demonstrated that DGH - Embilipitiya effectively managed patient transfers from 14 primary healthcare institutions across three districts, utilizing its ambulance system as a key resource. Grade A hospitals accounted for the majority of transfers (54.293%), likely due to their larger size and

ability to manage severely ill patients compared to Grade B and C hospitals.

Documentation practices were found to be a significant challenge, with only 63.988% of transfer forms adequately documenting patients' conditions, findings, and treatment procedures. Furthermore, 30.47% of transfers lacked documented patient consent, reflecting inadequate attention to patient autonomy. These findings align with a 2009 study by Sellaheewa, Lamabadusuriya, and Edirisinghe, which highlighted similar gaps in documentation and consent in patient transfers within a tertiary care setting. Despite over a decade of advancements, these issues persist, underscoring the need for systemic improvements in transfer documentation and adherence to ethical practices.

### ***5.2 transfer patients' profile***

The majority of transferred patients were male (56.786%), a finding consistent with national life expectancy trends and patterns of disease and injury. Males, more prone to accidents and lifestyle-related illnesses, accounted for a significant proportion of surgical and emergency transfers.

The age distribution of transferred patients revealed a wide range, from neonates to centenarians, with the majority being within the active population (10–75 years). This reflects the greater healthcare needs of this demographic, possibly due to their higher exposure to occupational and environmental risks. Younger populations, being less prone to illness or accidents, and the relatively smaller size of the extreme elderly population contributed to their lower transfer rates.

### ***5.3 reasons for transfer from primary to secondary healthcare***

The primary reasons for patient transfers were medical (48.476%) and surgical (34.072%) causes. Medical transfers were predominantly female, likely reflecting their longer life expectancy and susceptibility to non-communicable diseases (NCDs) of old age, such as hypertension and diabetes. Conversely, surgical transfers were predominantly male, aligning with their higher risk of accidents and trauma.

Pediatric transfers ranked third, followed by obstetric and gynecological cases. These findings highlight the diverse needs of transferred patients and the importance of specialized care across multiple disciplines.

### ***5.4 timeline and outcomes of transferred patients***

The study found that 64.265% of transferred patients were discharged the day after admission, suggesting that many transfers could have been managed at the primary level with better resources or stabilization. Only 18.5% of patients required more than five days of inpatient care, indicating that extended hospital stays were relatively uncommon.

Special procedures and investigations were performed in 93.905% and 95.29% of cases, respectively, emphasizing the need for specialized diagnostic and therapeutic interventions at secondary institutions. Notably, 61.218% of transferred patients required active consultant involvement, while 98.614% received consultant opinions, underscoring the critical role of specialized expertise in managing transferred cases.

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## **6.0 Conclusion**

The study identified significant inadequacies in the inter-hospital patient transfer process, particularly in areas of documentation, communication, and patient autonomy. A substantial proportion of transfer forms lacked critical information, such as patient history, consent, and management details at the primary institution. To address these gaps, it is recommended that transfer forms be revised to include dedicated sections for consent, clinical history, and primary care management details. These changes would enhance the clarity and completeness of documentation, thereby improving continuity of care.

The study also revealed that some transferred patients required minimal intervention, underwent no specialized investigations, or were discharged the following day. This indicates that such cases could potentially be managed at the primary care level with appropriate guidance. Developing and implementing well-formulated guidelines and protocols for primary care management could reduce unnecessary transfers, alleviating the burden on secondary care institutions.

Moreover, the findings suggest that some transfers occur due to limited competencies or inadequate resources at primary healthcare institutions. To address this, continuous medical education (CME) programs should be implemented to enhance the knowledge and skills of medical officers in primary care. Such training programs would also improve pre-transfer stabilization, ensuring that patients are in optimal condition during transport.

Establishing stronger links between primary and secondary healthcare institutions is crucial. Pre-transfer communication, supported by standardized guidelines, could reduce unnecessary transfers and improve the efficiency of the transfer process. Furthermore, medical officers involved in transfers should receive training on the importance of respecting patient autonomy and obtaining proper consent for transfers.

Implementing these recommendations would strengthen the inter-hospital transfer system, ensuring better patient outcomes and a more efficient use of healthcare resources.

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## **7.0 Ethical Issues and Clearance**



This was not a clinical trial nor an interventional study and conducted on a sample of secondary data obtained from the transferred patients' BHTs where patient management had been completed. The study had no intervention in patients or patient management. Thus, details related to the personnel identification, or the disease condition was not collected. There was no participation of human beings in the study and thus there was no breach or interaction with the Nuremberg Code. Similarly, conditions related to the research ethics such as respecting autonomy, maximizing benefit, minimizing harm, being fair, and behaving with integrity would become matters of minimal or of no relevance.

However, the research proposal was submitted to the ethical clearance committee of the Post Graduate Institute of Medicine of the University of Colombo and ethical clearance approval was obtained. Extracted data are stored in the personal computer of the principal investigator. Even though the data does not carry any identification, the confidentiality of the obtained data will be strictly maintained. The data will be kept only with the principal investigator.

## 8.0 Limitations of the Study

The study was conducted on transfers received by the DGH-Embilipitiya. Primary health care institutions were not visited and hence the condition and facilities at the primary health care settings were not considered. The given findings and figures are only on transferred patients. The figures related to general patients admitted to the relevant wards have not been assessed.

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## References

- Annual Health Bulletin. (2014). Ministry of Health, Sri Lanka.
- Blakeman, T. C., & Branson, R. D. (2013). Inter- and intra-hospital transport: A review of risks and considerations. *Respiratory Care*, 58(6), 992-1004. <https://doi.org/10.4187/respcare.02322>
- Kulshrestha, A., & Singh, J. (2016). Inter-hospital and intra-hospital patient transfer: Recent concepts. *Indian Journal of Anaesthesia*, 60(7), 451-457. <https://doi.org/10.4103/0019-5049.186012>
- Lexico. (n.d.). Definition of "transfer". Retrieved from <https://www.lexico.com>
- Lwanga, S. K., & Lemeshow, S. (1991). *Sample size determination in health studies: A practical manual*. Geneva: World Health Organization.
- Ministry of Health. (2017). *Reorganizing Primary Health Care in Sri Lanka*.
- Pathirathna, K. G. R. V. (2016). Inter-hospital patient transport system in District General Hospital – Nuwara Eliya: A quality improvement study.
- Perera, S., Newveras, O., et al. (2019). Primary healthcare in Sri Lanka: History and challenges. *WHO South-East Asia Journal of Public Health*, 8(1), 41-50. <https://doi.org/10.4103/2224-3151.206186>
- Rajasekar, S., Philominathan, P., & Chinnathambi, V. (2013). Research methodology. Retrieved from <https://arxiv.org/pdf/physics/0601009.pdf>
- Samarage, S. M. (2006). Sri Lanka's healthcare: Achievements and challenges.
- Sellahewa, K. H., Lamabadusuriya, S. P., & Edirisinghe, E. A. S. K. (2009). Inadequacies in patient transfer documentation in Sri Lanka.
- Skandalakis, P. N., Lainas, P., Zoras, O., et al. (2006). Dominique Jean Larrey: The origins of modern trauma systems. *World Journal of Surgery*, 30(9), 1638-1644. <https://doi.org/10.1007/s00268-005-0187-y>
- Waydhas, C. (1999). Intrahospital transport of critically ill patients. *Critical Care*, 3(5), R83-R89. <https://doi.org/10.1186/cc357>
- World Health Organization. (2016). *Annual Report*. Geneva: WHO.