



# Availability legibility and adequacy of diagnosis as entered in bed head ticket in a base hospital Sri Lanka: a descriptive cross-sectional study

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## Abstract

**Introduction:** Hospital information storage is done through an internationally accepted coding system. It is very important to have an accurate diagnosis for proper coding. Ministry of Health has issued a circular (No-01-05/99) for the documentation of Bed Head Ticket (BHT) including writing the correct diagnosis. **Objective:** To assess the availability, legibility, and adequacy of diagnosis as entered in the BHTs of selected wards in a base hospital in Sri Lanka. **Methods:** Descriptive cross-sectional study was conducted to assess availability, legibility, and adequacy of diagnosis as entered in 384 BHTs of selected wards in a Base Hospital in Sri Lanka. A data Extraction sheet (DES) was used as a study instrument. **Results:** Out of 384 BHTs diagnosis were not available in 12 (3.13%) BHTs and diagnosis were illegible in 36(6.99%) BHTs. In 244(67.59%) BHTs diagnosis were written as abbreviations. Only in 136(37.46%) BHTs, diagnosis were written in block capital letters. **Conclusion and recommendation:** Documentation diagnosis in the BHTs is not according to the standards. Therefore, medical administrators, policymakers, and clinicians should take urgent actions to improve documentation diagnosis in BHTs.

**Keywords:** Bed Head Ticket. Availability. Legibility. Adequacy. Diagnosis. Coding.

## Introduction

Health information is used for planning, policymaking, resource allocation, teaching, training, medico-legal purposes, and research [1]. Health Information has two portions. They are hospital information and public health information. Medical Records are a vital part of the hospital information

system [2]. In the Sri Lankan health care setting, episodes of inpatient hospital care are recorded in Bed Head Ticket (BHT). In these episodes, a patient may have taken patient treatment for acute/chronic illness, or undergone procedures.

Bed Head Ticket (BHT) is a written collection of information about patients. It is defined as a compilation of pertinent facts of a patient's life and health history, including past and present illness and treatments were written by the health professionals contributing to that patient's care [3].

In the life cycle of a BHT Firstly, BHT is generated at the admission desk of the OutPatient Department. Patient identification data and admitting officers' notes are entered at admission. The numbering of the BHT is done according to a numbering system. BHT is sent toward with patient. Documentation is done thereafter, by medical professionals who attend to the patient. At the time of discharge, the final diagnosis is entered in block capital letters in the relevant space of the BHT by the medical officers including the intern house officer/Senior House Officer. Director-General of Health Services Ministry of Health Sri Lanka has instructed about procedures of medical records and hospital statistics by his circular no:01-05/99 of 26/02/1999.

Hospital information storage is done through an internationally accepted coding system. Coding of the disease is done by Medical Record Officers (MROs) based on a diagnosis of the disease. As current activities and future developments of the hospital are based on accurate information. Therefore, priority should be given to the appropriate hospital information management process. Accurate coding is dependent on a comprehensive and accurately written diagnosis. Therefore, it is essential to enter a comprehensive and accurate diagnosis in the BHT. Writing

inappropriate/inaccurate diagnosis is not only causing difficulties in coding but also challenges policymakers and administrators to make correct decisions. Entering accurate diagnosis will improve the accuracy and validity of information and ultimately it will improve existing health care [4].

To minimize incompleteness and inaccuracy, the Ministry of Health has taken different measures. Are these measures being implemented or are there any deficiencies? It is the responsibility of clinicians, administrators, and MROs to take necessary action to improve the situation. To suggest the improvements, it is a paramount need to study the current situation [5].

Thus, the present study aimed to assess the availability, legibility, and adequacy of diagnosis as entered in the BHTs of selected wards in a base hospital in Sri Lanka.

## Methods

### Study Design

This study followed a prospective observational cross-sectional model, following the rules of clinical research of the STROBE (Strengthening the Reporting of Observational Studies in Epidemiology), available at: <https://www.strobe-statement.org/>. A descriptive cross-sectional study was conducted to assess the availability, legibility, and adequacy of diagnosis as entered in BHTs of selected wards (**Table 1**) in a Government Base Hospital in Sri Lanka.

**Table 1.** Details of selected wards.

Word No	Ward type	No of Beds
2	Medical	41
4	Medical	41
12	Medical	30
15	Medical	40
6	Paediatrics	40
14	Paediatrics	30

The hospital is comprised of 440 beds for inward care with multiple specialties. Hospital has eighteen wards. Because of time factors and unavailability of resources study has been done in eight wards only.

All BHTs of the selected wards in the last quarter of 2016 and the first quarter of 2017 were selected for the study. Because of the limitation of resources and practical issues representative sample was selected. The calculated sample size was 384. The sample was selected through a simple random sampling technique.

The data Extraction sheet was used as a study instrument to record data from the BHT. The data Extraction sheet (DES) consists of ten questions which include one open-ended and nine closed-ended

questions. Yes/No type answers are required for closed-ended questions:

- ✓ **Availability** - If a diagnosis is documented in the relevant space provided or anywhere on the front sheet of the BHT, it is considered that the diagnosis is available;
- ✓ **Legibility** - If diagnosis is readable at a glance without the help of another party, in the Medical Record room with adequate light, it is considered a legible recording of diagnosis;
- ✓ **Adequacy** - Diagnosis should be written in, block capital letters without using abbreviations and without indicating uncertainty.

### Statistical Analysis

Surgical procedures, any medical procedures, and diagnostic procedures shouldn't be written as the diagnosis. Diagnosis should be compatible with a disease condition, examination findings, and investigations findings written in the BHT. Data collection was done by the principal investigator. The data was entered into the Epi-data database and subsequently exported to an SPSS (Statistical package for social surveys) database for analysis. Descriptive analysis was performed.

### Ethical Approval

The study involved only non-invasive methods of data collection. However, Ethical approval was obtained from the ethics committee of a university in Sri Lanka. Privacy and confidentiality of data are assured by Principal Investigator. No data will be published indicating individual identity.

## Results

A study of the availability, legibility, and adequacy of BHTs in selected wards in the Hospital was conducted for assessing selected variables of documentation of principle diagnosis which is the base of coding and mortality and morbidity data. Three hundred and eighty-four (384) BHTs from selected wards were randomly taken to the study. **Table 2** shows the numbers of BHTs taken from each ward for the study.

**Table 2.** Ward wise distribution of BHTs.

Ward	Number of BHTs(n)	Percentage %
2	73	19
4	72	18.8
6	57	14.8
12	75	19.5
14	38	9.9
15	69	18
Total	384	

The **Table 3** shows availability and legibility of diagnosis written in front page of the BHTs.

Out of 384 BHTs diagnosis were not available in 12 (3.13%) BHTs and about 26(6.99%) BHTs, had diagnosis that were illegible to read while in

244(67.88%) BHTs diagnosis were written abbreviations. In 136(37.36 %) BHTs diagnosis were written in block capital letters. **Table 4** shows the adequacy of diagnosis which what were written as in BHT.

**Table 3.** Availability and legibility of principal diagnosis written in BHTs.

<i>Item</i>		<b>2</b>	<b>4</b>	<b>6</b>	<b>12</b>	<b>14</b>	<b>15</b>	<b>Total</b>
<b>Diagnosis is available</b>	<i>n</i>	72	67	55	75	38	65	372
	<i>%</i>	98.63	93.05	96.49	100	100	94.2	96.87
<b>Diagnosis is illegible</b>	<i>n</i>	5	8	2	1	5	5	26
	<i>%</i>	6.94	11.94	3.64	1.33	13.16	7.69	6.99
<b>Diagnosis is written in block capital</b>	<i>n</i>	23	23	17	32	19	22	136
	<i>%</i>	33.34	34.8	31.48	42.67	55.88	33.84	37.46
<b>Abbreviations used</b>	<i>n</i>	42	34	33	49	27	56	244
	<i>%</i>	61.76	56.92	60	65.33	81.81	86.15	67.59

**Table 4.** What was written in BHT as diagnosis.

<i>Items</i>		<b>Ward Number</b>						<b>Total</b>
		<b>2</b>	<b>4</b>	<b>6</b>	<b>12</b>	<b>14</b>	<b>15</b>	
<b>Disease written as diagnosis</b>	<i>n</i>	43	52	46	62	31	38	272
	<i>%</i>	70.50	91.22	85.18	83.78	96.87	63.33	80.71
<b>Symptoms written as diagnosis</b>	<i>n</i>	9	3	7	9	1	5	34
	<i>%</i>	14.75	5.26	13.20	12.16	2.13	8.33	10.08
<b>Sign written as diagnosis</b>	<i>n</i>	-	2	-	-	-	-	2
	<i>%</i>		3.52					00.59
<b>Abnormal Lab finding written as diagnosis</b>	<i>n</i>	-	-	-	2	-	2	4
	<i>%</i>				2.70		3.33	1.19
<b>Medical Procedure written as diagnosis</b>	<i>n</i>	9	-	-	1	-	15	25
	<i>%</i>	14.75			1.36		25	7.42
<b>Uncertainty of diagnosis</b>	<i>n</i>	-	8	1	1	0	10	20
	<i>%</i>		2.12	1.81	1.33		15.59	5.33

In 272 (79.3%) BHTs, the disease was written as diagnosis, in 36 (10.49%) cases symptoms were written as diagnosis and in 25 (8.4%) BHTs medical procedures were written as the diagnosis. Only 20 (5.53%) BHTs showed uncertainty of diagnosis.

## Discussion

Coding of the disease is done by the Medical Records Officers based on the diagnosis written in the Bed Head Ticket (BHT). It is very important to have an accurate diagnosis for proper coding [5]. Poor quality diagnosis negatively affects the coding and accuracy of health information. Diagnosis should be written according to the health circular No-01-05/99) for the documentation of BHTs by the Ministry of Health. This circular states that a comprehensive diagnosis should be written in the appropriate space given on the front sheet of the BHT. Diagnosis of the patient should be written in block capital letters. Abbreviations aren't allowed. Diagnosis of the patient is written according to the International Classification of Diseases (ICD) 10th revision [6]. Diagnosis should be accurately written

according to evidence stated in BHT.

A retrospective survey of BHTs was done on 384 BHTs. These BHTs belonged to the last quarter of 2016 and the first quarter of 2017 [7]. BHTs were assessed for availability, legibility, and adequacy by using a data extraction sheet and circular. There is no evidence of previous audits or surveys about circular No-01-05/99. The diagnosis was available in 96.87% BHTs but it was not there in 12 (3.13%) BHTs.

MROs are non-medical people and find it difficult to perform coding of diagnosis [8-11]. Diagnosis of 26 (6.99%) BHTs were illegible to read which means those BHTs also were difficult to code. Therefore, percentages for adequacy were taken from the remaining 346 BHTs. According to the said circular, a diagnosis should be written in block capital letters.

In 136 (37.46%) BHTs diagnosis were written in block capital letters. Abbreviations were used for writing diagnosis in 244 (67.59%) BHTs. Mishra A et al (2009) [12] have surveyed the adequacy of Medical Records in Bir Hospital Kathmandu Nepal. 130 diagnosis summaries were studied. Availability and legibility were

hundred percent and using abbreviations when writing diagnosis was 73.8% which was higher than the value for this study. However, in the case of abbreviation, MROs face difficulty in coding. Diseases were written as the principal diagnosis in 272 (79.30%) BHTs. Meanwhile in 36 (10.49%) symptoms were written as diagnosis and in 25 (8.47%) medical procedures were written as a final diagnosis.

In situations where it is not possible to arrive at a principal diagnosis, symptoms can be written as diagnosis [13-17]. However, it should be assessed whether actual evidence is not enough to come to a principal diagnosis [18-20]. This was a limitation of the study. About 20 BHTs showed uncertainty of diagnosis.

In one hundred and thirty-six (37.46%) BHTs, diagnosis were written in block capital letters out of 346 BHTs which diagnosis is available and legible.

## Conclusion

The diagnosis was not available in 12(3.13%) BHTs. Diagnosis was illegible in 36(6.99%) BHTs. In one hundred and thirty-six (37.46%) BHTs, diagnosis were written in block capital letters. In 244(67.59%) BHTs, the abbreviation was written for writing diagnosis insists on a complete diagnosis. Uncertainties of diagnosis were shown in 20(5.53%).

## Recommendations

Documentation diagnosis in the BHTs is not according to the standards in a circular. Therefore, medical administrators, policymakers, and clinicians should take urgent actions to improve documentation of diagnosis in BHTs.

## Limitations

There was a ward wide variation. It was not assessed.

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Not applicable.

## Ethical approval

Ethical approval has been given from University of Colombo Sri Lanka.

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## Data sharing statement

No additional data are available.

## Conflict of interest

None declared.

## Author contribution

Indika Wanninayake's conceptualization, data collection, analyzing documents, and writing original draft was done. HSR Perera Conceptualizing, reviewing, and editing an original draft of the draft was done.

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