



RESEARCH ARTICLE

QUALITY ASSESSMENT ON EMERGENCY MEDICAL SERVICES DOCUMENTATIONS IN TRAUMA CASES

Mohd Said Nurumal¹, KhinThandar Aung² and Mohdtaufik Jamain³.

1. RN, BNS (Hons), MMed, PhD in nursing Dean ,Faculty of Nursing,International Islamic University, Malaysia.
2. RN, BNSc, MNSc, PGTM, Dip. in TESOL (UK), Lecturer/ Head, Critical Care Nursing Department, Faculty of Nursing ,International Islamic University, Malaysia.
3. RN, B Nursing (Hons), Faculty of Nursing, International Islamic University, Malaysia.

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Abstract

Background: The quality assessment would enhance accountability in emergency medical services (EMS) and provide EMS agencies with data to measure their system's overall performance and to develop sound strategic quality improvement planning. The aim of this study was to determine the quality assessment of emergency medical service documentation for trauma cases.

Methods: The quality assessment of emergency medical services (EMS) documentation for trauma cases was conducted in the Emergency Medical Communication Centre, Hospital Tengku Ampuan Afzan (HTAA), Kuantan Pahang. A stratified convenience sampling was used as sampling method and the EMS documentation checklist was adopted by Monash University, Centre for Ambulance and Paramedic Studies. The score of the documentation will be reflected with the health care personnel background. The data were analysed by using (SPSS) version 19.0 for windows.

Results: 235(100%) of EMS healthcare personnel had fulfilled the requirement for date, patient details, caller details, police notification and also hospital destination. However, for the medications given, only 15 out of 235 documents were documented and 235 (100%) were excluded the adverse effect and allergic reaction of medication to the patient. The overall mean of the quality assessment documentation was 75.013 while the standard deviation was 11.780. Based on the result shown, there was a significant association between years of employment with the quality assessment ($t=-4.01$, $p<0.001$).

Conclusion: Only 40% of the documentation were categorised as quality documentations. And only years of employment had significant association with the quality of emergency medical service documentation. Meanwhile, there was no significant association of races and gender with the quality emergency medical service documentation.

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Corresponding Author: -Mohd Said Nurumal.

Address: -RN, BNS (Hons), MMed, PhD in nursing Dean Faculty of Nursing International Islamic University, Malaysia.

Introduction:-

Emergency Medical Services (EMS) is a specialty domain that offers clinical care to a wide range of acute medical infirmities, illness or injury. The quality assessment would enhance accountability in EMS and provide EMS agencies with data to measure their system's overall performance and to develop sound strategic quality improvement planning (EI Sayed MJ, 2011). High-quality EMS services must consistently meet customers' needs and expectations, and develop the full potential of resources used in the process (Badsar et al, 2013). Current recommendations by the American College of Surgeons Committee on Trauma (ACS-COT) include a performance improvement (PI) process, which describes the continuous evaluation of the center and providers through a structured review of the process of care and patient outcome (Laudermilch et al., 2010). Trauma patients are a reasonable subgroup to begin to evaluate the integrity of information transmitted between EMS providers and receiving clinicians, as the trauma literature describes a set of prehospital data points that are known to have an impact on the outcome and therefore should be included in the EMS report and known by the receiving team (Carter et al., 2009).

A study done by Bette (2009) stated that the most important role of documentation is to assure high quality patient care. The ambulance service patient report form (PRF) contains important documentation of the early phases of care, and because of the dynamic nature of trauma and acute illness, this clinical information may be important for the interpretation of clinical findings and treatment strategies after admission (Knutsen&Fredriksen, 2013). However, according to Staff and Sovik (2011) EMS documentation is often performed in chaotic and complex settings: in the dark, rain, and cold, under time pressure, and sometimes under threat to personal safety. At the same time, when reviewing patient care, for audit or review, the written record is often the only data source available, and is admissible as evidence in legal proceedings (Murray et al., 2010).

Material and Methods:-

A retrospective study on quality assessment of emergency medical services (EMS) documentation in trauma cases at Emergency Medical Coordinating Centre, Hospital Tengku Ampuan Afzan (HTAA), Kuantan, Pahang was done. All patients' documents admitted to emergency medical services and reported on the emergency medical communicating centre (EMCC) in HTAA with trauma cases (n=235) from 1st June 2014 until 31 December 2014 were collected and quality assessment, emergency medical services documentation checklist was used as a research instrument. The checklist consists of seven key data which are patient information, observation, assessment and management, call cut, time of arrival and incident time, and health care personnel name and background. The collected data were analysed using the Statistical Package of Social Sciences (SPSS) version 19.0 for windows. The ethical approval was taken from Kulliyah of Nursing Research Committee (KNRC), International Islamic University Malaysia Research Ethics Committee (IREC) and hospital data protection officer.

Results:-

235(100%) of EMS healthcare personnel had fulfilled the requirement for date, patient details, caller details, police notification and also hospital destination. However, for the medications given, only 15 out of 235 documents were documented and 235 (100%) were excluded the adverse effect and allergic reaction of medication to the patient. Some of the documentations were not completely recorded regarding the management to the patient. In addition, most of the documentations were handover with 229(97.4) without completing the required elements from the checklist. There were 53 out of 235 documentations were not legible. The details were shown in table 1.

Table 1:- Frequency and percentage of the quality assessment

No.	Data item	Complete n (%)	Incomplete n (%)
1	Is the date, time and call card number is filled up?	235(100)	0(0)

2	Are all patient ID field complete?	235(100)	0(0)
3	Are all patients' address fields complete?	235(100)	0(0)
4	Is patient's charge classification specified?		
5	Are patient's caller details recorded where?	235(100)	0(0)
6	Are attending police call where recorded?	235(100)	0(0)
7	Is patient pick up location specified?	235(100)	0(0)
8	Is hospital destination specified?	235(100)	0(0)
9	Are all ambulance crew details complete?	220(93.6)	15(6.4)
10	Are call out, arrival times and incident time complete?	235(100)	0(0)
11	Is 'the triage' field stated?	197(83.8)	38(16.2)
12	Are observation fields complete?	95(40)	140(60)
13	Is the main problem identified?	80(34)	155(66)
14	Is previous history identified?	0(0)	235(100)
15	Are medications listed?	15(6.4)	220(93.6)
16	Allergies and adverse reactions to medication clearly displayed?	0(0)	235(100)
17	Is a complete event history documented?	205(87.2)	30(12.8)
18	Are on attendance observations documented?	174(74)	61(26)
19	Are examination procedures documented?	25(10.6)	210(89.4)
20	Is initial assessment documented?	102(43.4)	133(56.6)
21	Is time critical assessment documented?	223(95)	15(5)
22	Is road traffic section complete (for appropriate documentation)?	235(100)	0(0)
23	Is physical examination clearly stated?	86(36.6)	149(63.4)
24	Are CPR and first aid check boxes use where appropriate?	201(85.5)	34(14.5)
25	Are all sections of the patient management documented?	49(20.9)	186(79.1)
26	Is final assessment documented?	227(96.6)	8(3.4)
27	Are MPT reasons documented?	189(80.4)	46(9.6)
28	Are patient refusals documented? (if applicable)	0(0)	235(100)
29	Is handover section complete?	229(97.4)	6(2.6)
30	Is EMS documents approved by ambulance office?	176(74.9)	59(25.1)
31	Is ambulance officer badge number documented?	235(100)	0(0)
32	Is the patient response documented?	24(10.2)	211(89.8)
33	Is the documentation legible?	182(77.4)	53(22.6)

Table 2 presented mean and standard deviation of quality assessment, emergency medical service documentation for trauma cases. The overall mean of the quality assessment was 75.013 while the standard deviation was 11.780. The

total score for the quality assessment checklist was 100%. However, the researcher set the minimum score was 80% to pass and the documents can be categorised as quality documentation. The highest score for the quality assessment of emergency medical service documentation for trauma cases in the year of 2014 was 97% and the lowest score was 44%.

Table 2: Mean and standard deviation categorised by quality assessment documentation

Variable	mean	SD
Quality assessment emergency medical services of documentation for trauma cases (n=235)	75.0128	11.779

The majority of the documentations was handled by male healthcare personnel 198 (84.3%) out of 235 emergency medical service documentation. It then followed by 37 (15.7%) handled by a female. There were 219 (93.2%) of Malay health care personnel involved and 16 (6.8%) were non-Malay. All the health care personnel had diploma qualification. The mean and the standard deviation of years of employment were 2.46 and ± 1.26 as shown in table 3.

Table 3i : Analysis of socio-demographic data frequency and percentage (N=235)

Variable	Frequency (n)	Percentage (%)
Gender		
Male	198	84.3
Female	37	15.7
Race		
Malay	219	93.2
Non-Malay	16	6.8
Qualification		
Diploma	235	100
Years of employment	2.46	1.26

Based on the result shown, there was a significant association between years of employment with the quality assessment ($t=-4.01$, $p<0.001$). Those who score $\geq 80\%$ were having 2.85 ± 1.30 years of experience, whereas those who scored $<80\%$ were having 2.19 ± 1.17 years of experience. In addition, the gender and the races were not significant to the quality of emergency medical services with the p-values were 0.006 and 0.779. It showed in Table 4.

Table 4:-Analysis of socio-demographic data and quality assessment emergency medical services documentation for trauma cases (N=235)

Variables		$\geq 80\%$	$<80\%$	statistical value	p-value
		mean (SD)	t-value		
Years of employment	2.85 (1.30)	2.19 (1.17)	-4.10		<0.001
Gender	3.39		0.066		
Male	75 (37.9)	123 (62.1)			
Female	20 (54.1)	17 (45.9)			
Races	0.79		0.779		
Malay	131 (59.8)	88 (40.2)			
Chinese	9 (56.2)	7 (43.8)			

Discussion:-

The result showed that only 95 out of 235 emergency medical service documentation were categorised as quality documentation with the score 80% and above. All the EMS healthcare personnel documented the patient's details, time and address, hospital destination and police call record. These elements should be prioritised to confirm the

cases and to transport the patient with the rapid response time and patient time arrival to the destination hospital at the exact time for further treatment and intervention. According to Staff and Sovik (2011) evaluation of the time of trauma to definitive care is of great importance, where patients may be in need of rapid transportation to a competent surgical facility. However, the most critical elements such as patients overall observation, intervention and medication given mostly were not documented and missing. This study found that only 15 out of 235 documents for trauma cases were documented the medication given. Medication administration was the most crucial elements that should be documented as there were a lot of cases regarding medication error done by the healthcare personnel. According to Risavi, Buzzard and Heile (2013) the top three causes of complaints in EMS system were rude or unprofessional behaviour, failure to transport and also problems with medical treatment. This showed the medication treatment was the most crucial intervention that should be documented in the patients' documentation form in terms of effective treatment and patient safety.

General observation of patients may help the secondary treatment in the emergency department in saving time of diagnosing and provide better treatment. In addition, some of the documents were illegible. Those documents may be affected by the inappropriate time management for documenting the treatment, while conducting the intervention and transporting the patient. It can be shown in the results which were related to the competency of the healthcare personnel to document all the intervention while handling the patients. A quality criterion in documentation was for appropriate care and is crucial for clinical audit and trauma research.

The result showed that the years of employment affect the quality of emergency medical documentation. There was a significant association between the quality of emergency medical service documentation and the years of employment. Basically, the quality of work will be affected by the work experiences. According to Fapuhunda (2013) employees who have positive perceptions and experiences in their workplaces will have an increased desire, willingness and ability to go the extra mile. This showed that the working experience had a more influencing factor to produce the quality of documentation indirectly produce the quality of health care personnel. Other than that, there was no significant association of gender and races with the quality assessment emergency medical service documentation. A study showed that gender also one of the affecting factors to produce the quality of documentation. Women had lower job quality compared to men (Ervasti, H.2008) However, in this study, gender of healthcare personnel was not reflecting the quality assessment emergency medical service documentation.

Conclusion:-

By performing the quality assessment for emergency medical service documentation, the quality of documentation can be described and provide better skills of documentation to the emergency medical services health care personnel to become more effective to achieve better management and intervention. Knowledge gained from this study will help the healthcare personnel to improve their performance and to realize the importance of documentations in order to achieve a quality patient care. It also can add a new knowledge about the quality of emergency medical service documentation to increase the standard of quality documentation and upgrading the Malaysia healthcare system for the sake of the holistic healthcare institution.

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