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Completeness and Readability of Health Information in Hospitals Records – North Kordofan State-Sudan 2015

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Abstract

Documentation of patients` information in the hospital registry is crucial for efficient quality of care. The objective was to assess the completeness and readability of patients` information in the inpatients files of internal medicine and pediatric departments. A descriptive audit study carried out in four hospitals in North Kordofan State. A total of 549 and 555 inpatients` files were reviewed from the internal medicine and pediatric departments respectively. A structured review checklist was used for the audit. Data was managed by SPSS version 20. Comprehensiveness proportions were calculated manually. Chi square test at 95% CL was used for comparison. Complete and readable full names of patients were shown in 6.2% and 34.2% of internal medicine and pediatric files respectively. Patients` full contact address was complete and readable in 11.3% and 4.5% respectively. Only 0.5% of pediatric files had recorded age. Completeness of basic information in inpatients` files was significantly different in favor to the internal medicine department, P- value=0.01. Documentation of clinical assessment items was complete in internal medicine files (65.6%) and pediatric files (62.5%). Pediatric files had complete readable vaccination history (55.7%), complete readable perinatal, natal and postnatal history (40%) and complete readable milestones history(29.9%). The summary discharge pages had comprehensiveness scores, 13% and 18.7% in internal medicine and pediatric files respectively, P-value 0.01. Date of discharge was adequately complete in 74.1% and 77.5% of the internal medicine and pediatric files respectively. Information in hospital inpatients` files was not complete.

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Two thirds of inpatients` files were complete and readable for clinical assessment items. The childhood developmental history was under-documented. The summary discharge pages were not completely documented except the date of discharge. A reform plan and computerization of the data base is recommended.

Keywords: completeness; hospital; information; pediatric; files; internal medicine.

1. Introduction

Documentation of patients` information in the hospital is crucial for optimum and efficient quality of care and patients` follow up [1]. Hospital information and patients` data are needed for estimating the burden of diseases in a country in terms of incidence and prevalence [2]. Quality of recorded inpatients` data eventually contributes to low rates of adverse events [3, 4]. Literature in the past decade had shown poor documentation and inaccurate registration of health information in developing countries [5]. Nevertheless; health information system is still observed as being weak and faces inaccuracy and incompleteness. The aim of this study was to assess the completeness and readability of patients` information in the records files of internal medicine and pediatric departments in four hospitals in North Kordofan State-Sudan 2015.

2. Methods and Materials

This was a descriptive audit study carried out in four hospitals in North Kordofan State. The study subjects were the inpatients` files in internal medicine and pediatric departments in the hospitals. The samples included the total inpatients` files in the two departments for the second quarter of the year 2015. A total of 549 and 555 inpatients` files were reviewed from the internal medicine and pediatric departments respectively. A structured review checklist was adapted from the national inpatients` file and used for the audit. The review checklist was composed of three sections; the basic information of the patients in the front page, the processes of clinical assessment, the contents of the summary discharge and the information of developmental and vaccination history in pediatric files. Ethical approval was obtained from the State Ministry of Health in North Kordofan State and from the hospital authorities. Data was managed by SPSS version 20. Descriptive statistic was presented in frequency tables and figures. Comprehensiveness scores (proportions) were calculated manually. The difference between the two proportions was tested by Chi square test at 95% CL using online calculator [6].

3. Results

The proportions of inpatients` files with complete readable full names of the patients were 6.2% and 34.2% in internal medicine and pediatric departments respectively [figure 1]. The basic information in the front page of inpatients` files in internal medicine and pediatric departments was incomplete regarding patients` full contact address including telephone number, 11.3% and 4.5% respectively [Table 1]. While 94.5% of the inpatients` files in internal medicine department had complete readable recorded age of the patients, only 0.5% of pediatric inpatients` files had complete readable recorded ages of the children [Table 1]. The patients` occupation and marital status were completely recorded 59.6% and 8.7% in the inpatients` files of internal medicine department, respectively [Table 1]. The occupation and marital status of the informants in pediatric department were complete and readable in1.3% and 1.1% the inpatients` files respectively [Table 1]. In general, the difference in

comprehensiveness scores of the documentation of basic information in the front page of inpatients` files was significantly different in favor of the internal medicine department, P- value=0.01.

Almost less than two thirds of inpatients` files in internal medicine and pediatric departments were having complete readable documentation of clinical assessment items, 65.6% and 62.5% respectively, P-value = 0.283 [ Table 2]. In pediatric departments, 55.7% of the inpatients` files had complete readable vaccination history of the children, 40% of the files had complete readable perinatal, natal and postnatal history and 29.9% had complete readable milestones history of the children [Figure 2].

The summary discharge pages in the inpatients` files of internal medicine and pediatric departments had insignificantly low comprehensiveness scores, 13% and 18.7% respectively, P-value 0.01[Table 3]. Only the date of discharge was adequately complete and readable in 74.1% and 77.5% of the internal medicine and pediatric files respectively [Table 3].

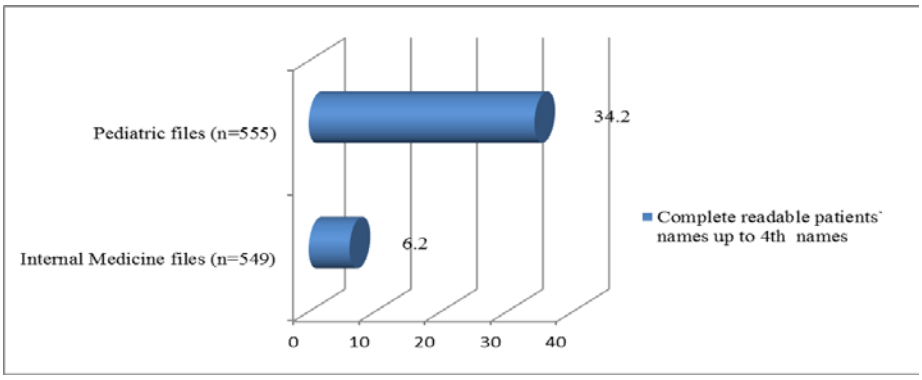

Figure 1: Completeness and readability of patients' full names in the inpatients files at four hospitals in Shiekan Locality – North Kordofan State Sudan 2015

Table 1: Completeness and readable basic information in the front page of inpatients` files at four hospitals in Shiekan Locality – North Kordofan State Sudan 2015

Complete and readable recorded items in the front page of patients` files	Internal Medicine files (n=549)	Pediatric files (n=555)
Date of admission	91.1%	99.5%
Patients` full contact address including telephone number	11.3%	4.5%
Patients` residence	91.1%	89.7%
Patients` age	94.5%	0.5%
Patients` occupation/ informant	59.6%	1.3%
Patients` marital status /informant	8.7%	1.1%
***Comprehensiveness scores**	**59.4**%	**32.8**%

*Chi-squared = 78.537 with df 1. P- Value 0.01.

Table 2: Percentages of inpatients files with complete readable recorded clinical assessment at four hospitals in Shiekan Locality – North Kordofan State Sudan 2015

Complete and readable recorded items of clinical assessment in patients` files	Internal Medicine files (n=549)	Pediatric files (n=555)
Medical history	85.1%	89.5%
Clinical examination	65.8%	75.7%
Vital signs	52.1%	21.4%
Investigations	59.7%	67.9%
Final diagnosis	60.5%	37.5%
Management instruction	70.5%	82.9%
Comprehensiveness scores	**65.6**%	**62.5**%

*Chi-squared = 1.151with df 1. P- Value 0.283.

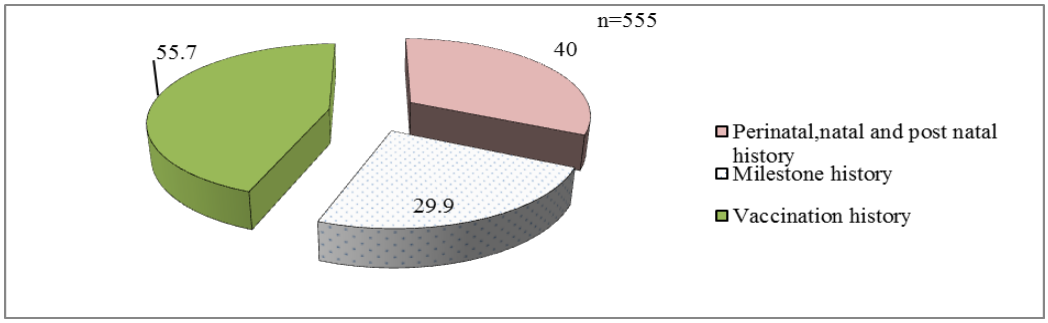

Figure 2: Percentages of inpatients` pediatric files with complete readable childhood developmental and vaccination history at four hospitals in Shiekan Locality – North Kordofan State Sudan 2015

Table 3: Completeness and readable items in the summary discharge page of inpatients` files at four hospitals in Shiekan Locality – North Kordofan State Sudan 2015

Completeness and readable recorded items	Internal Medicine files (n=549)	Pediatric files (n=555)
Summary of discharge items	0.2%	0.9%
Condition of Patient on Discharge	2.6%	0.5%
Date of discharge	74.1%	77.5%
Name of the doctors	0.4%	0%
signature of doctor	0.5%	33.2%
Name and signature of statistician	0.4%	0%
Comprehensiveness score	**13**%	**18.7**%

*Chi-squared = 6.712 with df 1. P-Value 0.01

4. Discussion

In this study, the completeness and readability of the patients' names and full contact address including telephone number were poorly recorded in pediatric and internal medicine hospital files. Quality of inpatients` files usually addresses the completeness information of the patients, readability of handwriting, and full information as per the standard hospital record [3]. The diligence of the care provider to record complete readable patients' information provides protection to the doctor and the patients [3].

In general, the patients` information in public health institutions were unusually incomplete and inaccurate [5]. Maintain full details of patients` contact reflects the hospital responsibility to patients` safety whenever the patients' medical information needed for judicial requests [7]. Although the proportions of inpatients` files in the four hospitals were low, the clinical assessment information seems to be better. It is observed that most of care providers in Sudan, particularly medical doctors are focusing on diagnosis and management rather than writing full basic information about the patients. This could be due to time factor [8] since the country suffers from migration of health and medical professionals that produces high provider – population ratio. Sometimes care providers focused on the priority to provide the services rather than recording all the needed information leading to missing information [9, 10]. Moreover, the curricula of medical and health schools in Sudan include inadequate amounts of teaching material regarding the importance of health information system.

The pediatric files in the four hospitals were having poor and incomplete information regarding child age, vital signs, developmental millstones history, pre-natal, natal and postnatal history and informants` occupation and marital status. The minimum vital signs in the child inpatients` files were missed in terms of respiratory rate, pulse rate and temperature. These vital signs could be a good estimate for studies of childhood mortality particularly when sufficient complete vital registration is available [11, 12]. Vital signs documentation on daily basis required for monitoring the child status and to provide timely medical management [13]. It is important to record complete readable history of child information including pre-natal, natal and postnatal and developmental millstones in hospitals` records. This information are used to predict the transition markers to adulthood [14]. Vaccination of children was documented in approximately half of inpatients` files in the four hospitals which is acceptable compared to developed countries where national health records had shown under- documented vaccination information [15]. Complete and documented childhood information in national and subnational records enhances the researches that predict the developmental milestones in young adults [16, 17]

In this study; the discharge summary pages of internal medicine and pediatric files had shown deficiency of summary of discharge, condition of patient on discharge, name and signature of the doctors and name and signature of statistician. The only adequate information in this page was the date of discharge although it was under-documented compared to the date of admission. The summary discharge sheet should contain adequate and complete information including condition of the patients and should be signed by the statistic authorities and the doctor [3, 7].

The poor recording of patients' information in the four hospitals in lines with national and subnational health registration systems at the country level as well as in low-and middle-income countries[18]. The inefficient and

inaccessible patients` information reflects different levels of health system problems including the structures, process and outcome quality dimensions. One of the major problems in under-documentation of patients' data is the poor administrative system in the hospital that should monitor the process of data recording, compiling, reporting and dissemination. . The problems may include the performance of health care provider on manual recording of patients` information. Professional training of the care provider on health information system contributes to efficient recording of patents` data. Nevertheless; training alone is not the primary element that improves the quality of recorded patients` information in manual documentation. The cornerstone of recording patients` information is sense of the importance of the database in health system. Moving to electronic medical records had shown improvement in data quality and satisfaction of the care provider in spite of some drawbacks [19, 20].

5. Conclusion

Most of hospital inpatients` files in North Kordofan State were not complete regarding the basic information of the patients in the front page. Two thirds of inpatients` files were having complete readable documentation of clinical assessment items. The childhood history of perinatal, natal and postnatal history, developmental history and vaccination were not completely documented. The summary discharge pages in the inpatients` files were not completely documented except for the date of patients` discharge. It is recommended to develop a plan to vitalize and strengthen the health information system in the hospitals and computerize the data base.

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Reference

[1] Chin N., Perera P., Roberts A., Nagappan R. Review of medical discharge summaries and medical documentation in a metropolitan hospital: Impact on diagnostic-related groups and weighted inlier equivalent separation. Internal medicine journal 2013;43(7):767-71.

[2] Niakan Kalhori SR., Tayefi B., Noori A., Mearaji M., Rahimzade S., Zandian E., et al. Inpatient data, inevitable need for policy making at national and sub-national levels: a lesson learned from NASBOD. Arch Iran Med 2014; 17(1):16-21.

[3] Zegers M., de Bruijne MC., Spreeuwenberg P., Wagner C, Groenewegen PP., Van der Wal G. Quality of patient record keeping: an indicator of the quality of care? BMJ quality & safety 2011; 20(4):314-8.

[4] James JT. A new, evidence-based estimate of patient harms associated with hospital care. Journal of patient safety 2013; 9(3):122-8.

[5] Mate KS., Bennett B, Mphatswe W., Barker P., Rollins N. Challenges for routine health system data management in a large public programme to prevent mother-to-child HIV transmission in South

Africa. PloS one 2009;4 (5):e5483

[6] MedCalc - User-friendly statistical software. Online calculator available from URL: https://www.medcalc.org/calc/comparison_of_proportions.php

[7] Thomas J. Medical records and issues in negligence. Indian Journal of Urology 2009; 25(3):384-388.

[8] Wang J, Siminerio LM. Educators' Insights in Using Chronicle Diabetes. A Data Management System for Diabetes Education. The Diabetes Educator 2013; 39(2): 248-254.

[9] Fraser HS., Blaya J. Implementing medical information systems in developing countries, what works and what doesn't. AMIA Annual Symposium Proceedings 2010: Pages 232-236.

[10] De Marinis MG., Piredda M., Pascarella MC., Vincenzi B., Spiga F., Tartaglini D., et al. 'If it is not recorded, it has not been done!'? consistency between nursing records and observed nursing care in an Italian hospital. Journal of clinical Nursing 2010; 19(11-12):1544-52.

[11] Black RE., Cousens S., Johnson HL., Lawn JE., Rudan I., Bassani DG., et al. Global, regional, and national causes of child mortality in 2008: a systematic analysis. The lancet 2010; 375(9730):1969-87.

[12] Bleyer JA., Vidya S., Russell BG., Jones MC., Sujata L., Daeihagh P., et al. Longitudinal analysis of one million vital signs in patients in an academic medical center. Resuscitation. 2011;82:1387–92.

[13] Mitchell I., McKay H., Van Leuvan C., Berry R., McCutcheon C., Avard B., et al. A prospective controlled trial of the effect of a multi-faceted intervention on early recognition and intervention in deteriorating hospital patients. Resuscitation 2010;81(6):658-66.

[14] Veiby G., Daltveit AK., Schjølberg S., Stoltenberg C., Øyen AS., Vollset SE., et al. Exposure to antiepileptic drugs in utero and child development: A prospective population-based study. Epilepsia 2013;54(8):1462-72.

[15] Sahni LC., Boom JA., Patel MM., Baker CJ., Rench MA., Parashar UD., et al. Use of an immunization information system to assess the effectiveness of pentavalent rotavirus vaccine in US children. Vaccine. 2010;28(38):6314-7.

[16] Pinquart M. Achievement of developmental milestones in emerging and young adults with and without pediatric chronic illness—a meta-analysis. Journal of pediatric psychology 2014;39(6):577-87.

[17] Murray J., Saxena S., Modi N., Majeed A., Aylin P., Bottle A., et al. Quality of routine hospital birth records and the feasibility of their use for creating birth cohorts. Journal of Public Health 2013; 35(2):298-307.

[18] Ye Y., Wamukoya M., Ezeh A., Emina JB., Sankoh O. Health and demographic surveillance systems: a step towards full civil registration and vital statistics system in sub-Sahara Africa? BMC Public Health 2012; 12: 741. doi: 10.1186/1471-2458-12-741.

[19] DesRoches CM., Campbell EG., Vogeli C., Zheng J., Rao SR., Shields AE., et al. Electronic health records' limited successes suggest more targeted uses. Health affairs 2010 ;29(4):639-46. doi: 10.1377/hlthaff.2009.1086.

[20] Castelnuovo B., Kiragga A., Afayo V., Ncube M., Orama R., Magero S., et al. Implementation of Provider-Based Electronic Medical Records and Improvement of the Quality of Data in a Large HIV Program in Sub-Saharan Africa. PLoS One. 2012; 7(12): e51631.