Critical Review of Discharge summaries at a Tertiary care ophthalmic centre of New Delhi, India

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I. Introduction

Discharge summary is a document containing patient information and is written during inpatient care and issued when or after a subject of care leaves the hospital. Discharge summary is expected to be written by the clinician involved in the care of the patient during admission and completed during or soon after the discharge (1). The discharge summary is the most common method for documenting a patient's diagnostic findings, hospital management and arrangements for follow-up after discharge.

Prior to discharging patients from hospital, a discharge summary (whether this be hand written or typed) is required to be completed. Ideally copies are kept in patient files and given to the patient. The Joint Commission on Accreditation of Healthcare Organizations (JCAHO) requires that discharge summaries be completed within 30 days of the hospital discharge and that they include the following elements: “the reason for hospitalization; significant findings; procedures performed and care, treatment, services provided; the patient’s condition at discharge; and information provided to the patient and family, as appropriate.” (2). Correctly completing all relevant sections on a discharge summary is part of good medical practice, Clinical Governance and hospital/patient documentation. Timely transfer of accurate and relevant diagnostic findings, treatment plans, complications, consultations, tests pending at discharge and arrangements for post-discharge follow-up may improve the continuity of this handoff (3,4). By contrast, delayed communication or inaccuracies in information transfer between health care professionals, particularly during the early post-discharge period, may have substantial implications for continuity of care, patient safety, patient and clinician satisfaction, and resources used (5-7). Unless the timeliness and accuracy of hospital discharge communication are improved, patients who have complex medical problems and require early post-discharge follow-up will often be treated by their primary care physician before the physician receives information about the hospitalization, pending test results, and specific follow-up needs (8-10). Moreover, insufficient quality in the transfer of information on a patient’s medications has recently been highlighted as one of the most important problems in health care (11), and many programs have been developed for to improve the process (12). According to the Institute for Healthcare Improvement, poor communication of medical information at transition points is responsible for as many as 50% of all medication errors and 20% of adverse drug events in the hospital (13,14). There have been numerous attempts to improve the quality of discharge summaries by using more structured formats or computer generated summaries with positive results in term of comprehensiveness, clarity and practitioner satisfaction (15, 16, 17, 18) but with persistence of serious errors and omissions (19) resulting in poor quality discharge summaries and lack of availability at the point of care (20,21,22).

There are few studies documenting the audit of discharge summary from India and more so there are no studies on discharge summary content in anOphthalmic Institute in India. It therefore necessities to document the completeness of medical records in a tertiary level ophthalmic center and recommend modifications. A study was conducted to critically examine the discharge summaries against standard guidelines at a tertiary ophthalmic care center in India with the objectives to critically review the discharge summaries at a tertiary ophthalmic care center in India against a standard guideline, to identify gapsagainst a standard guideline in the discharge summaries at a tertiary ophthalmic care center in India& to propose methods to overcome the gaps identified.

II. Material and Methods

This hospital-based retrospective record analysis was conducted for a period of 6 months (from July 2016 to December 2016) at an apexcentre for Ophthalmic Sciences, India. All discharge summary in our online record were included. We assumed the prevalence of incomplete record to be 40% as prevalence of most of the
factors are not available in previous research. Based on absolute precision of 8% and alpha error of 0.05, the required sample size was 150. There are 6 units in the hospital which work in different diseases of eye. Stratified random sampling was used to select the discharge summaries. A list was prepared for all the patients who were discharged between a period of 6 months (from July 2016 to December 2016) for all the six units. From each unit 25 discharge summaries were selected randomly using the random number tables. The discharge summaries were available online in the ehospital software. Several agencies recommend standards for discharge summary around the globe. These standards are area specific. Cover the whole spectrum proper documentation and safeguarding the hospital from legal hassles. Some of the standards are listed below.

1. **NABH** - These are the standards given by the Indian agency. For accreditation the following points need to be present in the discharge summary.

2. **JCAHO** - The JCI recommends certain parameters for the discharge summary necessary for their accreditation. These are patient details, admission / discharge dates, diagnosis / management, drugs & follow-up.

3. **Royal College of Physicians Discharge record headings (23)** - The United Kingdom also have their own set of standards for the discharge summary.

4. **CRABEL score** - Based on The Royal College of Surgeons of England guidelines, a system for assessing the quality of medical note keeping - the CRABEL score (CRAwford - BEResford - Lafferty) had been formulated.

5. **A systematic review (24)** - A systematic review by Wimsett et al identified 30 different items in various studies as potentially important to be included in a discharge summary.

These discharge summaries were evaluated against a set of standard checklist given by the systematic review (24). The data were entered on Epi Info version 3.5.4. The data were then transferred to Microsoft Excel 2010. Data cleaning was done in Microsoft Excel 2010. Analysis was done in Stata 11. The results of descriptive analysis are presented as proportions with 95% confidence intervals (CIs) or as mean [standard deviation (SD)] wherever applicable.

### III. Results

A total of 150 discharge summaries were analyzed against a set of parameters. Some of the parameters were present in all the discharge summaries, these were doctor sign summary, specialty of admission, understandable & date of admission/ discharge. Complications in hospital were mentioned in 74 percent of the cases while condition at discharge was given in 59% cases. The parameter related to prognosis of the disease was given in 66% of the cases. Physician detail were given in 95% of the discharge summaries, in those patients whose surgery was cancelled, the name of the physician was not there. Only 31 percent of the files had documented the issues pending with the patient while follow up plan was given in 82% of cases. Parameters procedure treatment at hospital, investigations and results, discharge medications, discharge diagnosis & ICD 10 code were present in more than 90 percent of the cases. The parameters which were not present in the discharge summary were days of admission, clinical trial involvement, coping support, social issue relevant to management, reminder to bring documentation next time, optional nursing comments, resuscitation status, pain relief, complementary and alternative medicine use, nutrition, religious/ cultural concepts, support to relatives, palliative care information, sick note, patient sign, discharge destination, contact information, allergies, physical examination findings, admission diagnosis & information given to patient.

### Table 1: Proportion of discharge summary adhering to the defined criteria

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Found in (n)</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Doctor sign summary</td>
<td>150</td>
<td>100</td>
</tr>
<tr>
<td>Discharge destination</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Complications in Hospital</td>
<td>111</td>
<td>74</td>
</tr>
<tr>
<td>Contact information</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Condition at discharge</td>
<td>39</td>
<td>59</td>
</tr>
<tr>
<td>Specialty of admission</td>
<td>150</td>
<td>100</td>
</tr>
<tr>
<td>Understandable</td>
<td>150</td>
<td>100</td>
</tr>
<tr>
<td>Prognostic Details</td>
<td>99</td>
<td>66</td>
</tr>
<tr>
<td>Date of admission/ Discharge</td>
<td>150</td>
<td>100</td>
</tr>
<tr>
<td>Allergies</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Physical examination findings</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Admission diagnosis</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Patient/Physician details</td>
<td>142</td>
<td>95</td>
</tr>
<tr>
<td>Information given to patient</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Problem list/ issues pending</td>
<td>46</td>
<td>31</td>
</tr>
<tr>
<td>Procedure treatment at hospital</td>
<td>147</td>
<td>98</td>
</tr>
<tr>
<td>Investigations and results</td>
<td>139</td>
<td>93</td>
</tr>
<tr>
<td>Discharge medications</td>
<td>136</td>
<td>90</td>
</tr>
</tbody>
</table>
IV. Discussion

A total of 150 discharge summaries were analyzed against a set of parameters. There were several parameters which were desired by specialist across the globe (24). Most of those factors were not present in the RPC discharge. Due to digitalization of the discharge summary they were readable, but understandability is a big question mark as lot of abbreviation were used, most of the standards state that acronym should be used minimally in the discharge summary.

A study conducted by Callen et al (25), Grimes et al (26), Ehnbom et al(27) showed that medication error in discharge summary was about 10 percent which was similar to finding of discharge medications in our study. The reason of error could be because junior doctors are making the discharge summary and previous results have shown that though junior doctors (26,28,29,30-32) produce discharge summaries but some studies had shown that errors were associated with this junior status (28,29,32). A study by Wilson et al showed that presenting problem was not given in 18.7% discharge summaries, principal diagnosis was not given in 10.4%, discharge summaries allergies/reactions was not given in 41.6% discharge summaries, results pending was not given in 64.8% discharge summaries, operations/procedures was not given in 44.2% discharge summaries, complications was not given in 59.1% discharge summaries, medications on discharge was not given in 20.7% discharge summaries and follow up was not given in 13.9% discharge summaries. In a study by Dafaalla et al (33) almost 30-40% of the discharge cards are not written in the standardized card. The signature of the discharging doctor headings are present only in one third of cards. The further follow up and the date of follow up headings are present in 60-70% of cards. presenting complaint was mentioned in 74.1%, diagnosis in 30%, investigations in 61.9% and treatment done in 79%. These were present in almost more than 90% of discharge summaries in our study, but investigations were not mentioned at all in our discharge summaries, this shows better adherence in our hospital. A study by Hammad et al (34) showed that adherence to the standards was 71.7%, adherence to patient, admission and discharge information was 77.3%, 67.2% for medicine information and 48.9% for therapy change information. Allergy status, co-morbidities, medication history and rationale for therapy change were the most frequent omissions. A study by Mfangavo et al (35) showed that discharge summaries frequently did not identify the hospital physician (missing from a median of 25%), diagnostic test results (38%), and specific follow-up plans (14%). Legibility was a concern in 10-50% of the discharge summaries. A study by Naidu et al (36) showed that all patients (100%) received a discharge summary and a carbon copy of the same was retained in the hospital but in our study the discharge summary was not retained in our hospital file but was saved online. Legibility of the three important sections, namely diagnosis, prescription and DI, were 66, 76 and 65%, respectively. In the prescription, dosage and duration were written in more than 90%, but documentation of the indication was very poor at 20%. The patient’s signature was obtained after explaining the DI in 80%. Significant deficiencies were found in the documentation of investigation results and follow-up advice. They were not documented in 85 and 93%, respectively. Doctors did not sign the discharge summary in 11%. A study by Belleli et al (37) showed that content, administrative information fields were well completed (93–100%) apart from GP details (81%) and author’s contact/designation (62%). Only 21% included complete copies of radiology or pathology tests performed in hospital. Legibility was an issue in 13% files in contrast our hospital had 100% legible discharge summary because of computer typed discharge summaries. But understandability was a question mark as it was not translated in the local language that is Hindi. For procedural detail lot of acronyms were used and name of the anesthetist and the drug used for anaesthesia. This was similar to the finding in a recent Victorian hospital audits (38) which had 100% legible discharge summary. Electronic/auto-populated discharge summaries overcome handwriting issues and support more accurate reporting of medication lists and tests, facilitating their interpretation. (20,39,40) In our study patient presenting

<table>
<thead>
<tr>
<th>Follow up plan</th>
<th>123</th>
<th>82</th>
</tr>
</thead>
<tbody>
<tr>
<td>Discharge diagnosis</td>
<td>148</td>
<td>99</td>
</tr>
<tr>
<td>ICD 10 code</td>
<td>141</td>
<td>94</td>
</tr>
<tr>
<td>Days of admission</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Clinical Trial involvement</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Coping Support</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Social Issue relevant to Management</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Reminder to bring Documentation next time</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Optional nursing comments</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Resuscitation Status</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Pain Relief</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Complementary and alternative medicine use</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Nutrition</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Religious/ Cultural concepts</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Support to relatives</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Palliative care information</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Sick note</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Patient sign</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>
complaints, principal diagnosis, allergy reactions and results pending are not written in any of the discharge summary. Other parameters were complete in more than 90% of our discharge summary and this may be because our discharge summary are computerized and these fields are mandated to be filled. A study conducted by Mamo (41) showed that eighty thirty percent (83.3%) had clear follow-up plans documented. Another study done by Pullen et al (42) showed that diagnosis, treatment and follow up were given in over 88%. These findings were similar to the findings in our study which was similar to our study. But in contrast studies by Were et al (43) and Raval et al (44) documented that follow up information was given in less than 80% of discharge summary. This shows better adherence to follow up advice and care in our hospital. A study by Horwitz et al (45) showed that less than half included discharge laboratory results but in our study no discharge summary included the laboratory results, this may be due to the fact that these investigations may be of limited use in ophthalmology follow up. Only 6.2% of discharge summaries included the name and contact number of the inpatient physician. In our study the admission diagnosis, hospital course, physician contact details and investigations done in the hospital were completely omitted. Good completion rates were also highlighted in previous literature (20,38,46-50) and content omissions were present in (20,46,49,51-53). On the other hand, formatting is critical to ensure core information is included (eg. headings, forced responses) and presented in a way that highlights important points to the reader. (40,51,52,54) In another study done by Craddock et al (55) in United Kingdom, several items of information were given in over 70% of discharge summaries. In addition, a clinical audit done by Panagiotopoulou et al (56) reported investigations and their results during admission were documented in only 66.67% of cases, treatment during admission in only 43.3%, documenting laboratory investigation follow up in 15.31% and medications on discharge in only 20%. Hence in our study there was a gap in the initial assessment of the patient and there was no documentation of the history of patient and the course in the hospital. Allergy status though a separate column was always blank. Documentation of ‘no allergy to drug’ is also essential. Condition at discharge was missed in many of the files even though there was a separate column for the same. Doctor details were not present in the files of patient in whom surgery was cancelled or postponed and some did not have reason for the cancel of surgery. In discharge medications brand name were used and the no. of days they had to take medication was not given clearly.

The parameters which were not present in the discharge summary were days of admission, clinical trial involvement, coping support, social issue relevant to management, reminder to bring documentation next time, optional nursing comments, resuscitation status, pain relief, complementary and alternative medicine use, nutrition, religious/ cultural concepts, support to relatives, palliative care information, sick note, patient sign, discharge destination, contact information, allergies, physical examination findings, admission diagnosis & information given to patient. Documentation has been very important from legal, professional perspectives and continuum of patient care. Documentations for a long time have not been an area of focus in the resource limited countries. The patient’s records are among the most basic of clinical tools and are involved in almost every consultation. Patients records help to give clear and accurate picture of the care and treatment of patients and to assist in making sure they receive the best possible clinical care. They help clinicians to communicate with each other, with other healthcare professionals and with themselves, and are essential to ensure that an individual assessed needs are met comprehensively and timely. Aggregated, they form a permanent account of individual considerations and the reasons for decisions. Essential for effective communication and good clinical care, they are often accorded low priority, are poorly maintained and not readily available. CRABEL score is an excellent tool to review the medical records and the scoring can be as benchmark for setting standards of file.

V. Conclusion

Complications in hospital were mentioned in 74 percent of the cases while condition at discharge was given in 59% cases. The parameter related to prognosis of the disease was given in 66% of the cases and physician detail were given in 95% of the discharge summaries. Only 31 percent of the files had documented the issues pending with the patient while follow up plan was given in 82% of cases. Parameters procedure treatment at hospital, investigations and results, discharge medications, discharge diagnosis & ICD 10 code were present in more than 90 percent of the cases. The parameters which were not present in the discharge summary were days of admission, clinical trial involvement, coping support, social issue relevant to management, reminder to bring documentation next time, optional nursing comments, resuscitation status, pain relief, complementary and alternative medicine use, nutrition, religious/ cultural concepts, support to relatives, palliative care information, sick note, patient sign, discharge destination, contact information, allergies, physical examination findings, admission diagnosis & information given to patient.

VI. Recommendations

1. To standardize the discharge summary in consultation with the Head of the concerned unit by adopting and confirming to a standard JCI/ NABH. It is recommended to make the fields mandatory in the computer and try to incorporate various other subheading in a phased manner. Column to be added Patients signature,
Admission diagnosis and Chief complaint, Emergency contact information, reminder to bring the discharge summary at discharge and Nutrition advice. Medical record department should not receive incomplete discharge summary and undergo periodic training and audit.

2. It is recommended that to cross check the discharge summary second verification to be done by the consultant after the senior resident had made the discharge summary.

3. Two copies of discharge should be printed. One copy to be given to the patient and the other copy which has the patient signature is to be kept in the medical record of the patient.

4. To increase the understandability of the discharge summary software of Hindi conversion may be used for the medications and follow up advice and use of acronym should be minimum and if used the list should be given as asterix below the discharge summary.

5. A recommended sample of discharge summary is given in Annexure 1.

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