

## Recommendations for the future version of electronic discharge summary at Nova Scotia

### Health Authority

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## Author Note

This report has been written by me and has not received any previous academic credit at this or any other institution.

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## Executive Summary

Continuity of care is important for quality healthcare delivery. Communication between various healthcare providers plays an important role in the continuity of care. Discharge summaries that are sent out from hospitals to primary care providers in the community tell a story of what happened to patients during the hospitalization and play a critical role in this communication to help with continuity of care. Nova Scotia Health Authority (NSHA) had handwritten and dictated discharge summaries before electronic discharge summary was introduced in the year 2014. This internship report describes the experience of assessing quality of various types of discharge summaries at NSHA in order to understand the impact of electronic discharge summary on the overall quality of discharge summaries. The project was aimed at assessing various components of quality such as content, timeliness, conciseness, and organization through patient chart audit, surveys and a clinician focus group. The project also identified challenges in using electronic discharge summary system and sought recommendations from end users to overcome those challenges. The project is expected to contribute towards improving healthcare delivery across the province of Nova Scotia.

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Mr JD (an imaginary patient)

Mr JD is an elderly patient who has multiple co-morbidities such as Chronic Obstructive Pulmonary Disease, Diabetes, Hypertension and Coronary artery disease. He had a recent episode of severe difficulty of breathing for which he was admitted in a hospital for a couple of weeks. He was successfully treated and discharged home. He lives alone. His family doctor is totally unaware of his admission to the hospital. The hospitalist suggests that Mr JD see his family doctor within two weeks of discharge from hospital. However, the family doctor does not have any appointments available for the next two months. Mr JD has grown anxious because of the episode and hopes that various clinicians caring for him would coordinate efficiently to provide him with the best possible care. He is completely reliant on the communication and services provided by his care providers.

## 1.0 Introduction

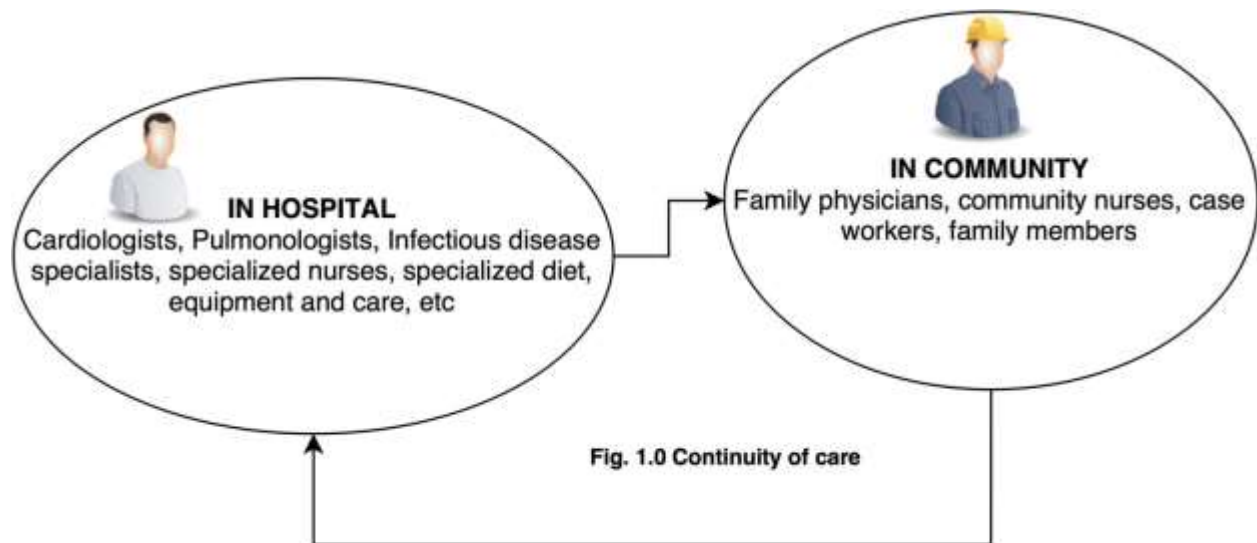
Continuity of care is a process by which a patient and his healthcare team work together to manage ongoing healthcare issues with a shared goal of cost effective and a high quality care(American Academy of Family Physicians, 2016). The important aspect of continuity of care is the ongoing nature of the whole process. When a patient is discharge from a hospital to his community, the patient continues to be affected by the diseased state/s and would need ongoing access to high quality healthcare. The medical issues do not end with a discharge; usually a patient is discharged when symptoms stabilize and patient is able to mobilize and care for himself on own or with the help of family members or when he no longer requires inpatient care. This does not necessarily mean a complete cure of his morbidities and an end of responsibility on part of healthcare providers. When a patient is discharged from a specialty treatment unit, for example, cardiovascular surgery, it is assumed that most of the subsequent care will be efficiently managed in the community.

Second aspect of the continuity of care is the change in the level of expertise of the care. In Mr JD's case, he received specialist care from cardiology, pulmonology and infectious disease units during his hospitalization. However, when he goes back to his community, he will be cared for by his family doctor, community nurse and possibly friends and family members. In similar instances, mostly specialties and level of expertise caring for patients changes after discharge.

The third aspect is the team of healthcare workers caring for the patient changes; e.g., from cardiologists and other specialist physicians, nurses and specialized supporting staff to community based health care team of family physicians, community nurses, case workers and

family members. At the same time there is a change in the amount and types of care equipment, medicines and other care related resources.

The concept of continuity of care can be understood by considering Mr JD’s ‘circle of care’. His usual circle of care is composed of a family doctor, a pharmacist, a community nurse and nearby health facilities with whom he is in constant communication regarding his healthcare. When he is admitted to a hospital, due to his multi-morbidities, specialist clinicians, support staff, diet and equipment becomes part of the circle of care for the duration of the hospitalization. When he goes back to his community, the circle of his care again shrinks to what it was before. When the care facility changes, members from the care team change however; there is always somebody responsible for patient’s care all the time. In such a situation, Mr JD’s overall health depends on a sustained continuity of care dependent on efficient equilibrium of communication between past and present care team members.



A review study by (Cabana & Jee, 2004) about effect of sustained continuity of care on care quality reports following findings,

- Improved two way communication between patient and care providers with better participation of patients in their own healthcare.
- Fewer hospital and intensive care days, shortened overall hospital stay as well as fewer emergency hospitalizations.
- Reduced hospitalizations, emergency care use and better preventive healthcare behavior.
- Improved reception of overall preventive services by patients.

From the above findings, we can understand that continuity of care would save healthcare resources due to reduced healthcare utilization resulting from better coordination among healthcare providers.

## **2.0 Role of discharge summary in the continuity of patient care**

Where does a discharge summary stand in the whole scenario of continuity of care of patients? In simple terms, a discharge summary is a ‘description of events’ that goes from hospitalists to family doctors in community and tells a story about what happened to a patient during the hospital stay. It is highly important that family doctors know about their patients’ hospital stay as it would most likely change the course of future care. If we consider the whole circle of care of the patient, the discharge summary is simply a small but an important component that improves continuity of care by aiding the communication between team members involved in the care of patients.

This internship report describes the experience of being part of a team working towards bettering continuity of care by assessing and improving quality of discharge summaries being sent out from hospitals to family doctors in Nova Scotia.



### **3.0 Description of Nova Scotia Health Authority**

Nova Scotia Health Authority (NSHA) is the largest health authority in Nova Scotia with nine previous health authorities merged into one with an intention of creating a foundation for better health care (Province of Nova Scotia, 2016). It partners with IWK health center to deliver primary health care, community and acute healthcare to Nova Scotians.

### **4.0 Description of the Canadian Medical Protective Association (CMPA) project**

Before the implementation of pilot electronic discharge summary in 2014, Nova Scotia Health Authority (previously known as Capital Health) had dictated and handwritten types of summaries going out to doctors in communities. Various departments had a variety of templates for discharge summaries. The pilot project of the electronic discharge summary introduced in the year 2014 was the first attempt to use technology with an intention of improving continuity of healthcare at discharge through standardization. It was initially implemented in one department and received encouraging feedback from clinical users and staff. It was then later expanded to include various other departments. After its adoption by other departments, in the next phase, it was decided to assess the change in the quality of discharge summaries and compare it with previous summaries and find out a detailed feedback from users to determine challenges, recommendations and impact for future versions.

### **5.0 Description of author's role**

Author's role involved supporting supervisor in every step of the project in discharge summary assessment and data analysis. Additional key features of the author's role include following,

- Provide advice and work with a multi-stakeholder team

- Help assess quality and timeliness of information transfer between inpatient and primary care physicians at discharge
- Perform literature review, patient chart audit, surveys and focus group discussion
- Statistically analyze data, interpret results and present outcomes
- Program with SAS
- Handle healthcare data, including data cleaning, transformation and manipulation for analysis

### **6.0 Why assess quality of NSHA discharge summaries?**

In the current system of discharge summaries being sent out from hospitalists to family physicians, NSHA wanted to assess these summaries to understand how well they perform their job of conveying patient information of hospitalization. Through this quality assessment, we wanted to know if Mr JD's family doctor receives discharge summary on time with all the pertinent information about his admission; that the information is brief and complete; and that it is organized properly to be able to refer appropriate sections quickly to find particular information. We wanted to find out whether Mr JD's family doctor is happy with the overall discharge summary and that it helps him/her care for Mr JD in a best possible way.

We also wanted to find out hospitalists' and family doctors' concerns about discharge summaries, understand their challenges, and what they think NSHA can do to improve discharge summaries in the future.

In an ideal situation, the discharge summary should help with smooth transition of care for patients like Mr JD from hospital to the community. We wanted to find out how the existing reality compares with a possible ideal situation and then seek stakeholders' feedback in order to understand what can be done to bring the reality close to an ideal situation.

Overall, this was an attempt at understanding and learning from experiences of patients and care providers.

### **7.0 The challenge with the discharge summary quality assessment**

The first challenge in assessing quality of discharge summary was the lack of definition of 'quality of discharge summary'. This was a critical piece of information to understand essential components of quality that could be assessed in order to evaluate discharge summaries in Nova Scotia. A preliminary survey of the literature indicated that no such a definition existed.

In order to overcome this challenge, the author reviewed the literature to understand what clinicians preferred as important in a discharge summary. Also, the literature about previous attempts at quality evaluation of discharge summary was studied. This helped to identify various components of the quality evaluation of a discharge summary. These components were determined to be content, timeliness, organization, completeness and conciseness. Subsequently timeliness, organization, completeness and conciseness of NSHA discharge summaries were assessed through surveys sent out to hospital physicians and family doctors in community. Whereas, content was assessed using uniquely designed scoring tool.

The second important challenge was to develop a discharge summary content scoring tool. To create such a tool, author worked with supervisors to create a comprehensive list of items (Appendix A). The list was generated by adapting items suggested by Joint Commission

Standard IM.6.10, EP 7 (Joint Commission 2014) and recommendations of Transitions of Care Consensus Conference (TOCCC) (Snow et al. 2009). It also included highly preferred items (O’Leary et al. 2006; van Walraven and Rokosh 1999) by hospitalists and primary care physicians. Appropriate weights were assigned to individual scoring items to reflect their relative preference by clinicians and respective contribution towards overall quality of discharge summary.

The final scoring tools contained a total of 17 items (as listed in Appendix A). Each item would get a maximum score of 2 if content was optimal, a score of 1 if less than optimal/excessive or irrelevant and a score of 0 if information was deficient in a discharge summary. This tool played a critical role in successfully scoring and comparing handwritten, dictated and electronic discharge summaries being sent out from hospitals to primary care physicians in Nova Scotia over a period of time.

## **8.0 Experience with the quality assessment of discharge summaries**

### ***8.1 Handwritten summaries***

Handwritten discharge summaries are still being used by some departments. They remain to be popular because they are easy to create and take least amount of time. However, they can pose many problems with communication of vital information to primary care physicians in a community. Majority of the handwritten discharge summaries were difficult to read making it challenging to assess their content. It is easy to imagine the difficulties faced by primary care physicians in the community with a discharge summary in their hand with important information but they can’t read it. How much of the subsequent healthcare decisions can we expect to be influenced by such a discharge summary? A family doctor in community might spend time

decoding such a discharge summary, try to call the hospitalist for more clarification or simply ignore it, which betrays the whole purpose of timely and efficient communication.

Another observation was the limited space available to convey information in a particular section of handwritten summaries. We observed many times hospitalists trying to cram as much information as possible in small limited sections of summaries sometimes overflowing into other sections. We also observed creative use of the limited space with hospitalists writing vertically and horizontally all over the margins and corners of discharge summaries. All of these findings go against the concept of a structured discharge summary.

### ***8.2 Dictated discharge summaries***

Dictated discharge summaries are popular among various departments. They are relatively quick to create, and a variable amount of information can be described into various sections. The amount of information contained in dictated reports varies significantly from department to department and patient to patient; which is a good thing as these reports can accommodate all the information dictated by hospitalists. However, this could be a disadvantage when hospitalists dictate too much detail confusing primary care doctors or providing unnecessary information compromising the whole purpose of the discharge summary.

From the timestamps, we observed that it took variable amount of time for dictated summaries to be transcribed, sometimes, one to two months. Some of the transcribed reports never get verified by staff. We can easily imagine impact of delays and unverified information reaching family doctors to make future decisions for patients.

### ***8.3 Electronic discharge summaries***

Electronic discharge summaries are gaining popularity in the NSHA. Various observations that were noted during the summary assessment are as follows,

1. Information about completed tests and investigations, history of presenting illness and physical findings are many times found in the section of 'course in hospital'. There needs to be better clarity on what information should go into those various sections. There is a tremendous amount of room for quality improvement if electronic discharge summary is properly structured into sections and defined to properly limit the type information that goes into sections. Bullet points, check marks and drop down menus may enhance structure of the discharge summaries.

2. Many of the electronic discharge summaries do not contain information about 'physical examination' at the time of patient admission or presentation. This important piece of information is under reported in discharge summaries and users should be educated about its importance.

3. Use of short forms e.g., RSCP could be guessed as right sided chest pain. But, what if it means something else? Such short forms can frustrate family doctors in the community. To overcome this challenge, only certain types of shorts forms with proper definition should be allowed to be used in the discharge summaries.

4. It was observed that electronic discharge summaries are comparatively easy to read and understand as compared to dictated and handwritten summaries.

5. It would be ideal for the electronic discharge summary system to have an auto-fax feature that would send out discharge summaries depending on the time elapsed since patient discharge. Faxing is a very common communication tool used in medical offices across Nova

Scotia. Considering the technological limitations and available existing resources, this would help improve the timeliness of discharge communication.

### **9.0 How does this project improve data quality and flow? – The health informatics perspective**

In Health informatics we use technology to efficiently improve overall healthcare rather than simply using the latest and best technology. Because latest technology may not be the most efficient way as it may end up creating unanticipated hurdles for the clinicians. Instead, in health informatics we support use of technology to make it easier for users to create and disseminate summaries, and at the same time help in an optimal way to transition patients' healthcare into their community. This project helps in working towards this goal by assessing current flow of health information from hospitals to community doctors, possibly identifying and removing experienced hurdles, and bottlenecks by working on recommendations suggested by involved stakeholders.

### **10.0 How did this project help overall patient discharge process?**

This project is an important milestone in the process of improving delivery of patient care to numerous Nova Scotians through using technology in the future. It achieved following objectives,

- know what is meant by quality of a discharge summary
- know how the NSHA discharge summaries are performing with respect to its content, conciseness, completeness, organization, timeliness, and clinician perception of overall quality and satisfaction.

- know where NSHA discharge summaries stand today and how it compares with an ideal situation based on user expectations.
- know what challenges are faced by clinicians when discharge summaries are communicated to doctors in a community and what they recommend to overcome those challenges.

Armed with the above information, we should be able to cascade an organization wide series of events to improve the communication of health information from hospitalist to community doctors and care providers.

### **11.0 Discussion and recommendations**

Here is what can be suggested with respect to future version of electronic discharge summary based on user feedback through surveys. Even though, many of the features and solutions recommended by clinicians may not be practically feasible right away due to a variety of reasons such as technological availability, integration and resources however, it is important to pay attention to what clinicians want and find out how best we can help them overcome their day to day challenges and integrate their recommendations for future improvement.

Discharge summary users have following important recommendations to be part of the discharge summary system. We can divide them as follows,

- While creating discharge summaries
- During the transition
- When it reaches family doctors in the community



### *11.1 While creating discharge summaries*

In the hospital, hospitalists use the electronic discharge summary system to create discharge summaries. They want it easier for them to log on, possibly through voice activation and be able to complete the summaries quickly. Simplicity is a key here and time component is of critical consideration as electronic discharge summary system should make it easier, effortless and quicker for them to use it. This may require better user interface or a technology for voice activation. Another similar recommendation suggested to save user time is ‘voice-to-text’ functionality which would allow clinicians to dictate directly into the discharge summary instead of typing in.

Hospitalists have asked for more number of desktops accessible anytime and that the computers be of faster configuration. Again the emphasis is on saving time for users and will required hardware and software upgradation which may have considerable costs involved. There is also a request for a functional 24 X 7 technical support available to users of the discharge summary system. So, it is evident that when users face technical problems, they probably get stuck without anybody helping them especially during the evenings and weekends. Such a technical support can be provided through text, chat or phone call service.

Hospitalists want the process of generating discharge summaries be expedited through automatic extraction of information from hospital records to be auto-filled into discharge summaries. Such information could be from lab reports, day to day notes, investigations, and procedures performed on patients. For this purpose, there has to be an electronic medical record system in place and an ability to integrate it with the discharge summary system.

Hospitalists also want to be able to add customizable sections and addendums in case they want to write a section of information not present in the summary format. Considering the fact that every patient case is unique, this feature is important as hospitalists may want to convey unique additional important information to community clinicians that could be vital for patients' future care.

With respect to content, we identified certain information based on Joint Commission (Joint Commission, 2014), Transitions of Care Consensus Conference (TOCCC)(Snow et al., 2009) and physician preference (O'Leary, Liebovitz, Feinglass, Liss, & Baker, 2006; van Walraven & Rokosh, 1999) that should be part of every discharge summary(Appendix – A).

### ***11.2 During the transition***

After the discharge summary is created, it is important that it is delivered to the primary care provider in a timely manner so that the information is helpful in making time sensitive decisions. We want to recommend that improvement in the timeliness of the delivery of discharge summary should be a top priority because surveys suggest that more than half of the discharge summaries are delivered after more than two weeks of the actual patient discharge. Some form of technological features such as programmed auto-faxing may be helpful. However, working on previously mentioned user recommendations such as faster and accessible desktops, better technical support and training are all going help achieve this goal.

### ***11.3 When it reaches family doctors in the community***

Surveys suggest that the final end users are relatively more satisfied and happier with the electronic discharge summaries as compared to the creators (hospitalists). It is obvious from the fact that hospitalists face more challenges while using the system to write summaries and thus,

the relative dissatisfaction; while the better quality product is delivered to the very end users i.e., family doctors in the community who are happier than before.

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## **Appendices**

### **Appendix A – Compiled list of content items that should be part of every discharge summary**

1. Admission diagnosis
2. List of discharge diagnoses
3. Discharge diagnosis responsible for the greatest part of the length of stay
4. History of presenting illness
5. Pertinent physical findings
6. Goals of care
7. Course in hospital
8. Hospital consults
9. Procedures in hospital
10. Discharge medication
11. Pertinent lab tests and investigation results
12. Test results pending at discharge
13. Outcome of care/Condition at discharge-functional ability
14. Follow up issues identified
15. Appointments after discharge
16. Discharge instructions
17. Identified attending clinician to be called by PCP if there are questions

**Appendix B – Discharge Summary Survey: Hospital Physicians**

*Electronic discharge system is a standardized online discharge report that takes advantage of available electronic patient data (e.g. patient registration, electronic Discharge Medication Record) and prompts physicians to document the quality and medico-legal requirements for transfer of patient information. Your feedback will help us evaluate its effectiveness - please take a few minutes to complete this brief survey.*

**1. In what role do you use the Electronic discharge system summary?**

Resident      Attending Physician      Nurse Practitioner      Other

**2. Please indicate your current level of experience using computers.**

Little experience                      Some experience                      Lots of experience

**3. On an average, how long does it take you to complete the Electronic discharge system summary (excluding DMR)?**

<10 min      10 to 20 min      21 to 30 min                      > 30 min

**4. On an average, how many Electronic discharge system summaries do you complete each week?**

0                      1 to 4                      5 to 9                      >10

**5. Please rate the following items about Electronic discharge system summary on a scale of 0 to 10 (where, 0=poor and 10=excellent).**

**Ease of use**

0    1    2    3    4    5    6    7    8    9    10

**Organization** of information in logical and clear fashion

0    1    2    3    4    5    6    7    8    9    10

**Completeness** of necessary information required for continuity of care

0    1    2    3    4    5    6    7    8    9    10

**Conciseness** of information

0    1    2    3    4    5    6    7    8    9    10

**Overall quality** of information

0    1    2    3    4    5    6    7    8    9    10

**Your overall satisfaction with Electronic discharge system**

0    1    2    3    4    5    6    7    8    9    10

If your rating is < 5, please indicate a reason for your rating:

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**6. What do you best like about the Electronic discharge system summary report?**

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**7. What can be improved in the Electronic discharge system summary report?**

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**8. Please indicate your preferred type of discharge summary report.**

Handwritten                  Dictated                  Electronic discharge system

Please comment why \_\_\_\_\_

**Other comments or feedback very much appreciated:**

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THANK YOU!!

**Appendix C – Discharge Summary Survey: Community Physicians**

*Electronic discharge system is a standardized online discharge report that takes advantage of available electronic patient data (e.g. patient registration, electronic Discharge Medication Record) and prompts physicians to document the quality and medico-legal requirements for transfer of patient information. Your feedback will help us evaluate its effectiveness - please take a few minutes to complete this brief survey.*

- 1. On an average, how long does it take you to receive an Electronic discharge system summary after your patient has been discharged?**

Same day      1 to 2 days      3 to 7 days      1 to 2 weeks      >2 weeks

- 2. On an average, how many Electronic discharge system summaries do you receive every month?**

0              1 to 4              5 to 9              >10

- 3. Please rate the following items about Electronic discharge system summary on a scale of 0 to 10 (where, 0=poor and 10=excellent).**

**Completeness** of necessary information required for continuity of care

0    1    2    3    4    5    6    7    8    9    10

**Organization** of information in logical and clear fashion

0    1    2    3    4    5    6    7    8    9    10

**Conciseness** of information

0    1    2    3    4    5    6    7    8    9    10

**Overall quality** of information

0    1    2    3    4    5    6    7    8    9    10

**Your overall satisfaction with Electronic discharge system**

0    1    2    3    4    5    6    7    8    9    10

If your rating is < 5, please indicate a reason for your rating:

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**4. What do you best like about the Electronic discharge system summary report?**

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**5. What can be improved in the Electronic discharge system summary report?**

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**6. Please indicate your preferred type of discharge summary report.**

Handwritten                  Dictated                  Electronic discharge system

Please comment why \_\_\_\_\_

**Other comments or feedback very much appreciated:**

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THANK YOU!!

**Appendix D - Top discharge summary challenges identified through surveys**

1. Electronic discharge system is time consuming to logon and fill
2. Slow computers a problem for Electronic discharge system
3. Electronic discharge system has poor flow of information
4. Electronic discharge system is not user friendly
5. Electronic discharge system is incomplete
6. Never used Electronic discharge system
7. Electronic discharge system spellcheck needs improvement
8. Electronic discharge system needs better IT support
9. Didn't like Electronic discharge system
10. Electronic discharge system need better IT support
11. Electronic discharge system has lots of unnecessary information
12. Electronic discharge system has tedious scrolling
13. Computers not readily available for Electronic discharge system
14. Electronic discharge system has many non-standard acronyms
15. Electronic discharge system shouldn't have to be print-fax-scanned into EMR

**Appendix E – Top discharge summary recommendations identified through surveys**

1. Auto fill lab reports into Electronic discharge system
2. Electronic discharge system be little more elaborate
3. Auto fill info into Electronic discharge system from other departments
4. House Staff need better Electronic discharge system training
5. Electronic discharge system should address social situation
6. Integrate Discharge Medication Record (DMR) into Electronic discharge system
7. List names of MDs caring for patient into Electronic discharge system
8. Electronic discharge system should be able to add customized sections
9. Electronic discharge system needs better drop down menus for recommendations/follow-up
10. Electronic discharge system should identify recipients
11. Would like Electronic discharge system to have auto fill option
12. Electronic discharge system should have cut-paste options
13. Electronic discharge system voice activation helpful
14. Electronic discharge system should pull information from other systems
15. Electronic discharge system need better dropdown menus

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