Recommendations to Improve EHR-Generated Discharge Summaries for Better Care Transitions to Aging Services

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ECRI and Annals of* Long-Term Care: Clinical Care and Aging (ALTC) *have joined in collaboration to bring* ALTC *readers periodic articles on topics in risk management, quality assurance and performance improvement (QAPI), and safety for persons served throughout the aging services continuum. ECRI is an independent, nonprofit organization improving the safety, quality, and cost-effectiveness of care across all health care settings worldwide.

As patient care shifts away from inpatient acute care settings to different post-acute care (PAC) settings, clinicians in these outpatient settings rely upon the patients' discharge documentation to support care coordination. Discharge summaries are intended to communicate important information about patients and their recent hospital visits to PAC providers, including those at aging services facilities. These summaries are increasingly important as patient acuity levels at discharge rise. Some summaries, however, lack important information, such as do-not-resuscitate (DNR) status and skin assessment findings. Others have care-critical information placed in areas where it cannot be easily found. In either case, if providers at the next level of care cannot access the information they need for care coordination, patients are at risk of adverse events.

Older patients, who typically have more transitions and are followed by more PAC providers, are particularly vulnerable to the adverse impact that poor-quality discharge information can have on safe and effective transitions from the hospital to aging services providers.

To address this issue, ECRI conducted a study to assess the usability of electronic health record (EHR)-generated discharge summaries for older patients transitioning from acute care to skilled nursing facilities (SNFs). The project addressed a current gap in knowledge among inpatient providers and EHR vendors—specifically, what data do PAC providers need to coordinate care for older patients recently discharged from hospitals?[1] Based on the findings, ECRI developed a list of 29 items that the majority of clinicians indicate are necessary to develop an initial care plan for recently discharged older patients. A second list contains seven items that are helpful but not always necessary for developing a care plan. Additional recommendations, such as those addressing the discharge summary format, can improve the document's usability.

The present column summarizes the study findings and provides suggestions for how aging services facilities can use the information to encourage referring hospitals to provide easier-to-use discharge summaries. By improving the summaries' content and design, the summary can better contribute to care coordination for patients transitioning from acute care to their facilities.

How Are Discharge Summaries Developed?

Most acute care facilities in the United States currently use EHRs to generate discharge summaries. They may be under the impression that the information present in the discharge summaries is adequate to support care coordination—that the summaries contain all the important information necessary to develop the patient's care plan in the PAC setting. Unfortunately, there is significant variation in the content, format, and organization of these documents—some information may be missing, difficult to locate, or easy to misunderstand. This makes it difficult for outpatient providers to find the information they need to coordinate the patient's care. With 45% of Medicare beneficiaries requiring PAC services after hospitalization, the need for a seamless exchange of health information is significant.[2] ECRI had these issues in mind when it was decided to evaluate the usability of EHR-generated discharge summaries for older patients who transitioned from acute care to an SNF, where medically complex older adults are more likely to transition after a hospital stay.

How the Evaluation Was Conducted

To determine how well discharge summaries currently meet the needs of PAC providers, ECRI conducted a heuristic

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Table 1. Required and Recommended Discharge Summary Items[1]

Necessary Discharge Summary Items[a]	Helpful Discharge Summary Items[b]
Patient identifiers (eg, patient's last name, first name, middle name, date of birth, age, gender, and medical record number)	Family history
Dates of admission and discharge	Social and lifestyle history
Diagnoses at hospital admission (a short list/summary of the patient's diagnoses when admitted to the hospital)	Free-text comments (a field for clinicians to share miscellaneous notes about the patient)
Principal/primary diagnosis (diagnosis responsible for the largest portion of the patient's stay)	Type of medical devices/equipment (eg, bariatric beds) that are needed for the patient in the SNF
List of diagnoses at discharge (from the hospital to the SNF)	Goals of care and treatment plan post hospital discharge
Discharge medications	Activities of daily living status
Detailed history of patient's illnesses at admission (in-depth history of present illnesses, detailed description of the symptoms, etc)	Wound, skin, fall assessment
Hospital course (a description of events occurring to a patient during his/her hospital stay)	
Procedures performed in the hospital	
Laboratory tests and investigation results (including pending results and tests due at SNFs)	
Patient's physical and cognitive functional ability at discharge	
Patient's status/condition at discharge (refers to how the patient is doing at discharge, what the relevant physical findings are, or the patient's health status on discharge)	
Medication on hospital admission	
Changes in medication during patient's hospital stay, with reasons for the changes	
Adverse reactions during medical stay (including allergies to medications and other allergies)	
Discharge instructions	
Appointments after discharge	
Life-sustaining treatment preferences (eg, DNR, lifesaving instructions, physician orders for life-sustaining treatment [POLST])	
Nutritional status at discharge	
Immunization history	
Patient demographics (eg, address, phone number)	
Follow-up issues (information about what procedures and clinicians to follow up with, post-hospital discharge)	
Emergency contact information	
Nutritional status at hospital admission	
Physical and cognitive functional ability at admission	
Goals of care and treatment plan during hospital stay	
Discharging physician contact information	
Contact information of clinician(s) who consulted patient in hospital	
Patient weight	

[a]This list contains 29 items that a majority of clinicians (>80%) indicated were "necessary for all outpatient providers" when developing a care plan for a recently discharged elderly patient.
[b]This list contains seven items that were deemed "helpful, but not always necessary" when developing a care plan for a recently discharged elderly patient.
Abbreviations: DNR, do not resuscitate; SNF, skilled nursing facility.

- Include all necessary information in the discharge information. The discharge summary should address the 29 items identified as necessary for inclusion. Consider including the additional seven items that were deemed as helpful, but not always necessary by most clinicians.
- Standardize the way medication information is presented. The medication list is a care-critical section of a discharge summary, yet the evaluation team noted various inconsistences in this section. The discharge summary should identify all medications, electrolytes, and fluids (including fluid delivery information) given during the hospital course. The discharge medication list should include the medication name; dose, dosage unit, and frequency; indication; and start date, end date, or refill dates, as well as indicators of whether the medications are newly prescribed or temporary.
- Provide additional information about inpatient clinician(s) to facilitate future communication. Most discharge summaries only included the signature of the discharging clinician.
- Include page numbers, using the "Page x of y" format. All reviewed discharge summaries in ECRI's study lacked page numbers.
- Use consistent font size, type, and spacing throughout the document to improve readability.
- Ensure that the layout and indentation are consistent across the document. This will help readers quickly and easily identify the main issues/topics being covered within the section.
- Ensure that the content matches the headings and subheadings within each section. Information within each section should be relevant to the section heading.
- Avoid using all caps.
- Balance text and white space. Ensuring that there is a good balance of white space and text on every page will facilitate readability.
- Ensure sufficient and consistent use of color and contrast. The text should have sufficient contrast from the background to facilitate readability.
- Avoid section headings without accompanying text. If a section is blank, populate it with "—" or "not included" so that readers can easily verify that it was intentionally left blank.
- Include date and time information when relevant. For example, ensure that the date and time (if needed) of exams or lab tests are prominently mentioned.
- Do not allow page breaks between section headings and section content.
- Grade the patient's condition and provide a summary justification. The patient's admitting and discharge condition should include at least a grade (eg, poor, good) and also a justification for the grade.
- Avoid abbreviations.
- Include prompts, to create more useful documents. Prompts for the types of information to include in discharge summaries could help to reduce the variability in quality. Examples of prompts include "add patient's physical and cognitive ability" or "add patient's DNR information."

Box 1. Recommendations to improve discharge summaries to support care coordination

evaluation of simulated discharge summaries for four older patients. This is a type of usability evaluation that employs expert reviewers to identify potential usability issues that can help inform and focus future improvement efforts.

ECRI developed a 36-item list of required data to help study the usability of discharge summaries. This list, which served as new "content" heuristics, was combined with 17 previously developed medical document usability heuristics, which ECRI used to assess the usability of after-visit summaries in a prior study.[3] The new 36-item list was developed based on literature review and in-person interviews with outpatient clinicians responsible for developing patients' care plans after hospital discharge.

A web-based survey was sent to a targeted group of ECRI's aging services provider clients to evaluate the usefulness of the 36 items. Based on complete responses from 58 facilities, the list of 36 discharge summary items was separated into two lists. The first list contains 29 items that a majority of clinicians indicated were "necessary for all outpatient providers." Items include patient diagnosis at admission and discharge, discharge medications, laboratory tests and results (including pending results), emergency contact information, and patient weight. The second list contains seven items that were deemed by clinicians as "helpful, but not always necessary" when developing a care plan for a recently discharged older patient. The list includes activities of daily living status and wound, skin, and fall assessment.

To create simulated discharge summaries, ECRI worked with two partnering hospitals, which use EHRs from two different vendors, to obtain anonymized copies of 10 patient discharge summaries generated by their EHR systems. The researchers randomly selected two of the 10 summaries from each hospital and, after dei-dentifying the patient data and using fictitious data for doctors' and organizations' names, created new documents that looked identical to the original documents (ie, same font size and style, layout, headings, etc).

A five-person human factors team applied the newly developed list of items recommended for inclusion in discharge summary and the previously-defined medical document usability

heuristics to identify potential usability issues. Next, a team of four clinical experts was asked to independently review the simulated discharge summaries, rate the severity of each usability issue based on its potential to affect patient care, and then describe and rate any additional problems they found in each document.

Content and Quality of EHR-Generated Discharge Summaries Varies

ECRI's evaluation of EHR-generated discharge summaries found widely varying quality, as rated by the experts who assessed them. Of the 36 required and recommended items, only eight were included in all four of the simulated discharge summaries that ECRI analyzed. These eight items included date of admission and discharge, diagnosis at admission and at discharge, discharge meditations, and procedures performed in the hospital. Moreover, all four discharge summaries were missing 11 of 29 items identified as necessary for PAC providers to develop a patient's care plan. Missing items included a patient's immunization history, patient demographics, and discharging physician contact information.

Listed in **Table 1** is the information needed by PAC providers to coordinate care for recently discharged older patients. The list contains the 29 items that a majority of clinicians (>80%) indicated were "necessary for all outpatient providers" when developing a care plan for a recently discharged patient. It also contains the seven items deemed "helpful, but not always necessary" when developing a care plan for a recently discharged patient.

Recommendations to Improve Discharge Summaries

Based on the usability issues identified by the human factors and clinical experts, ECRI developed a list of recommendations to inform EHR design, policies, and procedures for generating documents that effectively support care coordination for recently discharged patients (**Box 1**).

Conclusion

While the list of discharge summary items identified in ECRI's study needs to be refined and verified by a larger number of PAC providers, this work represents a necessary starting point for eventually standardizing the content, organization, and presentation of information in all adult patient discharge summaries. Aging services facilities can use the recommendations to promote seamless sharing of patient data with hospitals that discharge patients to their facilities. Aging services providers' ability to deliver safe and high-quality PAC care depends on receiving accurate and complete discharge information from hospitals. ■

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