SHR ONCOLOGY / FLUX NOTES
USE CASES + NEEDS v01.1

By Edwin Choi (edwin@goinvo.com), Juhan Sonin (juhan@goinvo.com), Joey Nichols (jsnichols@gmail.com)
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The purpose of this document is to describe and prioritize the users and use case scenarios for SHR oncology (Flux Notes). The bottom of the document describes additional use cases outside of the current scope of Flux Notes. Future use cases should continue to concurrently be developed in order to ensure communication of strategic long term vision. Sources for this research are listed at the bottom of the document.

Users

1. Medical oncologist/surgical oncologist
2. Nurse practitioner
3. Physician assistant
4. Patients

Pain points across providers

- Searching for specific patient data/information requires too many clicks and is at times not findable
- Information overload: too much information is initially presented in the patient record
- The format of data presentation (tables and cells, narrative based, etc) as well as the selective and prioritized view of content in the patient record, is not in line with the use case or providers cognitive workflow
- Not enough insight/synthesis/plan-of-care driven presentation of the patient record
- Too much time is wasted on navigating and inserting information into the medical record interface (the average encounter is ~15 minutes)
- Should accommodate provider data entry preferences (less common: some providers try to fill out the note as they are seeing the patient. More common: provider captures data and writes note after the patient encounter)
- Not enough time in the medical encounter for interpreting patient data

- Providers feel pressured to enter documentation elements they don't necessarily need, often for payment purposes

Use cases

Use case 1:

Oncology based provider in a hospital or clinic (oncologist, PA, NP) reviews patient information during pre-encounter

Workflow

1. Provider opens and views the specific patient's record (multiple users/providers may review the record together)
2. Provider reviews the patient information that the system has analyzed, aggregated, and prioritized as important, in a human-readable visual narrative format (based on user, use case, domain)
3. Provider searches the patient's record for any specific pieces of information they may need to remember for the encounter
4. While browsing the record, the provider fills in gaps of missing data (currently more likely to occur after a patient encounter)

Needs (short-term)

View

- [data] Human readable, summarized view of the patient (must be clear that a subset of information is being shown. Indication that more information is accessible)
- [data] Current protocol the patient is on
- [data] Longitudinal timeline view of patient history
- [data] What portion of the protocol the patient is on currently (cycle 3, day 5)
- [data] Major medical events the patient has had (fever, readmission)
- [data] Recent lab tests (blood count, etc)
- [function] Ability to customize default views of the patient
- [function] Ability to fill missing gaps in data

Search

- [function] Ability to search for specific information or word in previous clinical notes
- [function] Ability to search/view previous clinical notes
- [function] Ability to search for a specific data element in the patient record

- [function] Aggregated, prioritized view of searched data

Needs (long-term vision)

- [function] Advanced search allows the ability to search for concepts and synonyms
- [function] Ability to compare and contrast chosen information (e.g. medication vs toxicity, treatment progression timeline vs tumor size trends)
- [function] System generated CDS or plan of care for the provider to review (very long term goal)

Use case 2:

Oncology based provider in a hospital or clinic (oncologist, PA, NP) creates a new clinical note during a medical encounter. This is typically written after the patient encounter, less commonly occurs during the patient encounter.

Workflow

1. Provider opens and views the specific patient's record
2. Provider starts a new clinical note by choosing an ideal template based on the latest standards of care, relevant to the type of medical encounter (follow-up, post surgical, etc)
3. A majority of the clinical note (~90%) is generated based on the chosen template
4. Provider reviews the patient information that the system has analyzed, aggregated, and prioritized as important, in a human-readable visual narrative format (based on user, use case, template)
5. Provider speaks to patient about her condition, how they are feeling, etc.
6. Provider begins clarifying portions of the generated note via typing or dictation
7. Provider reviews the pre-populated plan of care and gaps in care (based on previous care of current patient, care of similar patients, other doctors care of similar patients, standards of care, local protocols, best practices)

    a. In the short term, showing generalizations of risk factors (e.g. patient has 5 risk factors for lupus, etc), or showing a risk score (e.g. based on certain risk score, a head CT is recommended), or risk factors (has 5 risk factors for lupus, etc), and leaving spaces in the generated care plan for the provider to fill in, check off, place order sets
    b. In the long term, a suggested plan of care can be generated, with the provider validating/editing the suggested plan of care
8. Provider makes modifications to the plan based on patient values and preferences
9. Provider signs the note

Needs (short term)

View (same as use case 1)

- [data] Human readable, summarized view of the patient
- [data] Current protocol the patient is on
- [data] Longitudinal timeline view of patient history
- [data] What portion of the protocol the patient is on currently (cycle 3, day 5)
- [data] Major medical events the patient has had (fever, readmission)
- [data] Recent lab tests (blood count, etc)
- [function] Ability to customize default views of the patient
- [function] Ability to fill missing gaps in data

Search

- [function] Ability to search for specific information or word in previous clinical notes
- [function] Ability to search/view previous clinical notes
- [function] Ability to search for a specific data element in the patient record
- [function] Aggregated, prioritized view of searched data
- [function] Ability to search for a specific data element or word within the note that is being written

Note creation

- [function] Ability to choose from a set of ideal templates based on standards of care
- [function] Ability to write in a text editor dictate
- [function] Ability to insert structured patient data using symbols/smart/dot phrases
- [function] Ability to save and sign off a clinical note

Needs (long-term vision)

- [function] Advanced search allows the ability to search for concepts and synonyms
- [function] Ability to customize templates
- [function] Inclusion of ‘crowdsourced’ provider validated templates based on outcomes of care
- [function] Sharing permissions surrounding customized templates
- Care plan based CDS (very long term vision. e.g. 6 generated breast cancer protocols that the provider can review)

Future users for the SHR

- Primary care provider
- Patient
- Providers in other domains/specialties…
- Researchers

Future use cases for the SHR

Use case 3:

A data curator wants to find and fill in the missing gaps in the patient records that have the highest priority

Use case 4:

Patient self-assessment/telemedicine

- The patient is at home and notices a symptom → the patient decides to contact the care team → series of protocol questions relating to the symptom(s) are answered → diagnosis and intervention is suggested by the clinician → the intervention is validated by the patient = patients review template
- Patient may need to add data. Contributing to chart over time. Patient's own documentation template

Use case 5:

Primary care provider medical encounter

- On the day of the appointment, the patient's medical record reminds the patient that they should check-in → series of questions are answered in order to gain information relevant for the check-in → the patient meets with the primary care provider and the face to face encounter begins → primary care provider opens the patients SHR record → The encounter is documented into the patient's SHR → the patient returns home and begins treatment by viewing care instructions within their SHR platform

Use case 6:

Care team members update a patient's SHR record

- The care team member opens the patient's SHR → authenticates user and returns portions of the SHR that the care team member is authorized to view/edit as determined by the patient → Care team member updates address information for the patient → the patient is notified of the change → the change is authorized by the patient → the SHR is updated

Use case 7:

Patient and the provider collaborate to fill out the clinical note together

Use case 8:

Urgent care encounter using the SHR record

Use case 9:

A patient wants to help fill in their own gaps in data for their health record (during waiting room, at home, etc)

Use case 10:

Additional domains/specialties…

Use case 11:

Researchers aggregate and analyze data from the SHR in order to inform new standards of care

Use case 12:

One specialty desires to view another specialties information (e.g. emergency department wanting to view other domain information relevant to the ER patient)

Research sources for users/use cases/needs (excludes future users/use cases. Raw notes are available in separate documents as needed for future reference)

- 16 October 2017: SME validation of design concepts with Dr. Joey Nichols (primary care)
- 14 October 2017: oncology department clinic shadowing at Dana Farber Cancer Institute
- May 2017 → present date: shr-oncology listserv discussions
- 25 September 2017: SHR spec + use cases meeting at MITRE Corporation campus in Bedford with Edwin Choi, Dr. Jonathan Teich, Salim Semy, Andre Quina, Greg Quinn
- 30 May 2017: oncology department clinic shadowing at Dana Farber Cancer Institute with Dr. Suzanne George (medical oncologist)
- 26 May 2017: project meeting with Dr. Mark Fairweather (surgical oncologist)