Flux Notes

MID PROJECT VISION DOCUMENT v03

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1. Summary

There are materials and assets already describing the overarching goal and strategy for Flux Notes in relation to the SHR oncology moonshot. The goal of this document is to revisit the more specific vision and strategy for design and development for Flux Notes itself, to ensure shared team understanding of that vision moving forward in order to inform the next steps in design and development.

The first portion of the document will describe the future vision of the Flux Notes service, and the second portion describes the shorter term project and design goals for Flux Notes, from spring to summer of 2018.

2. Vision of the Flux Notes Service

Design and build the next iteration of Flux Notes using the envisioned future state of the product, driven by more delightful data capture, improved automation of clinical note creation and increased patient-provider collaboration to provide more complete patient health records and better encounter experiences.

Work closely with oncology based providers to ensure that Flux Notes content is clinically accurate, and the interactions closely tied to relevant clinical workflow use cases.

Incorporate patient touchpoints into Flux Notes. Drive adoption and dissemination of the Flux Notes design and method by creating assets that further communicate the value of Flux Notes. Elucidate the framework and principles of Flux Notes and how it fits into provider workflows and interacts with patients.

Promote buy-in from EHR vendors and providers through dissemination and communication of its concepts, driven by qualitative and quantitative research to prove the efficacy of Flux Notes within a clinical space.

2. Service Goals

Flux Notes is an open source, standard health record based application that will demonstrate the collection and curation of structured high quality, longitudinal and computable health record data to support clinical decision making and research, starting with the oncology space and moving into other domains such as primary care.

For the Provider

1. Collect and curate research quality structured data that is detailed enough to support clinical research and precision medicine without increasing workflow burden.
2. Use high quality structured data to present actionable patient information at the right time in the right format, in the context of the patients longitudinal health record.
3. Drive clinical decision making by generating care regimens and patient insights through the curation of both retrospective and prospective high quality structured data.
4. Self documenting encounter.

For the Patient

1. Improve interaction during the medical encounter by using insights and patient visualizations to increase patient-provider collaboration. Lower clinician burden results in greater engagement with the patient.
2. Greater patient reported outcomes drives health record completeness to inform collaborative visualizations and care planning.
3. Demonstrate the concept of a patient encounter data receipt.

3. Expected Use cases

- **Patient (or caregiver) pre-encounter**
  The patient (or caregiver) notices, or a service senses, a symptom via while on their medication regimen at home. She digitally records the information on the symptom and the PRO data gets pulled into the health record. The health record information is pulled into the relevant EHR, and into Flux Notes. The content of this PRO is acknowledged the next time a provider opens Flux Notes. (v4)

- **Collaborative encounter**
  During the encounter, as the patient and Oncologist discuss test results and current status, she toggles a collaborative mode in FluxNotes. Patient and clinician view the display together to view and discuss imaging results, relevant visualizations, and next steps in care. While reviewing the current medication regimen, the patient comments on experienced side-effects, which are recorded. They discuss and review a modified regimen, and view a timeline of the next steps in care. (v1)

- **Self-documenting encounter**
  The clinician opens FluxNotes and selects a visit-type template as she begins the exam. The patient discusses her concerns, and they discuss. The system listens, analyzes, and populates a note. The clinician then suggests a change in medication and a follow up visit. The system has already produced tentative changes in the SHR, along with new visualizations of the medication plan for them to review together. After the visit, the clinician quickly reviews the entries in the note, confirming or rejecting each one. She finishes by signing the note. (v4)

- **Patient post-encounter**
  Later in the afternoon, the patient receives a patient encounter data receipt. She confirms the new data and notes on what was discussed. Any corrections are pushed up into the health record. She familiarizes herself with her new medications in the FluxNotes Patient View. (v2)

- **Caregiver post-encounter**
  The patient's primary caregiver wasn't able to attend the office visit. That afternoon, he receives a patient encounter data receipt to review. Any corrections are pushed up into the health record. He confirms that his wife's new headaches were duly noted, gets updated on the new medication plan, and learns about a new clinical trial they are eligible for. (v2)

4. Current Project Goals

Project goals

Continue refining Flux Notes for provider use in the DFCI data curation study. At the same time, design and develop the next step for Flux Notes that shows the future of Flux Notes, and by extension, the future of health records. Package the insights, both qualitative and quantitative, from the project thus far, in order to have a dissemination tool describing the future direction of health records and their relationship to the structured data within them.

1. Test the current iteration of Flux Notes with providers at DFCI in order to compare and contrast its efficacy with an existing EHR (EPIC) as well as validate the SHR approach, within a well defined oncology clinical scenario use case.

2. Design and develop the next micro iteration of Flux Notes that alludes to the future vision of Flux Notes.

3. Create concepts surrounding the self-documenting encounter, that highlight core functionality and ideas within the future vision of Flux Notes.

4. Package insights about the use of structured data within a future facing health record view like Flux Notes. This package can be a tool for disseminating principles, concepts, and ideas surrounding the future view of the health record and its interactions.

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Example Performance Indicators

- Decrease in the time to review a patient case
- Decrease in the time to author a clinical note
- Increase in the time spent engaging with the patient, rather than the EHR
- Increased high quality data capture rate for the patient record
- Increased patient co-engagement with their health record
- Improved qualitative patient experience of the clinical encounter
- Improved accuracy in patient information capture
- Decrease in time spent outside of patient encounter, to author a clinical note
- Subjective satisfaction value in using Flux Notes vs EHR

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Demonstrating the Vision

The following concepts would allude to points 2 and 4 for the provider, as well as all of the patient points, within the vision of the Flux Notes service. These are meant to be minimal first steps in terms of design and development in order to demonstrate future facing concepts, and are not meant to be fully expanded and polished product level functionalities.

- Patient reported (active or sensed) data is inserted into Flux Notes. This is indicated upon opening Flux Notes by the provider.
- Patient-provider oriented visualization (medication, labs, etc) within the in-encounter view guides discussion for current patient status and next steps in care.
- Indication of the generation of a patient encounter data receipt, upon signing of a note by the provider.
- Improve note input to a more natural interaction that provides support for future dictation of clinical notes.

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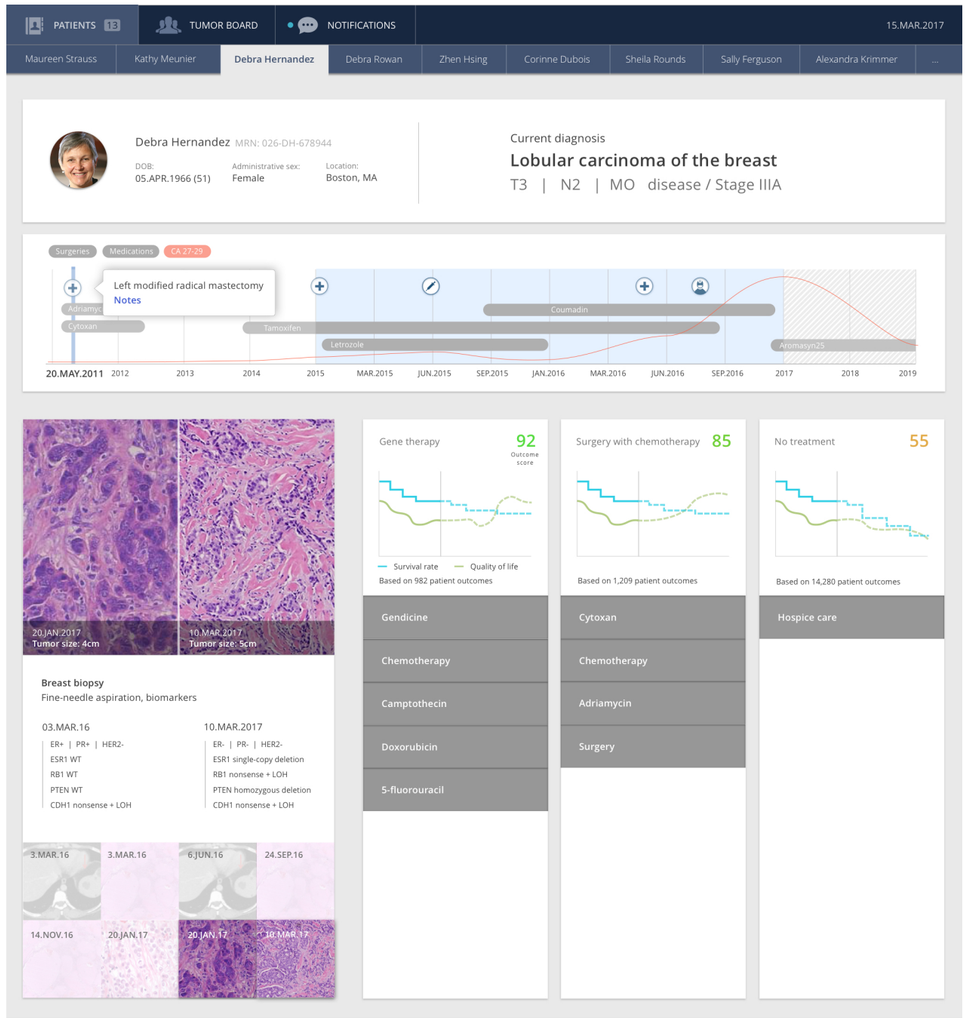
Visioning concepts

A portion of the design allocation (~20%) should be towards exploring future facing Flux Notes concepts. These can serve as a guide for ensuring the shorter term iterations of Flux Notes are headed in the right direction, as well as used as assets for disseminating future based insights that were collected collected from the project thus far.



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Packaging insights

Knowledge gained from the project thus far on the design of future health records should be documented in a dissemination focused format to be freely shared by providers, EHR vendors, and patients alike. Insights from this open source project should be available for the public to use, to serve as reference, inspiration, and to inform future health record services.

- Principles surrounding the needs of both patients and providers in relation to interacting with the health record.
- List of health record design principles for navigating and interacting with a structured, longitudinal health record.
- Examples of the health record design principles, using current Flux Notes mockups, as well as future vision concepts.
- Qualitative (provider interviews and meetings) and quantitative (MITRE data curation study) evidence attached to the above principles.