MedKnowts

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Abstract

Clinicians spend more time in **electronic health records** than **with patients**. Due to the high documentation burden, the **free-text notes** are often messy.

30 y/o F suffering post asthma	Pt p/w h/o cp s/p
Narrative Unstructured	Domain Specific Jargon

Data in unclear and unstructured notes makes it difficult for patients to understand their own health, for doctors to sift through past notes, and for researchers to gather data.

Introduction

We propose a reimagination of clinical note taking which tackles this problem at point of care.

We have developed techniques to help computers gather more information about clinical notes as doctors are writing them, and show how this data can be used to augment notes with contextual data, speed up the clinical note taking process, and potentially reduce clinical errors.
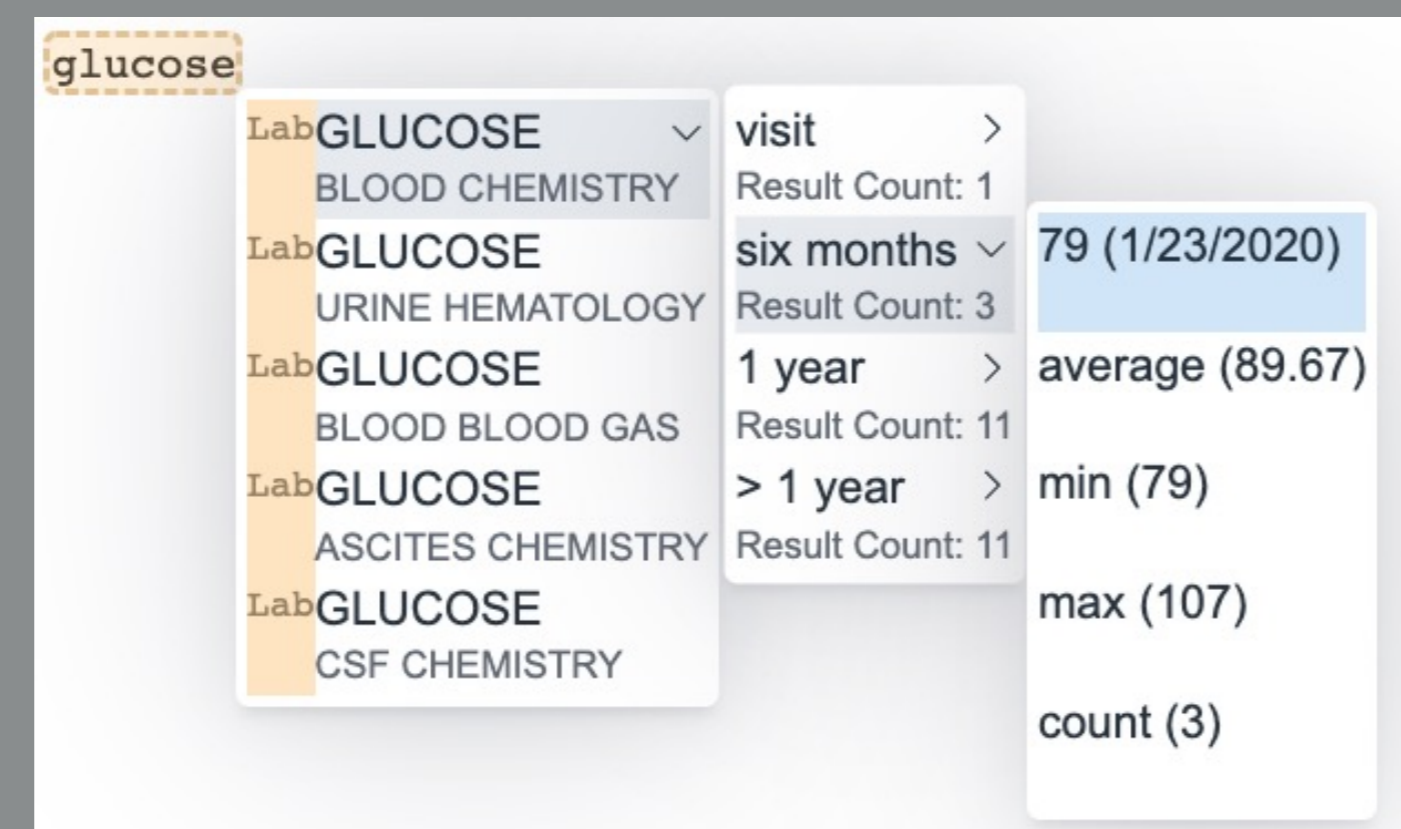
Methodology

AIM #1: Create semi-structured notes

Contextual autocomplete quickly captures clinical concepts at the point-of-care via learned, personalized suggestions..
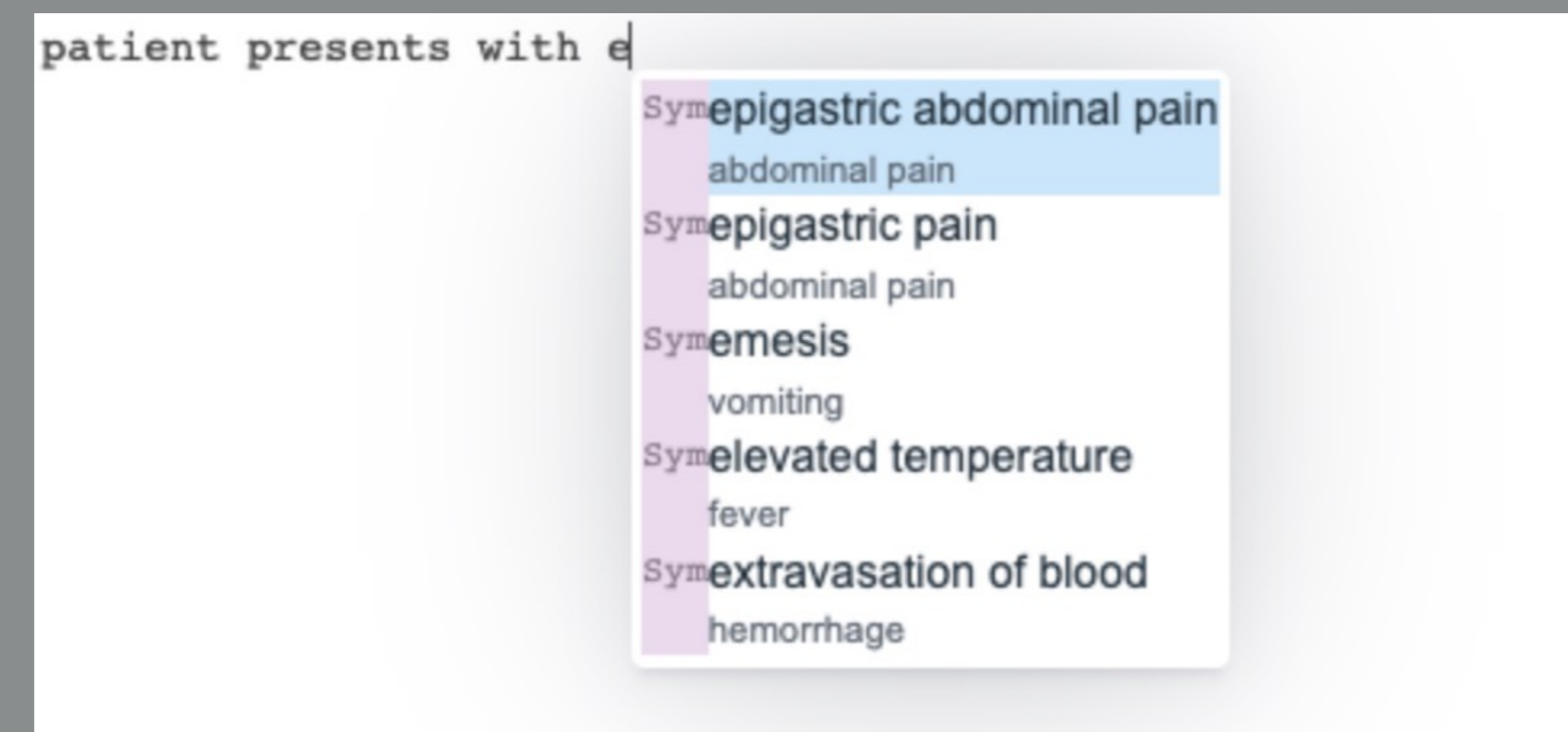

Contextual autocomplete enables **information retrieval and decision support**

Our system is optimized for and tested in a **live ED setting**. We use prior **medical history** and **triage information** to personalize recommendations.

### AIM #2: Provide opt-in Passive Augmentation

Automatic Highlighting of clinical terms as the user types enables rapid scanning of the clinical note.
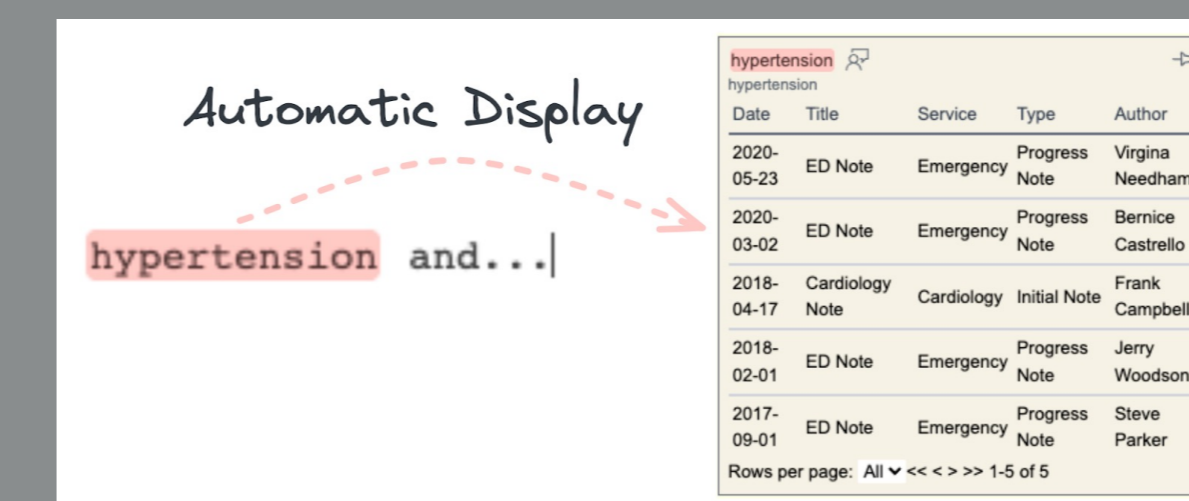
Clinical terms are **Automatically linked to well know clinical ontologies** enabling downstream data collection.
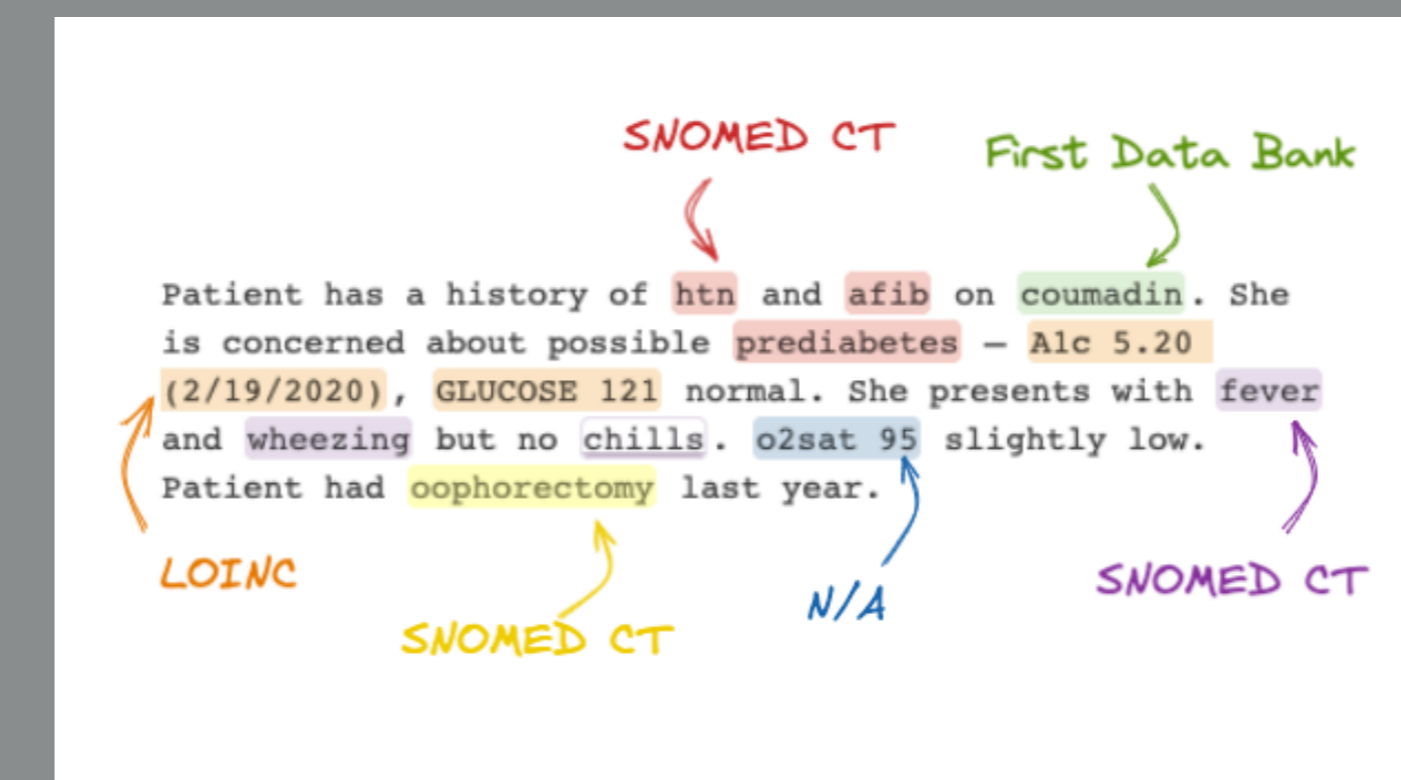
Concept oriented views provide concise, synthesized summaries of the patient medical record, directly in the documentation interface, reducing workflow fragmentation.
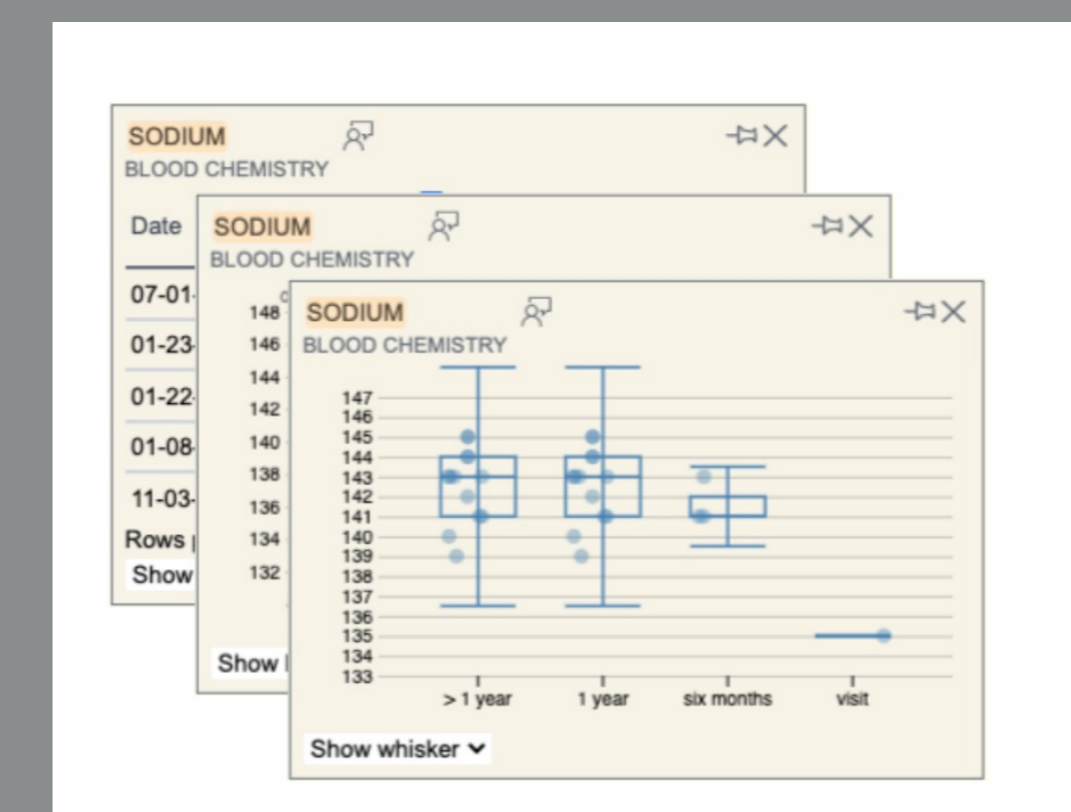
Results

User studies show a **massive increase in perceived usability** when compared to existing EHRS

83.75	45.9
MedKnowts	Existing EHRs

System Usability Scores

Users found that autocompleted terms **speed up workflows**, syntax highlighting enabled **rapid skimming of the note**, and contextual cards help doctors **rapidly familiarize themselves with new patients.**

Conclusion

MedKnowts provides a small glimpse of a future where EHRs are intelligent systems that augment, rather than hinder doctors workflows.

Acknowledgements