

Introduction

- A major barrier to EHR adoption is that clinicians find these systems inefficient and difficult to use[1]
- There is a lack of objective and reliable measures of user performance for common clinical tasks in EHRs
- Keystroke Level Models (KLM) can be used to analyze work flows and identify factors for work flow optimization, and have been demonstrated to accurately predict skilled user performance time [2, 3]

Research Goals

- Measure skilled user performance time for tasks within NIST meaningful use cases (MUCs) [4]
- Establish benchmarks for MUC time
- Compare and analyze work flows for MUCs across EHRs

Method

- CogTool [5], a KLM tool, was used to analyze 6 MUCs (e.g., ePrescribing, smoking status) across 3 EHRs
- Task execution times were predicted by CogTool, and resulting times were compared across EHRs
- Time for each physical operator (see Figure 2) was analyzed for variability
- Recommendations for improving task efficiency were generated

For additional information, please contact SHARPC@uth.tmc.edu

Results

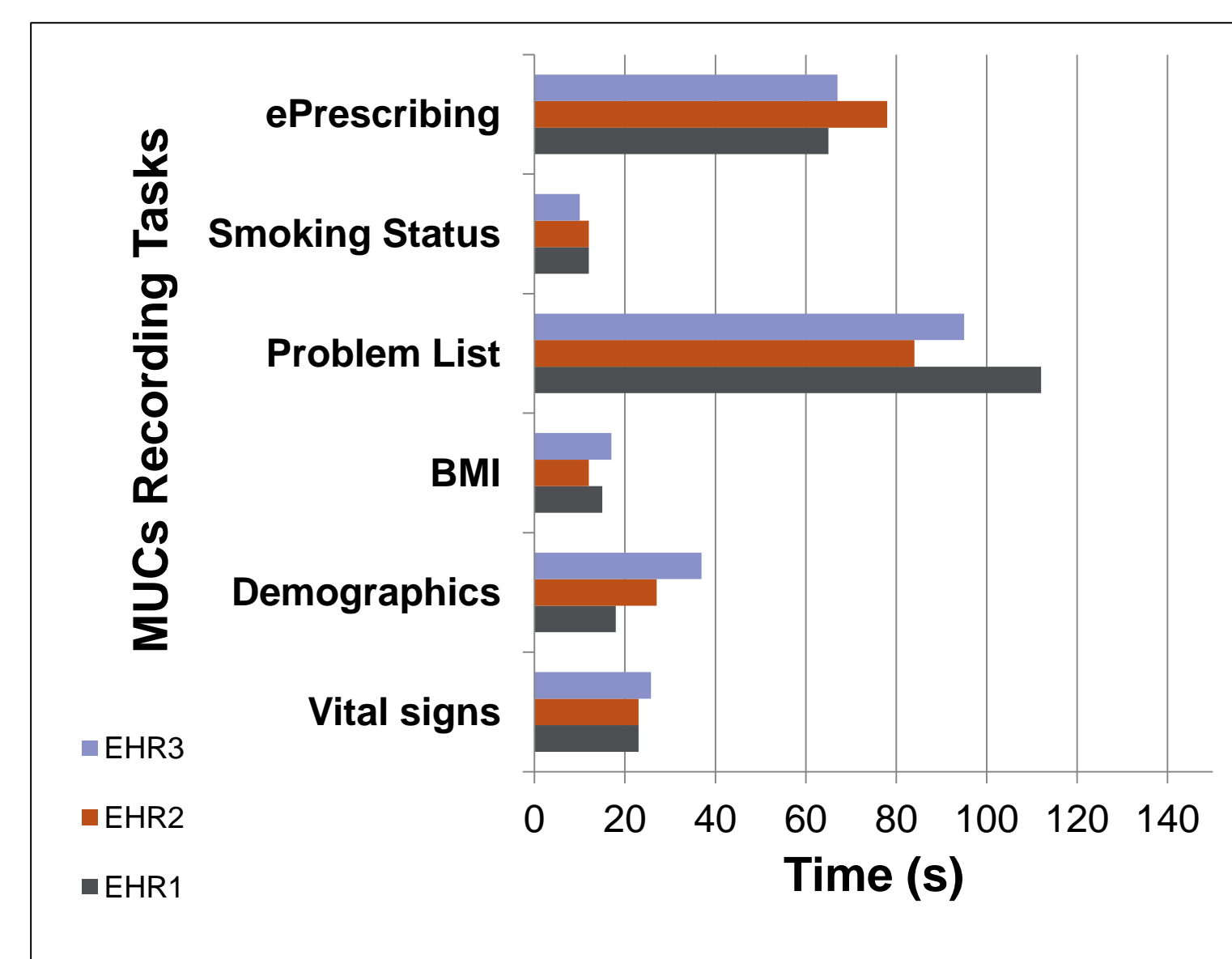


Figure 1. Predicted task execution time for 6 MU objectives across 3 EHRs

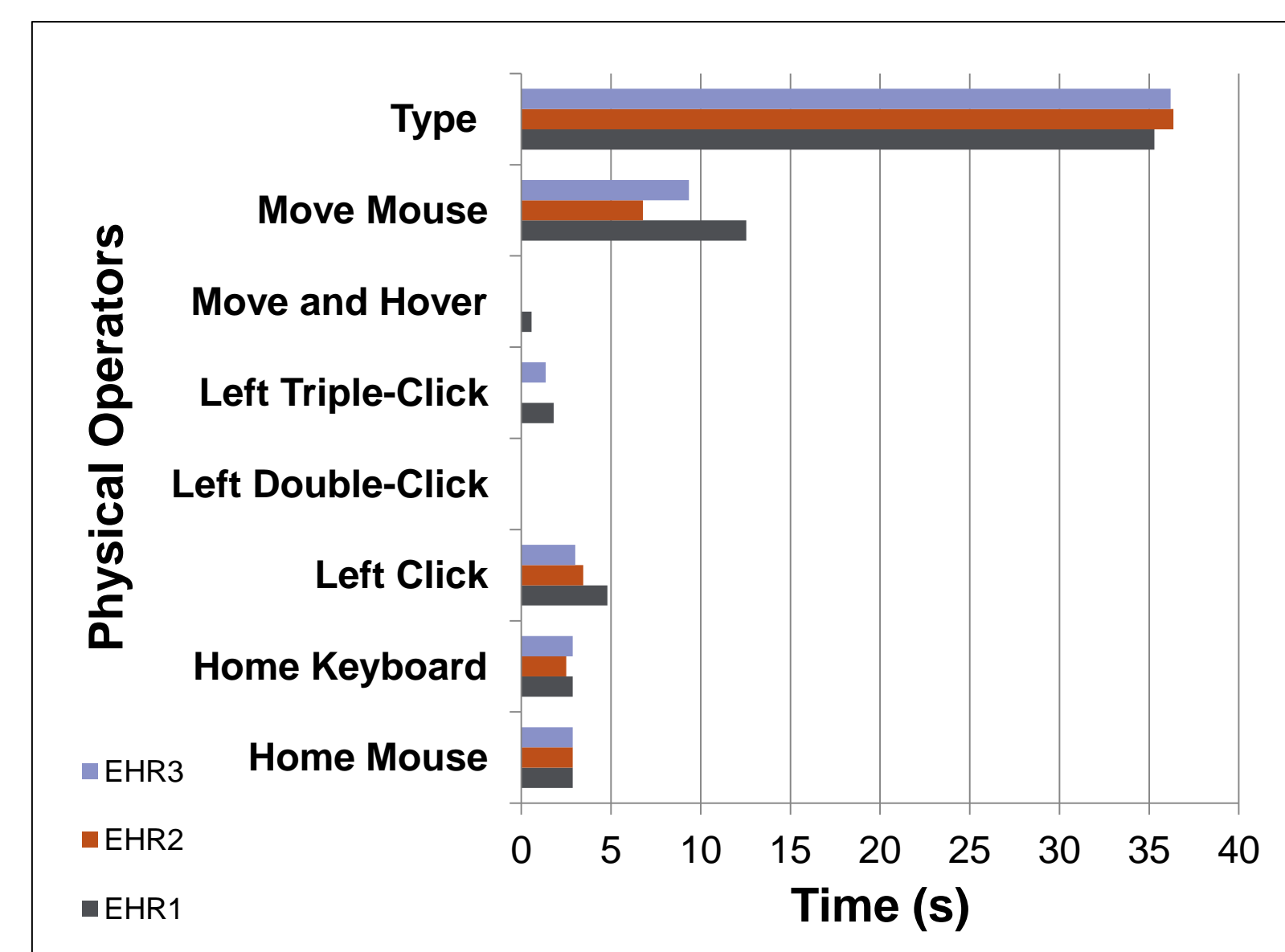
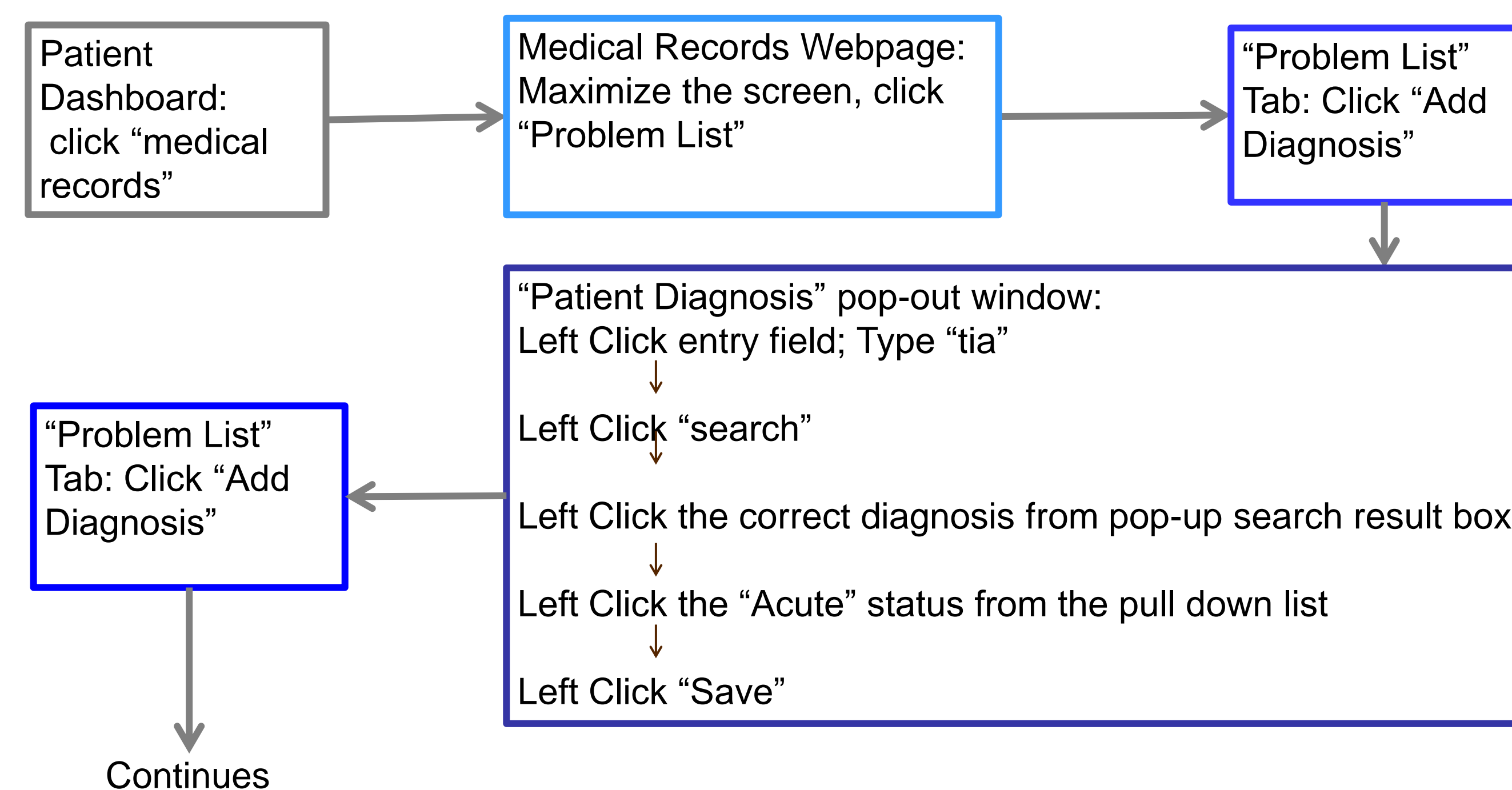


Figure 2. Time for physical operators in Recording Problem List across 3 EHRs

Portion of work flow for recording problem list for EHR1



Summary of Conclusions

- Although KLM results were different across MUCs, there was surprising consistency in task time across the 3 EHR products
 - Problem List had the longest execution time and greatest variability across EHRs

Next Steps

- Compare and analyze clinical task work flows in different EHRs
- Optimize the work flow according KLM to reduce task execution time
- Collecting data across larger samples will allow creation of benchmarks for NIST MUCs

References

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Acknowledgement

This project was supported by Grant No. 10510592 for Patient-Centered Cognitive Support under the Strategic Health IT Advanced Research Projects (SHARP) from the Office of the National Coordinator for Health Information Technology.