Apples to Oranges: Protocols for SED Testing

Dr. Amy Franklin
Apples to Oranges: Protocols for Safety Enhanced Design

Amy Franklin
Electronic Health Record to Electronic Health Record
Comparing EHR systems?
Initial comparisons

* Features and Functionalities
* Hosting Systems
* Cost

What about usability?
Comparing for safety?
2014 EHR Certification: Safety Enhanced Design

- Required Evidence of User Centered Design (UCD)
- Summative Testing reported using the Customized Common Industry Format Template for EHR Usability (NISTIR 7742)

Applicable to 8 Meaningful Use Objectives:

<table>
<thead>
<tr>
<th>Computerized Provider Order Entry</th>
<th>Drug-drug/drug-allergy interaction checks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Medication List</td>
<td>Medication Allergy List</td>
</tr>
<tr>
<td>Clinical Decision Support</td>
<td>Clinical information reconciliation</td>
</tr>
<tr>
<td>Electronic Prescribing</td>
<td>Electronic Medication Administration Record</td>
</tr>
</tbody>
</table>
Missing Usability Reports
Variation in Procedures

* Variation in procedures and reporting (secs/minutes, within target time).
* Total testing session duration varied from 5 minutes to 4 hours (mode 60 minutes)
* Participants ranged from 2-19

Test scenarios include:
  * Modification of drugs and tests to fit with clinical practice
  * Prescriptive directions
  * Combined tasks (medication list review, allergy list review, discontinue medication, add medication, send e-prescription and verify changes)

* Task failures and areas for improvement were reported
NIST Resources

NIST Guide to the Functional Approach for Improving Usability of Electronic Health Record Systems

Customized Common Industry Format Template for Electronic Health Record Usability Testing

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ONC Resources

Test Data for §170.314(a)(1) Computerized provider order entry

Reference the test procedure for test data implementation guidance.

RxNorm codes, National Drug Code (NDC) product codes, Logical Observation Identifiers Names and Codes (LOINC®), and Current Procedural Terminology (CPT®) codes are not required to meet this certification criterion. They are provided for reference only. All status data are Vendor-supplied; no standard format is required.

Ambulatory Setting Test Data

TD170.314(a)(1) – 1: Electronically Record Orders in an Ambulatory Setting

Orders Test Data - Set 1

Medication Orders

- Simvastatin 20 mg tablet by mouth once daily; dispense 30, 1 refill
  RxNorm code: 312961; sample NDC product code: 52959-989
  Status: Vendor-supplied (for example, Active)

- Lorazepam 0.5 mg tablet by mouth three times daily; dispense 20, 1 refill
  RxNorm code: 197900; sample NDC product code: 54868-2145
  Status: Vendor-supplied (for example, Active)

- Insulin Glargine (or Lantus) 10 units once daily; package of 5, 2 refills
  RxNorm code: 479396; sample NDC product code: 9930-9810
Providing protocols for more uniform testing

- Replicating test participant’s experience by using most frequent drugs and conditions
- Based off large patient dataset to improve ecological validity
- Two populations of major metropolitan areas (including 100,000 patients in one dataset)
  - For example, we use three medications for the use cases revolving around medication lists as this is the median number for our dataset
TASK 1 – MEDICATION LIST - REVIEW, RECORD, & MODIFY (JULIE)

Julie, a 62-year old female, has come to your clinic today for a follow-up on her hypertension, which you diagnosed six months ago. During that visit, Julie also mentioned taking 20 mg Lipitor. In that Julie is a relatively new patient to your practice, you are concerned that her medication list is not up-to-date. Your first task is to review the medications that Julie is currently taking to ensure that it is complete and correct.

After locating the medication list and reviewing it, you ask Julie to verify if she is still taking 20 mg Lipitor. However, this time Julie has the bottle with her and she notices that it states 40 mg. Your second task is to correct this in her record.

After making the Lipitor correction, you ask Julie if she is taking any other medications. She reports that she is taking Centrum Silver for Women, ibuprofen for regular aches and pain, and Claritin for allergies. Your third task is to enter
2015 Proposed Rules

Whether the scope of “Safety Enhanced Design” should be expanded to include additional certification criteria;

* Whether formative usability tests should be explicitly required, or used as substitutes for summative testing;
* Whether there are explicit usability tests that should be required in addition to summative testing; and
* Whether there should be a minimum number of test subjects explicitly required for usability testing
You compare apples and oranges

* For success of completed tasks
* Discussion of safety precautions and remaining risks
* You can even publish on it!