

A pair of glasses is centered in the upper half of the image. The background is a dark blue color with a repeating hexagonal pattern. The glasses are rendered in a lighter shade of blue, showing the frame and lenses. The text is positioned below the glasses.

Common Industry Format: What It Is, What It Isn't and Why It's Useful

Robert Schumacher, PhD.

Managing Director
User Centric, Inc

A pair of glasses is centered in the upper half of the image. The background is a dark blue color with a subtle, repeating hexagonal pattern. The glasses are rendered in a lighter shade of blue, showing the frames and lenses. The text is positioned below the glasses.

9 out of 10 Doctors Prefer the Common Industry Format for Reporting Usability Testing Results

Robert Schumacher, PhD.

Managing Director
User Centric, Inc

What is the Customized Common Industry Format (CIF)?

- **Purpose:** Provide greater visibility and consistency in *describing usability testing processes and reporting those results*
- ‘*Customized*’, in this case, means an illustrative example template for electronic health records
 - Primarily, intended for ‘summative’ or validation usability testing
 - Extended for ‘formative’ or exploratory usability testing



What it is...

- Document outline for reporting usability testing methods and results
- By providing a standard outline we can demonstrate evidence of usability activity in a format that allows
 - independent evaluation of tasks in a single product and
 - comparison across multiple products.
- Reporting framework within current best practices

Table of Contents

1	EXECUTIVE SUMMARY
2	INTRODUCTION
3	METHOD
3.1	PARTICIPANTS
3.2	STUDY DESIGN
3.3	TASKS
3.4	PROCEDURE
3.5	TEST LOCATION
3.6	TEST ENVIRONMENT
3.7	TEST FORMS AND TOOLS
3.8	PARTICIPANT INSTRUCTIONS
3.9	USABILITY METRICS
4	RESULTS
4.1	DATA ANALYSIS AND REPORTING
4.2	DISCUSSION OF THE FINDINGS

A photograph of a person in a patterned shirt and dark pants bowling on a wooden lane. A green bowling ball is in the middle of the lane, and the person is in a follow-through pose. The lane is flanked by blue gutters with white dividers. In the background, a white fence and other lanes are visible.

Guidance

Who uses the CIF?

- User Experience and Usability Professionals
 - Read and report using CIF
- Evaluators of application usability ← i.e., Providers
 - Make informed decisions concerning the release of software applications
 - Evaluate an application's usability test results
- Stakeholders in any organization
 - Many organizations have incorporated the CIF
- Some important points...

CIF Creates Basis for Dialog

- CIF provides a 'report card' for usability testing
- The CIF can create a productive dialog across developers, requirements, project managers, vendors, providers, and end users.
- Areas of discussion include:
 - Who are the users? User population definition
 - What is their context of use?
 - How to measure "success"
 - Functionality vs. clicks
 - Learning: 'Walk up and use' vs. one trial vs. training
 - What is the role of satisfaction?

CIF Provides Background and Context for Reporting...

- Measures of effectiveness and efficiency, and recommends including subjective satisfaction data
 - Measures for efficiency may include:
 - ‘Too many clicks’
 - Task time
 - Completion rate efficiency
 - Number of references to the manual
 - Measures for effectiveness may include:
 - Completion Rate
 - Number of Errors
 - Measures of satisfaction may include:
 - System Usability Scale (or SUS)

Illustrative Example

Conducting a Test and Reporting in CIF

- Identify the key user groups
- Identify critical and frequent tasks
- Define measurable usability goals
- Conduct usability testing
- Report using CIF to ensure goals have been met



Identify the key user groups

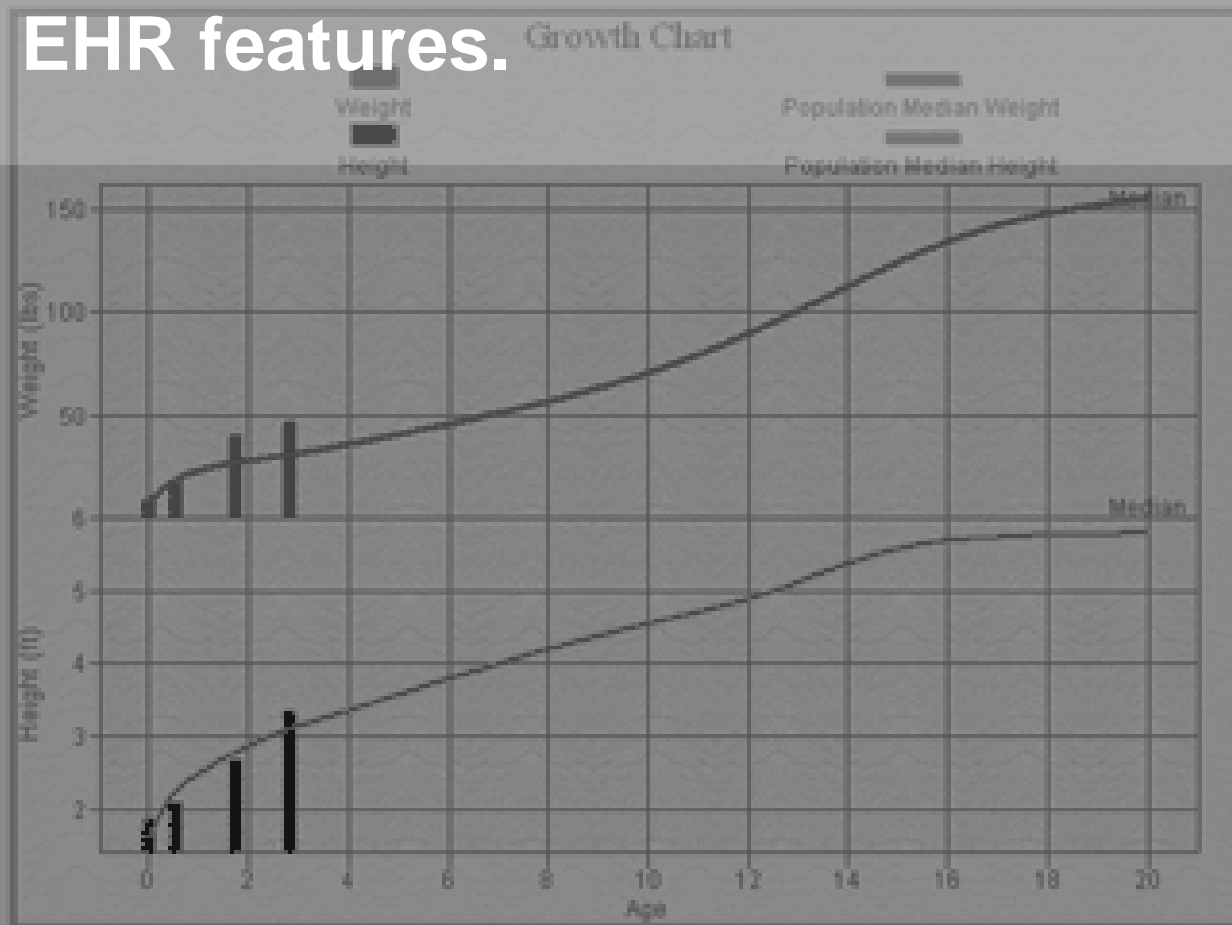
- **Users who will be doing the tasks**
 - Physician
 - Nurses
 - Administrative staff

Measuring Usability

User Groups: Physicians | Nurses | Administrative

Task	Measuring Usability Relative to Goals		
	Effectiveness Unassisted task completion rate of:	Efficiency Maximum user time	Satisfaction Post-task ratings on 5-point usability scale:
Task A			
Task B			
Task C			

- Identify critical and frequent tasks
- Critical tasks and frequent tasks will help prioritize EHR features.



Medical Reference Library

Maximize

Export Data

Close

Measuring usability

User Groups: Physicians | **Nurses** | Administrative

Task	Measuring Usability Relative to Goals		
	Effectiveness Unassisted task	Efficiency Maximum user time	Satisfaction Post-task ratings on 1-5
Create an appointment for a new patient			
Check patient insurance eligibility			
Enter patient vitals			

Benchmark current task efficiency

- **Benchmark current critical and frequent tasks in order to:**
 - Show that the EHR system produces better task efficiency than paper methods
 - Show improved efficiency over an existing electronic system
 - Project ROI for a given period
- **Benchmark by:**
 - Directly measure in current environment
 - Expert estimation

Measuring usability

User Groups: Physicians **Nurses** Administrative

Task	Measuring Usability Relative to Goals		
	Effectiveness Unassisted task	Efficiency Maximum user time	Satisfaction Post-task ratings on 1-5
Create an appointment for a new patient	Goal: 100%	Goal: 2 mins	Goal: 4.00
Check patient insurance eligibility	Goal: 100%	Goal: 1 min	Goal: 4.00
Enter patient vitals	Goal: 100%	Goal: 30 secs	Goal: 4.00 avg

Measure usability

- **Test representative tasks with representative users**
- **Measuring usability can be obtained via:**
 - Usability testing
 - Observation
 - Questionnaires
 - Log files

Measuring usability

User Groups: Physicians | **Nurses** | Administrative

Task	Measuring Usability Relative to Goals		
	Effectiveness Unassisted task	Efficiency Maximum user time	Satisfaction Post-task ratings 1-5
Create an appointment for a new patient	Goal: 100% Actual EHR A: 90% EHR B: 100%	Goal: 2 mins Actual EHR A: 4 mins EHR B: 1.5 mins	Goal: 4.00 Actual EHR A: 3.00 EHR B: 4.50
Check patient insurance eligibility	Goal: 100% Actual EHR A: 95% EHR B: 100%	Goal: 1 min Actual EHR A: 2.5 mins EHR B: 1 min	Goal: 4.00 Actual EHR A: 4.00 EHR B: 5.00
Enter patient vitals	Goal: 100% Actual EHR A: 90% EHR B: 100%	Goal: 30 secs Estimated EHR A: 45 secs EHR B: 30 secs	Goal: 4.00 Estimated EHR A: 3.25 EHR B: 4.75

Key Elements

- **Executive Summary**
- **Introduction**
- **Method**
 - Participants
 - Study Design
 - Tasks
 - Procedure
 - Test Location
 - Test Environment
 - Test Forms And Tools
 - Participant Instructions
 - Usability Metrics
- **Results**
 - Data Analysis And Reporting
 - Discussion Of The Findings
- **Appendicies**
 - Format for Document
 - Sample Recruiting Screener
 - Participant Demographics
 - Non-disclosure Agreement And Informed Consent Form
 - Example Moderator's Guide
 - System Usability Scale Questionnaire
 - Incentive Receipt And Acknowledgment Form

Task \ Measure	N	Task Success	Path Deviation	Task Time		Errors	Task Ratings 5=Easy
	#	Mean (SD)	Deviations (Observed / Optimal)	Mean (SD)	Deviations (Observed / Optimal)	Mean (SD)	Mean (SD)
1.[Find item on patient summary screen]							
2.[Use patient chart to find lab results]							
3.[Check vital signs]							

In Closing

- **The highest cost for any large-scale system is human capital**
- **Why is so much time/effort evaluating security, privacy, integration, functionality, etc.?** Because these things can be easily measured, reported, understood, and compared.
- **If human capital costs are so high and usability is such an important issue, why don't we spend as much time/effort understanding human interface...**

In Closing

- Because, it is perceived, there is **no easy way to understand the impact of user performance** it is often forgotten or ignored
- **CIF is a starting point...**
- If you are a **provider selecting among several vendors** you should be asking those **providers for usability metrics** around variables important to you



T h a n k Y o u

**NISTIR 7742 Can be obtained at:
http://www.nist.gov/manuscript-publication-search.cfm?pub_id=907312**

Robert Schumacher
User Centric, Inc.
1815 S. Meyers Road, Ste 1815
Oakbrook Terrace, IL 60181
rschumacher@usercentric.com
www.usercentric.com