

What do the Data Tell us about EHR Usability?

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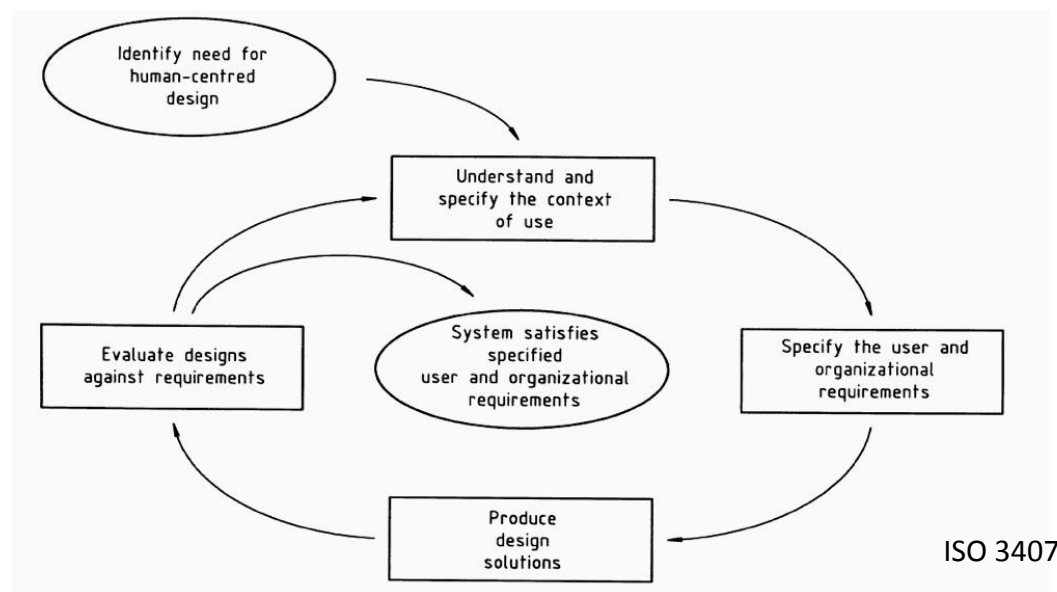
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Usability and User Centered Design

- Extent to which a product can be used by specified users to achieve specified goals with **effectiveness**, **efficiency** and **satisfaction** in a specified context of use
- Usability is measurable
- User centered design is a process for developing usable systems



The Two Bins of Usability

Photo credit to Bob Wears, MD, PhD

1: User Interface Design

Context Independent

Screen Design

Clicks & Drags

Colors & Navigation

2: Cognitive Task Support

Context Dependent

Smart Data Visualization

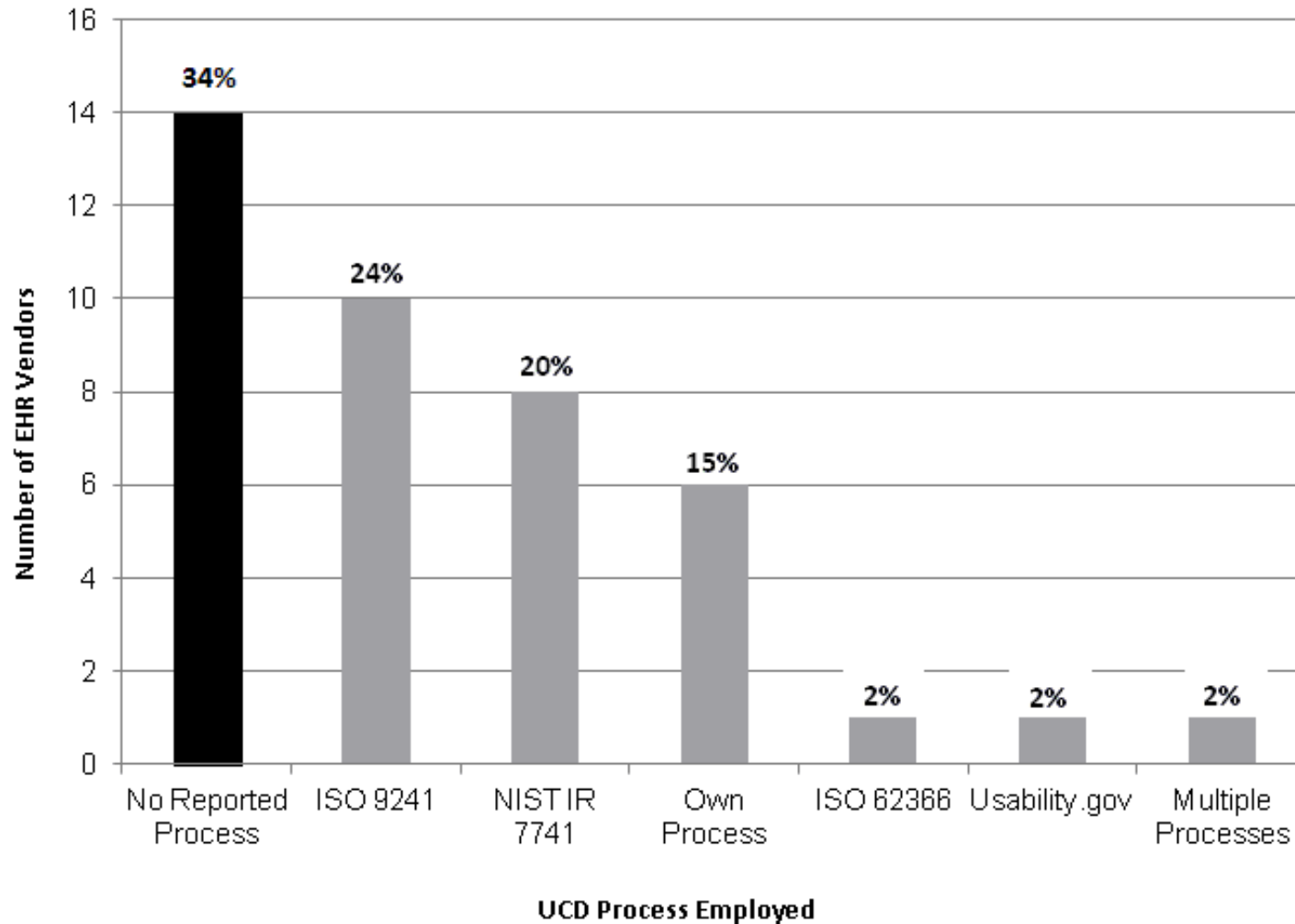
Support Cognitive Work

Usefulness

Foundations

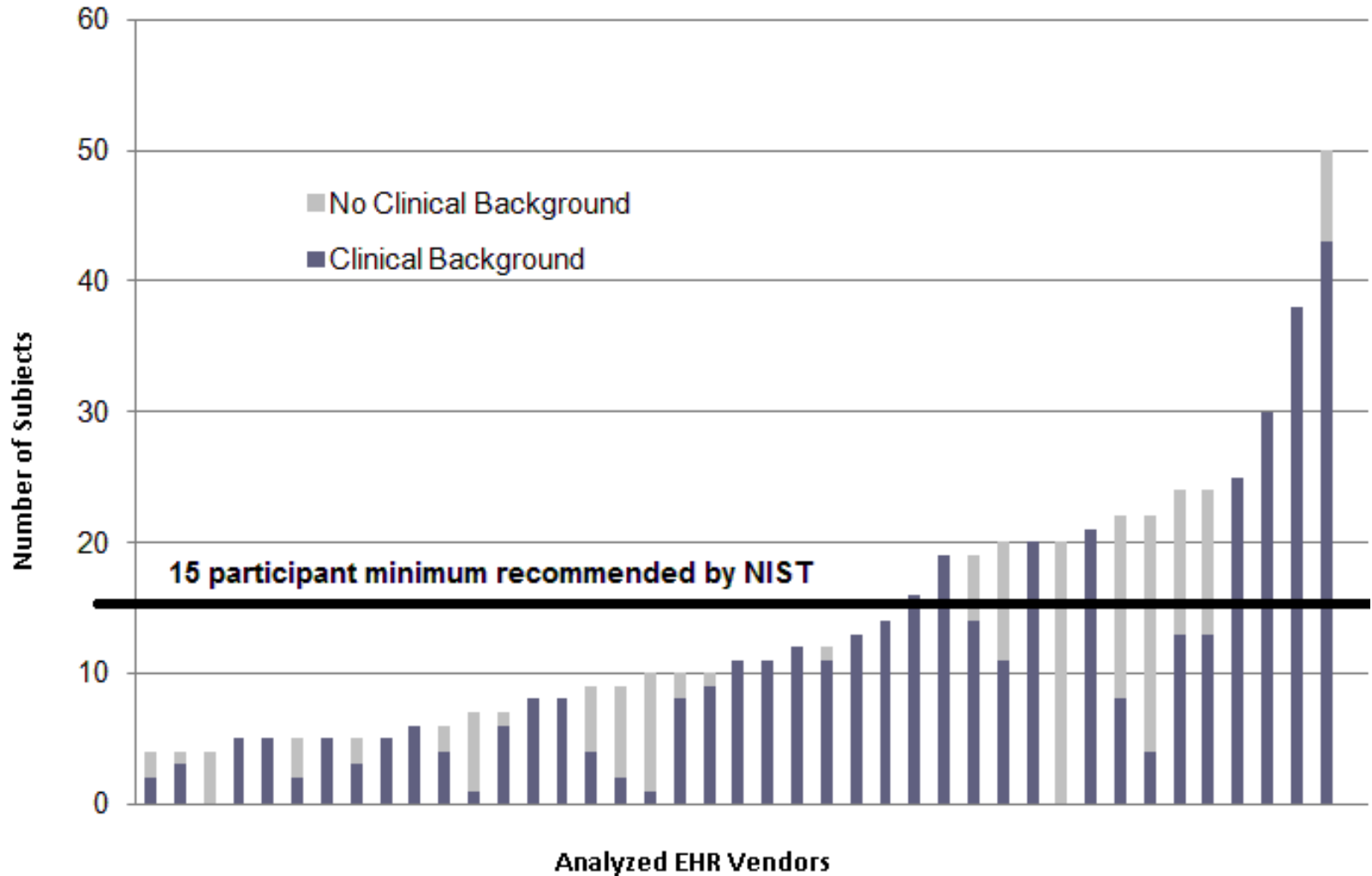
- Usability is critical to the effective, efficient and safe use of technology
 - Nearly every high risk industry invests heavily in usability (except healthcare)
- Usability is a science with clear principles and metrics
 - Benefits from specialized training
- Usability requires significant investment and extensive resources
 - Engagement from multiple stakeholders

Reported UCD Process



Ratwani, R. M., Benda, N. C., Hettinger, A. Z., & Fairbanks, R. J. (2015). Electronic health record vendor adherence to usability certification requirements and testing standards. *JAMA*, 314(10), 1070-1071.

Summative Test Participant Demographics



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MedStar/AMA Usability Framework

	Reported Process Max pts:5	Participants Max pts:1	Clinical Expertise Max pts:2	Use Cases Max pts:1	Metrics Max pts:1	Effectiveness Max pts:3	Improvements Max pts:2	
Vendor Name	5 ISO 9241-210	0 9.3	2 100%	.5 Vague	1 Complete	3 93.4	.5 Scant	12
Points assigned	Stated UCD process	Avg. # of participants used across all tests	% of clinical participants	Richness of use cases	Completeness of metrics	Avg. % effectiveness	Completeness of improvements	Total score

- Many use cases lack rigor
- Metrics are inconsistent
- Risks identified through testing are rarely described

www.healthITusability.org

Ratwani, R. M., Hettinger, A. Z., Kosydar, A., Fairbanks, R. J., & Hodgkins, M. L. (2016). A framework for evaluating electronic health record vendor user-centered design and usability testing processes. *Journal of the American Medical Informatics Association*, ocw092.

Major Gaps

- Implementation:
 - What are the critical decisions during implementation that have the biggest impact on EHR usability and safety?
- Safety Surveillance:
 - What processes can we put in place and how can we leverage this knowledge to improve products?

Collaborators

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