Workflow Toolkit and Lessons in User Centered Design

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Goals of the toolkit

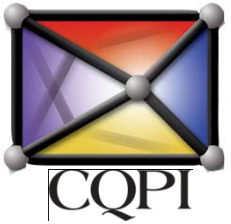
- Help small and medium sized practices to
  - Analyze their workflows in preparation health IT implementation
  - Improves workflows during and post implementation
  - Use health IT to further improve workflows

Support activities

- Technical expert panel
- Request for Information
- Literature Review
- Environmental Scan
- *User centered design?*

Lessons in user centered design

- A lot of talk about usability
- All of us are designing *tools*, for some *users*, to accomplish *goals*
- So all of us *should be* using user centered design processes

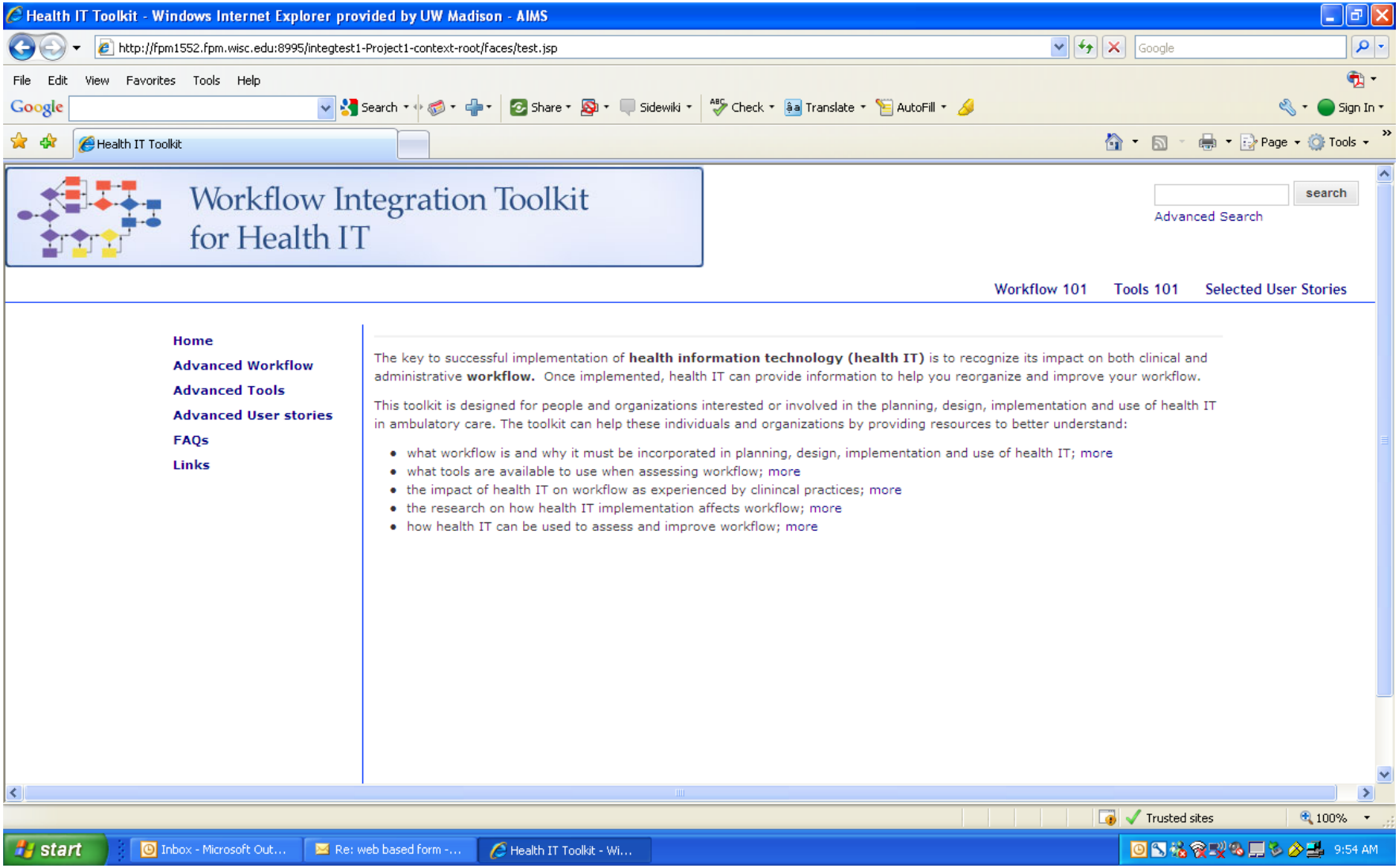


Designs are hypotheses about how artifacts affect cognition

David Woods

Who are the users?

- Small and medium sized practices
  - Physician champions
  - Practice managers
- Regional Extension Centers
- Two levels of expertise
  - Beginners
  - Advanced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The key to successful implementation of health information technology (health IT) is to recognize its impact on both clinical and administrative workflow. Once implemented, health IT can provide information to help you reorganize and improve your workflow.
This toolkit is designed for people and organizations interested or involved in the planning, design, implementation and use of health IT in ambulatory care. The toolkit can help these individuals and organizations by providing resources to better understand:
what workflow is and why it must be incorporated in planning, design, implementation and use of health IT; more
what tools are available to use when assessing workflow; more
the impact of health IT on workflow as experienced by clinincal practices; more
the research on how health IT implementation affects workflow; more
how health IT can be used to assess and improve workflow; more
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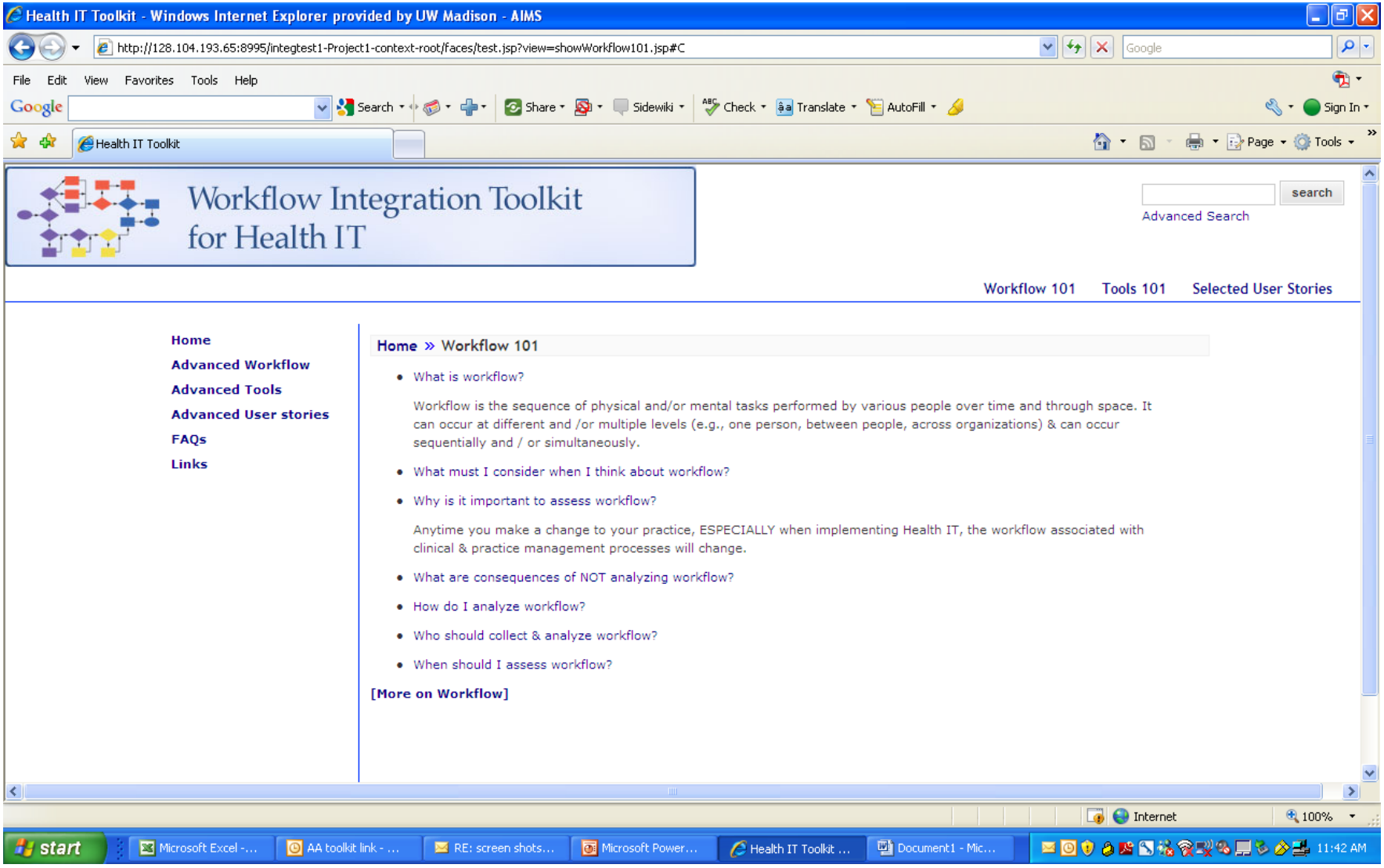
Users?

- REC staff did not exist at the time -so who are they and what do they know?
- What is “advanced” and what is “beginner”?
  - In implementation experience?
  - In stage of implementation?
  - Years of using health IT?
  - In workflow analysis?
  - Can they self-select?
- What about other users?
  - Vendors?
  - Curriculum developers?

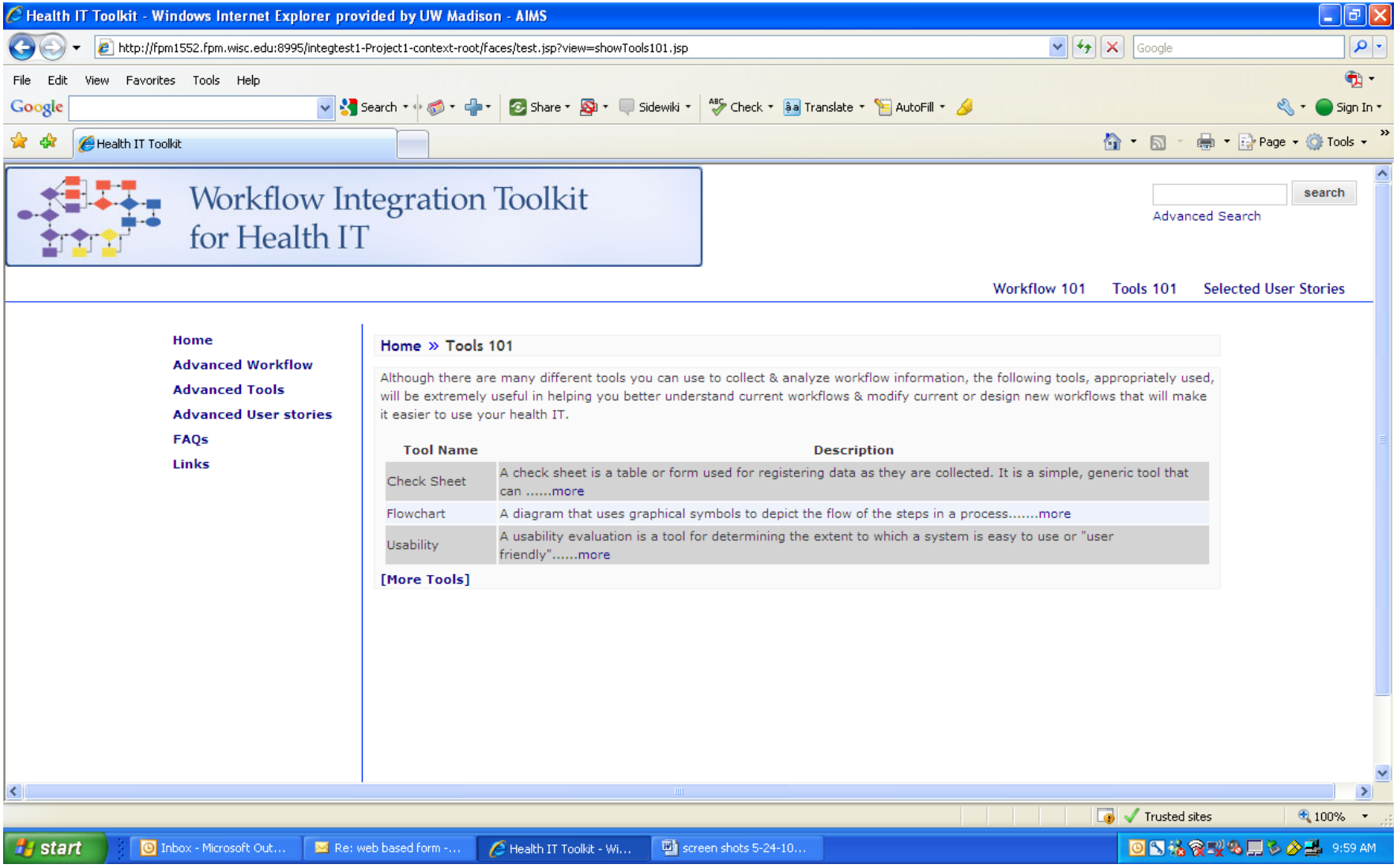
User goals

- Learn about workflow and its importance
- Learn how to analyze workflows
- Learn state of evidence regarding workflow and health IT success

Learn about workflow and importance



Learn about ways to analyze workflow

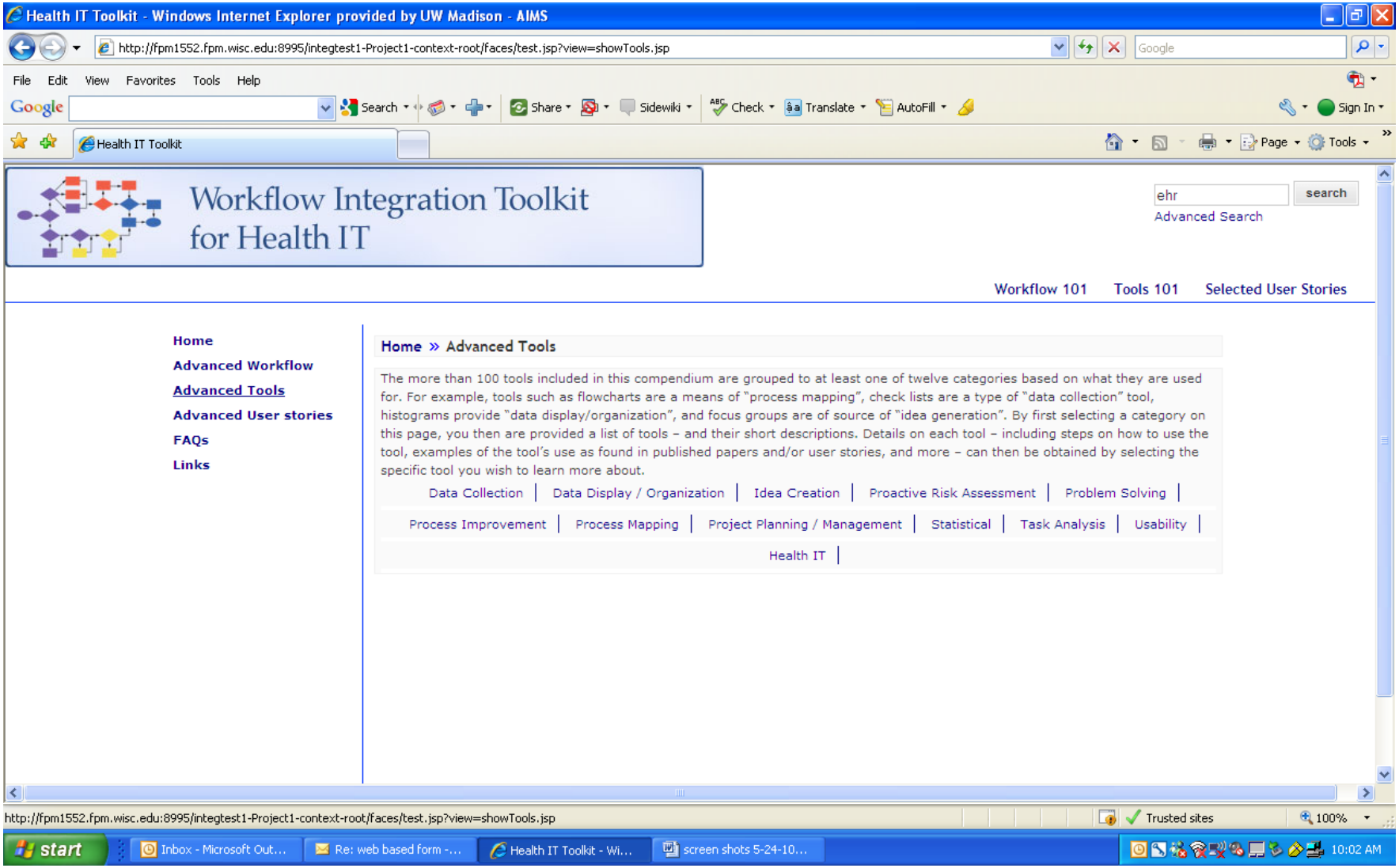


User goals?

- What users thought *workflow* meant, and therefore expected to learn about was all over the map.
- Our simple *tools* embedded our own assumptions – users still would not know what to use the tools for or how

Users' needs to achieve goals

- Need to know what tools are available
- How they have been used by others
- Where to learn how to use them
- Strengths and weaknesses of the tools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The more than 100 tools included in this compendium are grouped to at least one of twelve categories based on what they are used for. For example, tools such as flowcharts are a means of "process mapping", check lists are a type of "data collection" tool, histograms provide "data display/organization", and focus groups are of source of "idea generation". By first selecting a category on this page, you then are provided a list of tools – and their short descriptions. Details on each tool – including steps on how to use the tool, examples of the tool's use as found in published papers and/or user stories, and more – can then be obtained by selecting the specific tool you wish to learn more about.
Data Collection | Data Display / Organization | Idea Creation | Proactive Risk Assessment | Problem Solving |
Process Improvement | Process Mapping | Project Planning / Management | Statistical | Task Analysis | Usability |
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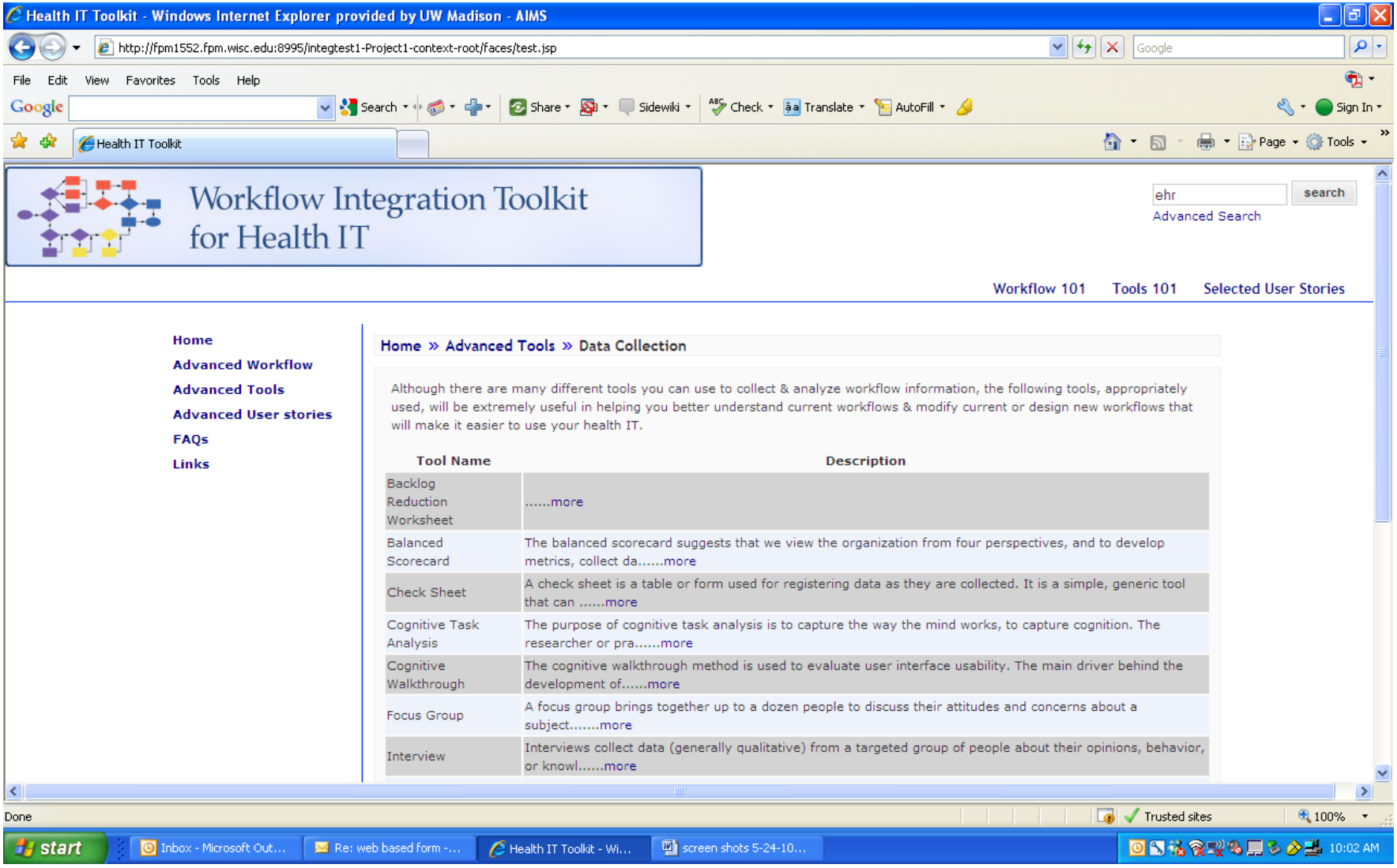
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Although there are many different tools you can use to collect & analyze workflow information, the following tools, appropriately used, will be extremely useful in helping you better understand current workflows & modify current or design new workflows that will make it easier to use your health IT.
Tool Name
Description
Backlog Reduction Worksheet
.....more
Balanced Scorecard
The balanced scorecard suggests that we view the organization from four perspectives, and to develop metrics, collect da.....more
Check Sheet
A check sheet is a table or form used for registering data as they are collected. It is a simple, generic tool that can .....more
Cognitive Task Analysis
The purpose of cognitive task analysis is to capture the way the mind works, to capture cognition. The researcher or pra.....more
Cognitive Walkthrough
The cognitive walkthrough method is used to evaluate user interface usability. The main driver behind the development of.....more
Focus Group
A focus group brings together up to a dozen people to discuss their attitudes and concerns about a subject.....more
Interview
Interviews collect data (generally qualitative) from a targeted group of people about their opinions, behavior, or knowl.....more
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REFERENCES
Brownbridge, G., A. Evans, M. Fitter and M. Platts (1986). "An interactive computerized protocol for the management of hypertension: effects on the general practitioner's clinical behaviour." Journal of the Royal College of General Practitioners 36(286): 198-202.
ABSTRACT
This paper reports an experimental study of general practitioners' use of an interactive computerized protocol for the management of hypertension, focussing particularly on the protocol's effects on doctors' clinical behaviour. Prior to its computerization a paper-based version of the protocol was used enabling a comparison of the alternative forms. Doctors' delivery of care was assessed from video recordings of 89 consultations and from the records made during these consultations. Comparisons were made of consultations conducted under control and experimental conditions. Use of paper and computer protocolsresulted in significant improvements in the doctors' delivery of care, in terms of the range of verbal and physical examinations conducted and recorded. The protocol's effects were most marked when the computerized version was used. However, use of the computer protocol resulted in the recording of information on the non-occurrence of certain events which had not been explicitly elicited during the verbal examination; features of the design which were intended to encourage adherence to the protocol resulted in the recording of unsubstantiated information. It is concluded that the detail of the verbal examination suggested by the protocol may have been inappropriate to the realities of a general practice consultation. The findings provide some useful insights for the design of future computerized protocols for the management of chronic conditions.
OBJECTIVE
To report an experimental study of general practitioners' use of an interactive computerized protocol for the management of
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User needs?

- Our initial design allowed a user to *learn about.* New design will let them *learn how.*
- It did not take into account potential time constraints of user in actual practice
- Small and medium sized practices may not have the resources to invest in this kind of learning

User centered design – devil is in the details

- User centered design is *NOT* asking users what they want and giving it to them
- User centered design is *NOT* designing something, showing it to users and asking "so does this make sense?" / "do you like it?"
- User centered design is *NOT* usability
- Knowledge about performance and skill to execute UCD is critical

UCD from Mockup to Real Use

- Rapid cycle of user feedback, evaluation, and redesign
- Differences between simulated use and actual use
- Updates
  - Development vs. maintenance
  - User involvement
  - Changing users and user needs

Next hypothesis

- Redesign website to be action oriented, right from the homepage
  - Click here to start analyzing your workflow
  - Click here to learn how to improve you existing workflows
- Make materials readily available
  - Click here to get workflow training materials
  - Click here for workflow curriculum presentations

Larger Challenge

- Users *need to know* a *whole.* Each of our toolkits gives a *part.* [sound like clinical needs and health IT?]
- Bigger question for all of the toolkits is *how do we help users to integrate* over all of the toolkits to get something useful?

Thank you
http://cqpi.engr.wisc.edu/withit_home

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- Design of the Physical Environment and Ergonomics
- Cognitive ergonomics
- And more...

Part II: HFE & Health Information Technology

- Usability of Health IT
- Impact of Health IT on Patient Care Processes
- Human Factors of Implementing Health IT
- And more...

For short course schedule and registration information go to: http://cqpi.engr.wisc.edu/shortcourse_home

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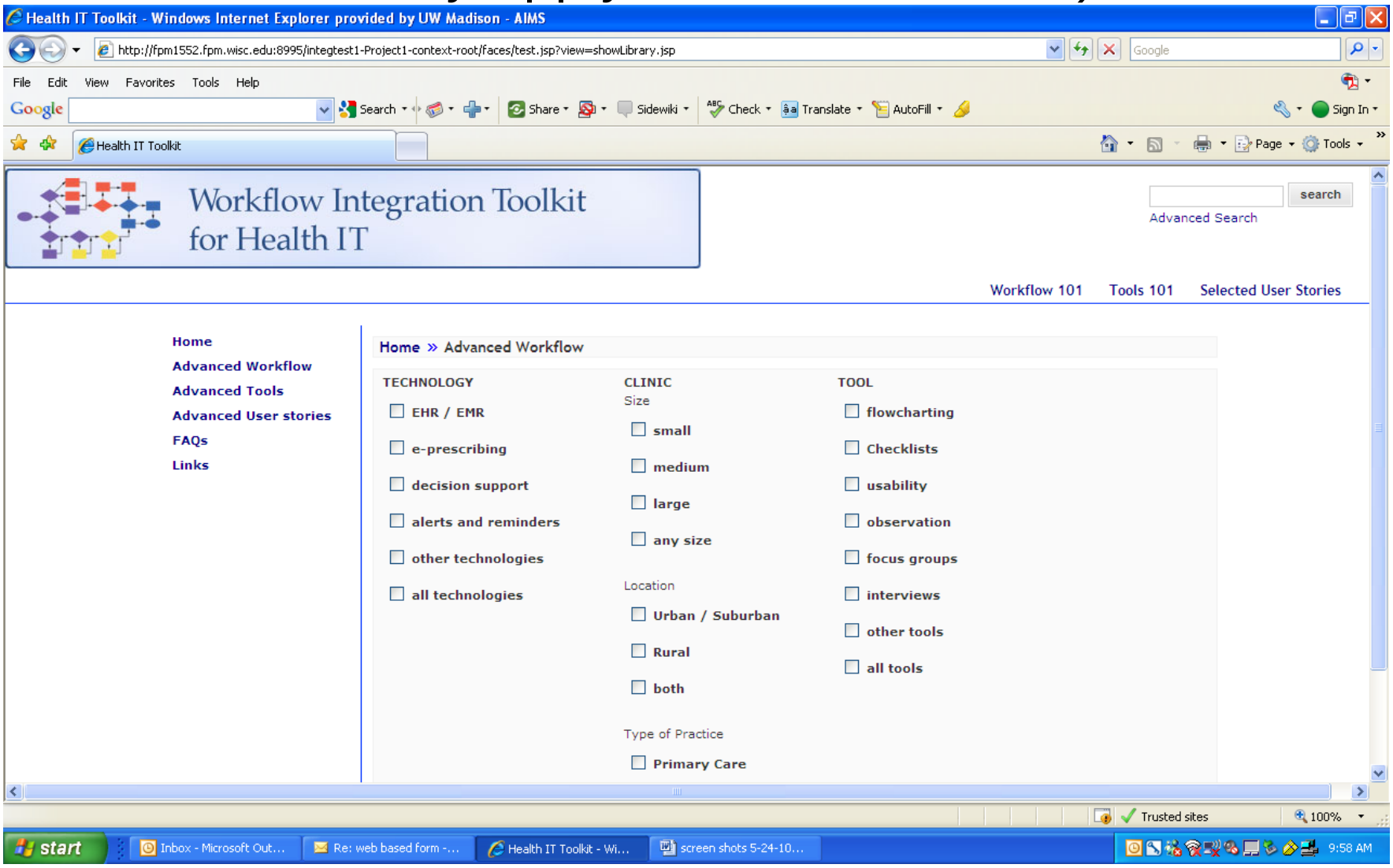
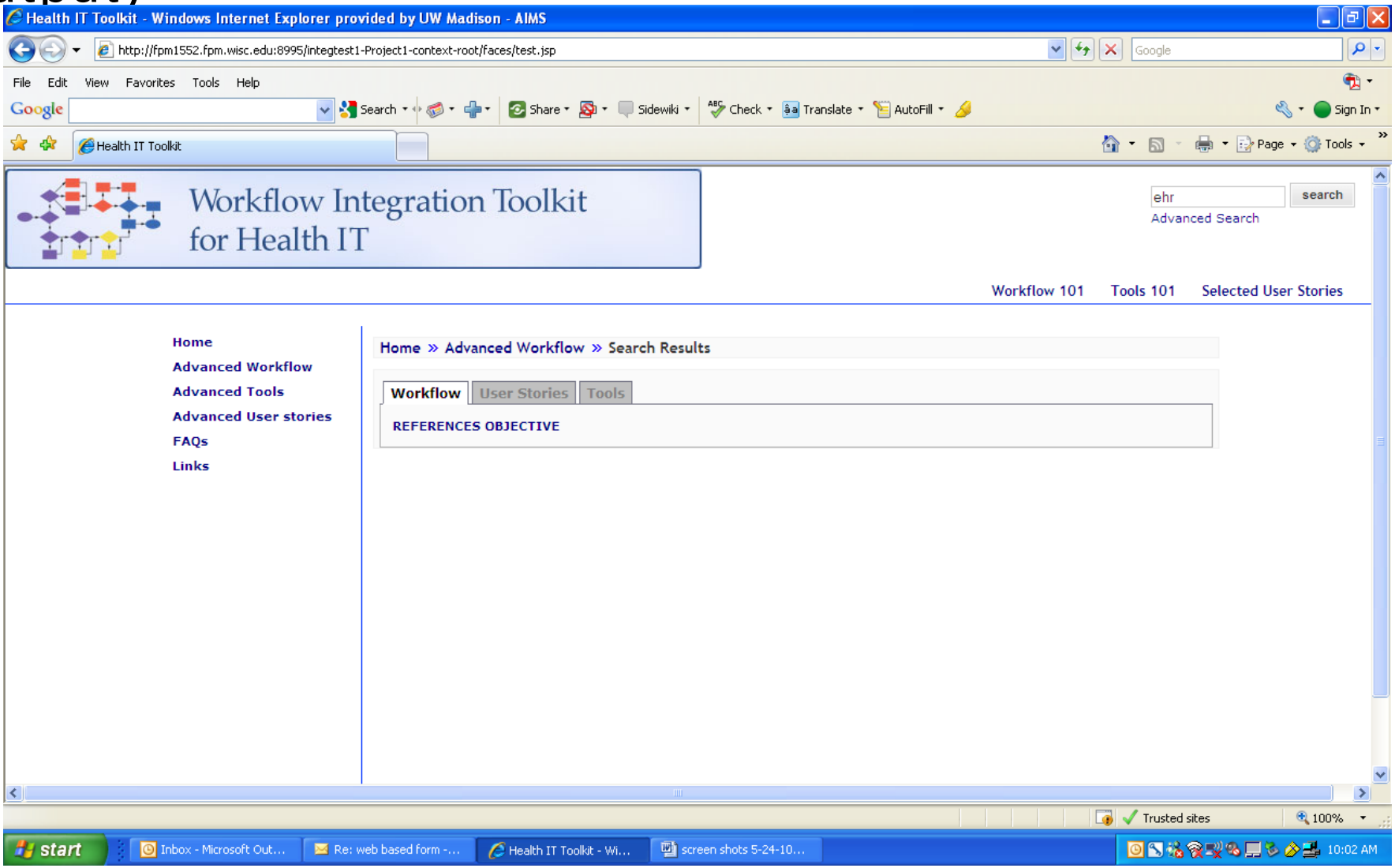
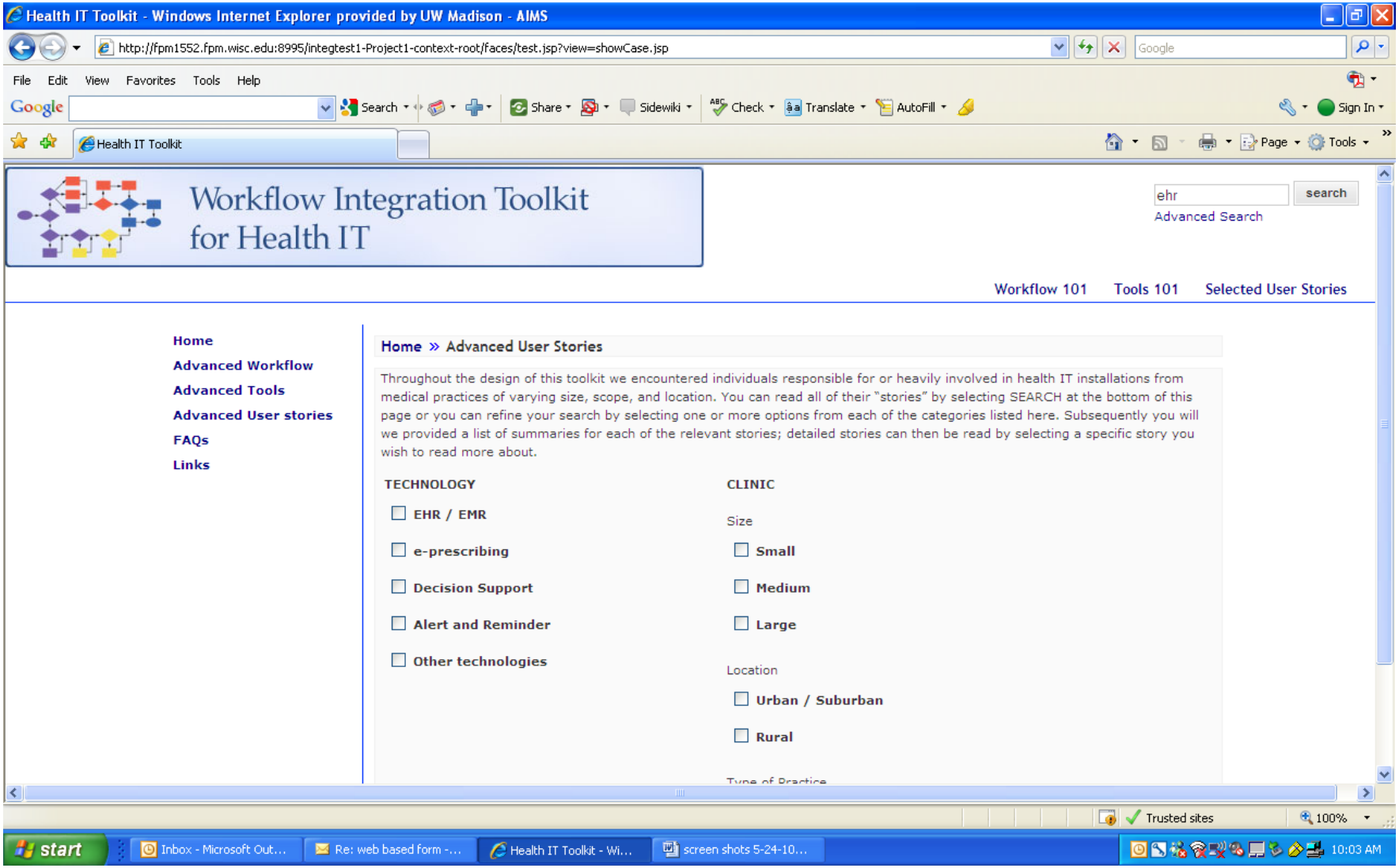
Advanced Workflow (provides guided search of lit review Access database – & may contain user stories if any apply to fields selected)



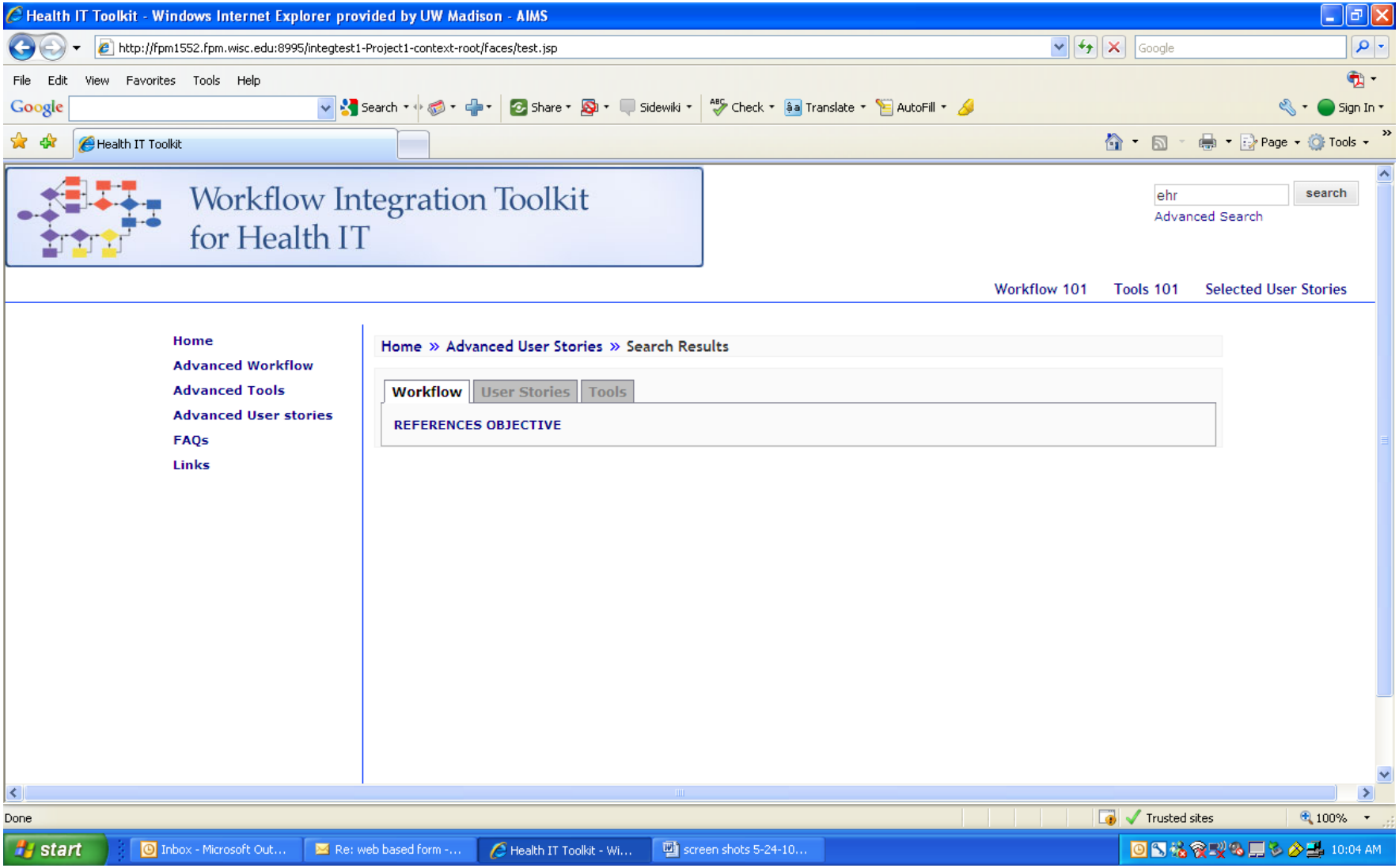
Advanced Workflow – Search Results (provides reference & objective for each paper/user story; select more and directed to detail of respective output)



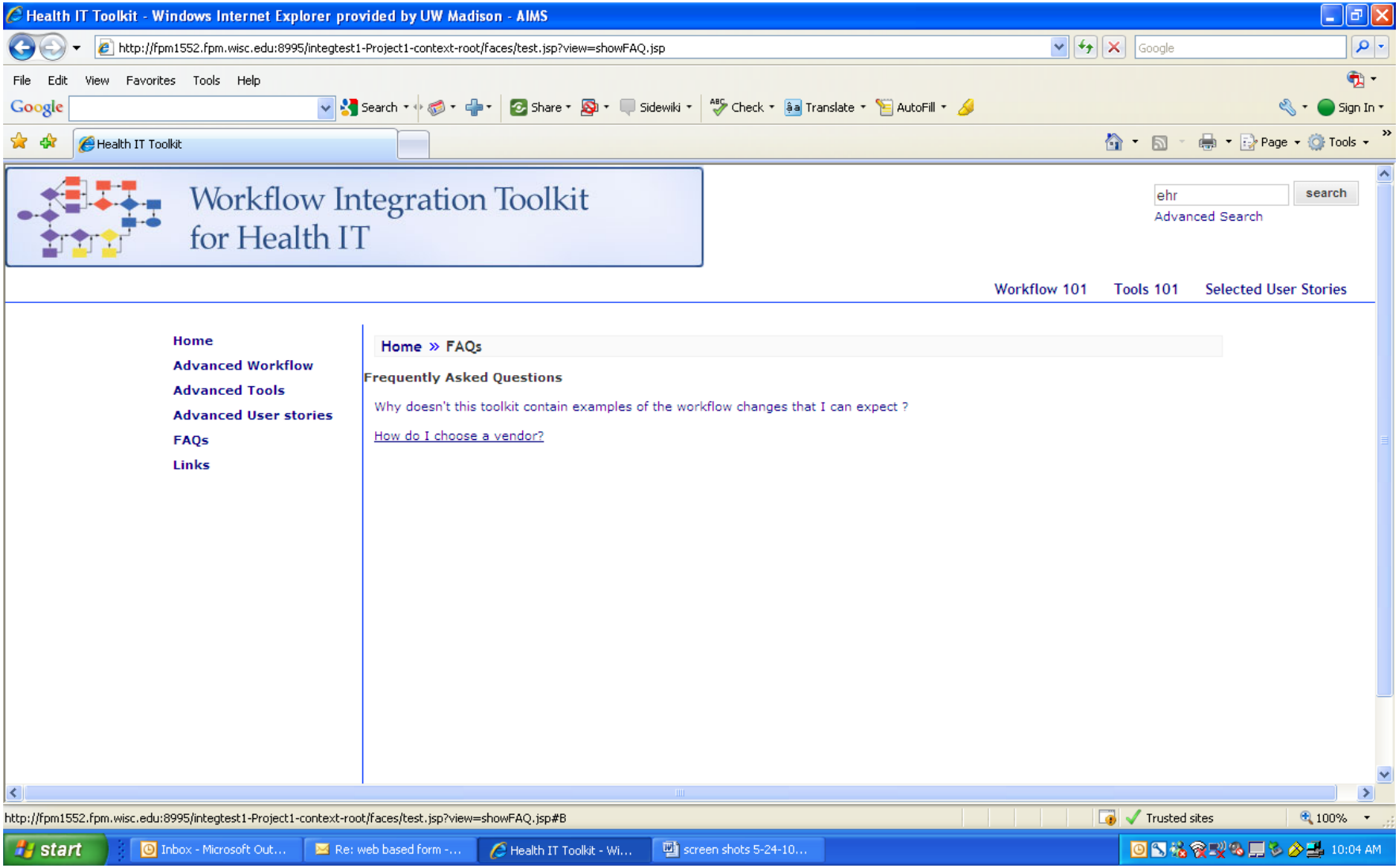
Advanced User Stories



Advanced User Stories – Search Results (provided reference, summary and more)



FAQs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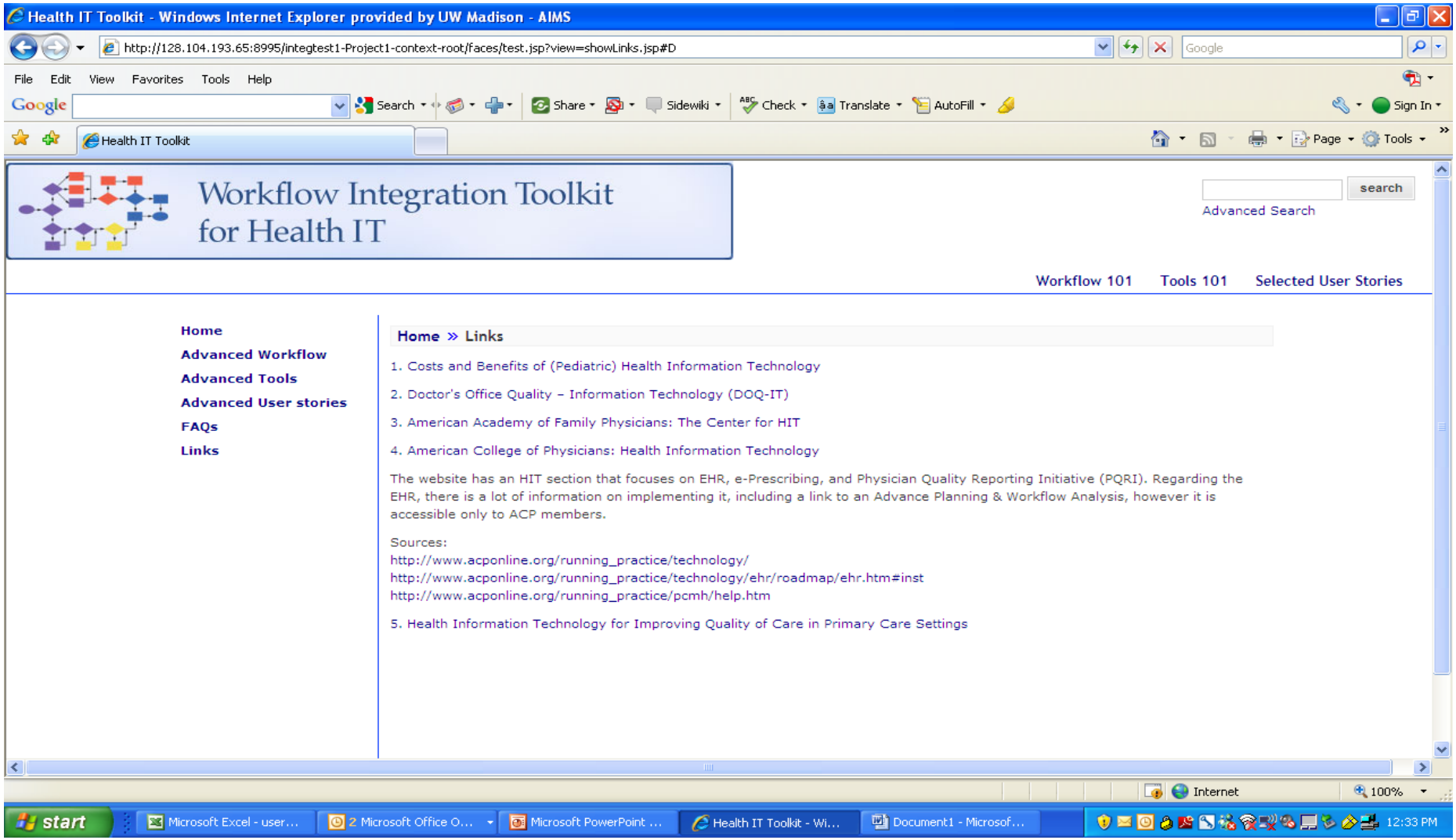
Frequently Asked Questions
Why doesn't this toolkit contain examples of the workflow changes that I can expect ?
How do I choose a vendor?

Links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1. Costs and Benefits of (Pediatric) Health Information Technology
2. Doctor's Office Quality – Information Technology (DOQ-IT)
3. American Academy of Family Physicians: The Center for HIT
4. American College of Physicians: Health Information Technology
The website has an HIT section that focuses on EHR, e-Prescribing, and Physician Quality Reporting Initiative (PQRI). Regarding the EHR, there is a lot of information on implementing it, including a link to an Advance Planning & Workflow Analysis, however it is accessible only to ACP members.
Sources:
http://www.acponline.org/running_practice/technology/
http://www.acponline.org/running_practice/technology/ehr/roadmap/ehr.htm#inst
http://www.acponline.org/running_practice/pcmh/help.htm
5. Health Information Technology for Improving Quality of Care in Primary Care Settings
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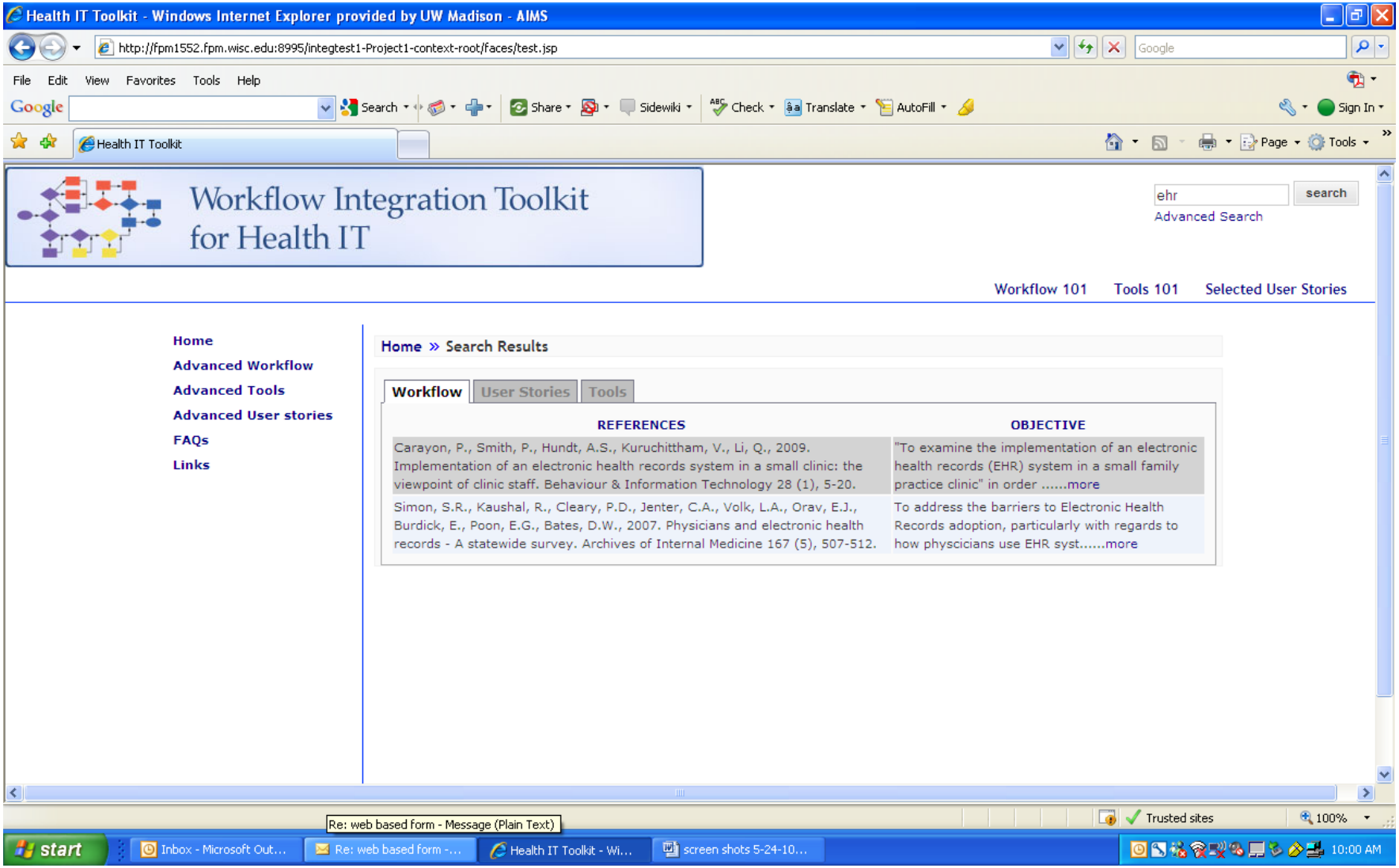
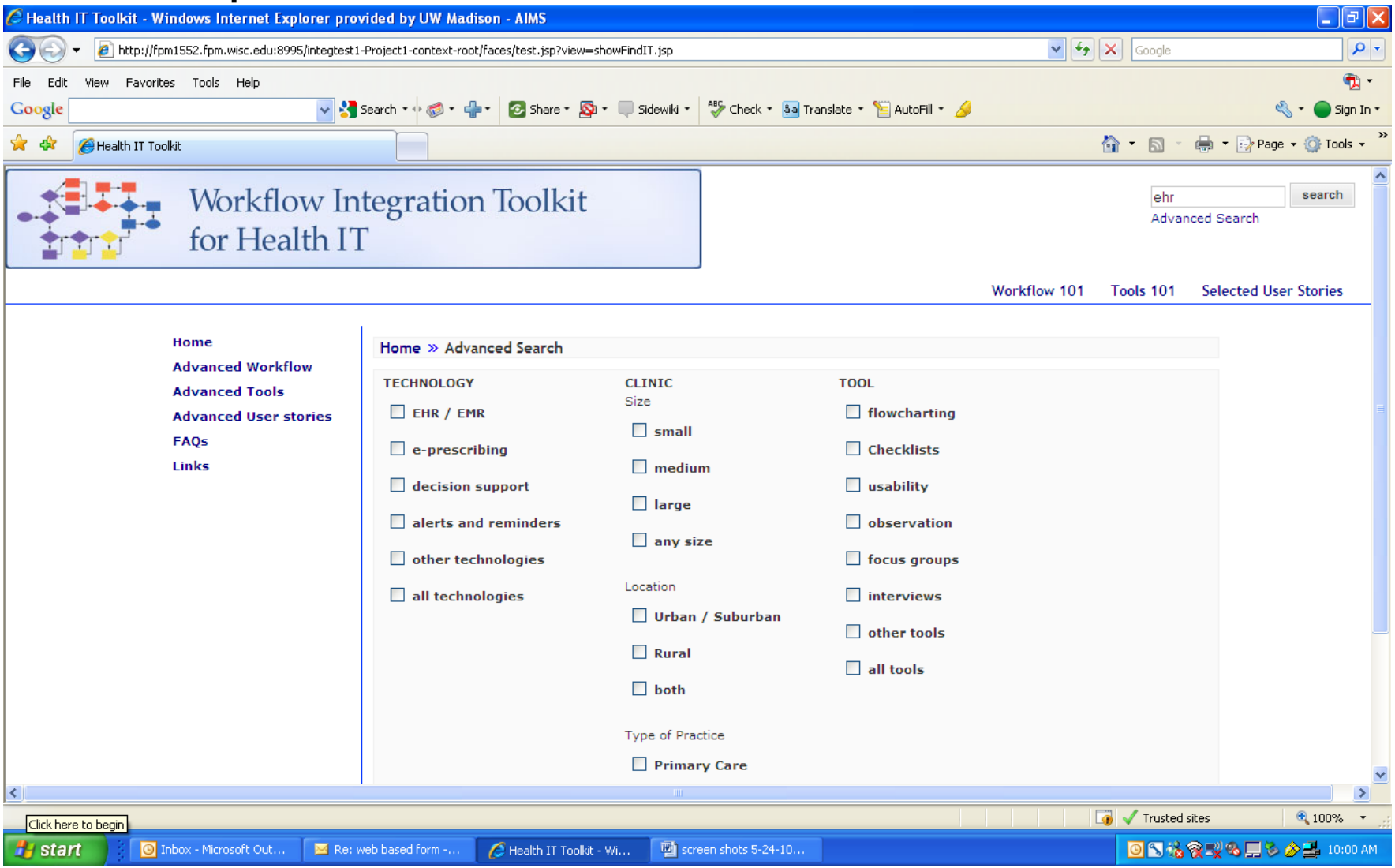
- Define users
- Determine goals
- Identify user cognitive work needs to achieve goals
- Design
- Test with cognitive walkthroughs
- Revise design
- Test with use cases and measure outcomes
- Revise
- Field test
- Revise

Search Results (enter key word in “search” box on home page)



Advanced Search (choice located below search box) – provides fields from which to choose; final output looks same as when use "search"