Usability and Clinical Application Design
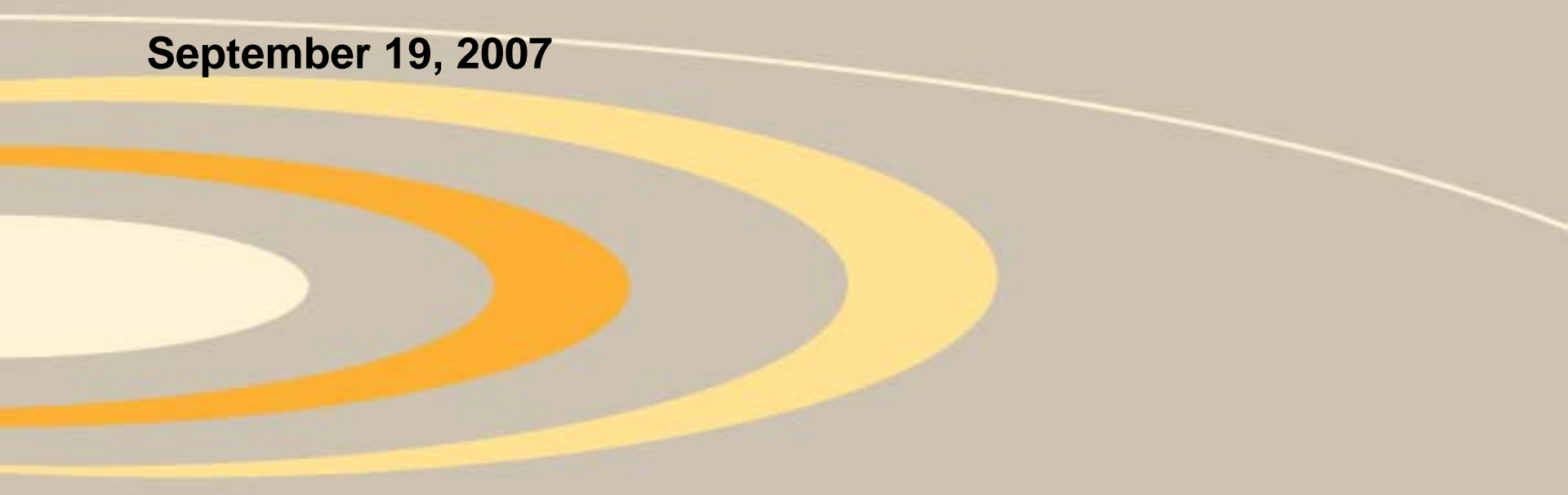
Introduction to the Collaborative

The T.I.G.E.R. Initiative

Phase II - Facilitating collaboration among participating organizations to achieve the TIGER vision

September 19, 2007

<u>T</u>echnology <u>I</u>nformatics <u>G</u>uiding <u>E</u>ducation <u>R</u>eform

The focus of the TIGER Initiative is to better prepare our nursing workforce (all practicing nurses and nursing students) to use technology and informatics to improve the delivery of patient care.

We believe that *necessary skills* for nurses' portfolio in 2007 includes computer literacy and information literacy.

The TIGER Initiative is a program; not an organization.

TIGER has been a grass-roots effort to engage with all stakeholders that are committed to a common "vision" of ideal EHR-enabled nursing practice. Today, more than 70 diverse organizations have joined this effort.

TIGER Vision

- Allow informatics tools, principles, theories and practices to be used by nurses to make healthcare safer, effective, efficient, patient-centered, timely and equitable

- Interweave enabling technologies transparently into nursing practice and education, making information technology the stethoscope for the 21st century

Nursing Focus

- Nearly 3 million practicing nurses in the U.S.
- More than 55% of all health care workers
- Nurses are knowledge workers

"There is no aspect of our profession that will be untouched by the informatics revolution in progress."

Angela McBride, Distinguished Professor and
University Dean Emeriti, Indiana University School of Nursing

Necessary Skills for Nurses Portfolio in 2007

- Computer Literacy Skills
- Information Literacy Skills
- Informatics Skills

Building the Work Force for HIT

A work force capable of innovating, implementing and using health communications and information technologies will be critical to healthcare's success.

For health Information Transformation

AHIMA and AMIA

http://www.ahima.org/emerging_issues/Workforce_web.pdf

TIGER Summit – Phase I

- October 31 -November 1, 2006
- Held at the Uniformed Services University for Health Sciences (USUHS) in Bethesda, MD
- 100 participants representing all stakeholders
- Created a collective vision for nursing practice and education within 10 years if nurses were fully enabled with IT resources
- Developed a 3-year action plan required to achieve this vision
- Summary Report published at www.tigersummit.com

Organizational Commitment

- 70 organizations were represented at the Summit
- Each committed to creating action plans aligned with the TIGER vision within their organization/membership
- TIGER following organizational progress on these action plans over the next 3-years
- Examples of organizational actions taken to date:
  - Distribution of TIGER Summary report to all professional members (AONE)
  - Presentations of TIGER at National and International Conferences (AMIA, ANIA, HIMSS, STTI, HIMSS-AsiaPac, SINI, I-MIA/MedInfo)
  - Regional presentations of TIGER (BANIC, CHIMSS, MINING)
  - Professional organization presentations of TIGER (ASPAN, AORN)
  - State-wide initiatives supporting TIGER vision (Minnesota, Massachusetts, Tennessee)

Matrix Approach – Phase II

- Funded by the Alliance for Nursing Informatics (ANI) – a collaboration between AMIA and HIMSS
- Continue to support progress of each participating organization's 3-year action plan
- Formalize cross-organizational activities/action steps into collaborative TIGER Teams (9 identified)
- Define measurable outcomes of each collaborative team
- Provide the infrastructure and support to facilitate the development and dissemination of the activities of the collaborative
- Develop educational materials that can be distributed to all practicing nurses and nursing students
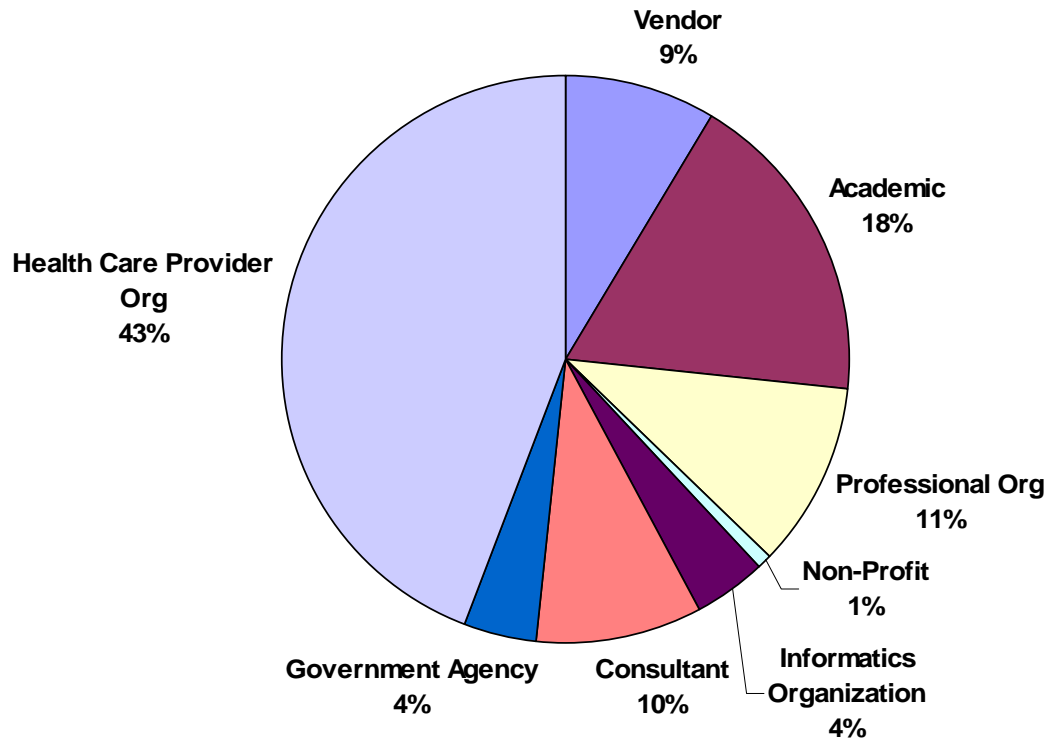
9 Collaborative Teams

Created from combining all 3-year action steps into common themes/topics

1. Standards and Interoperability
2. Healthcare IT National Agenda/HIT Policy
3. Informatics Competencies
4. Education and Faculty Development
5. Staff Development/Continuing Education
6. Usability/Clinical Application Design
7. Virtual Demonstration Center
8. Leadership Development
9. Patient-Focus/Personal Health Record
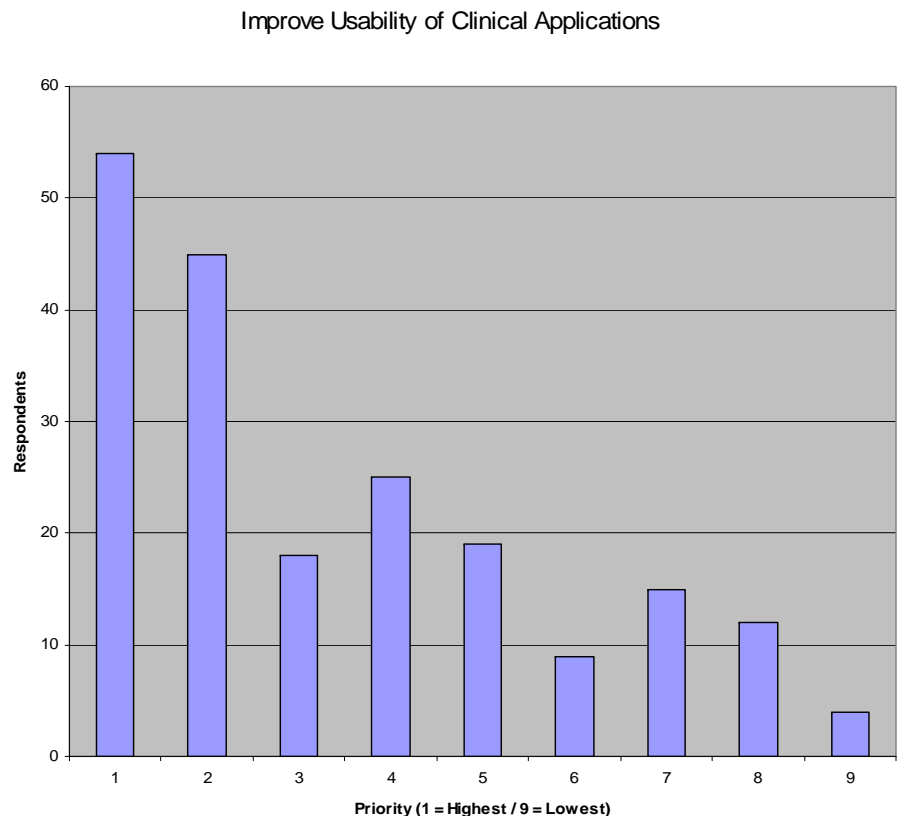
Reprioritization of Action Steps

- A survey was sent out in June to all registered members on the TIGER website, attendees, and supporters.

- High response rate (260 elected to participate out of 350 members)

- Ranked each of the 9 topics in order of priority for their organization/affiliation

- Identified which individuals/organizations would participate on each of the 9 teams

- Blended mix of various stakeholders across each of the 9 teams

Respondent Affiliation

Vendor 9%
Academic 18%
Health Care Provider Org 43%
Professional Org 11%
Non-Profit 1%
Informatics Organization 4%
Consultant 10%
Government Agency 4%

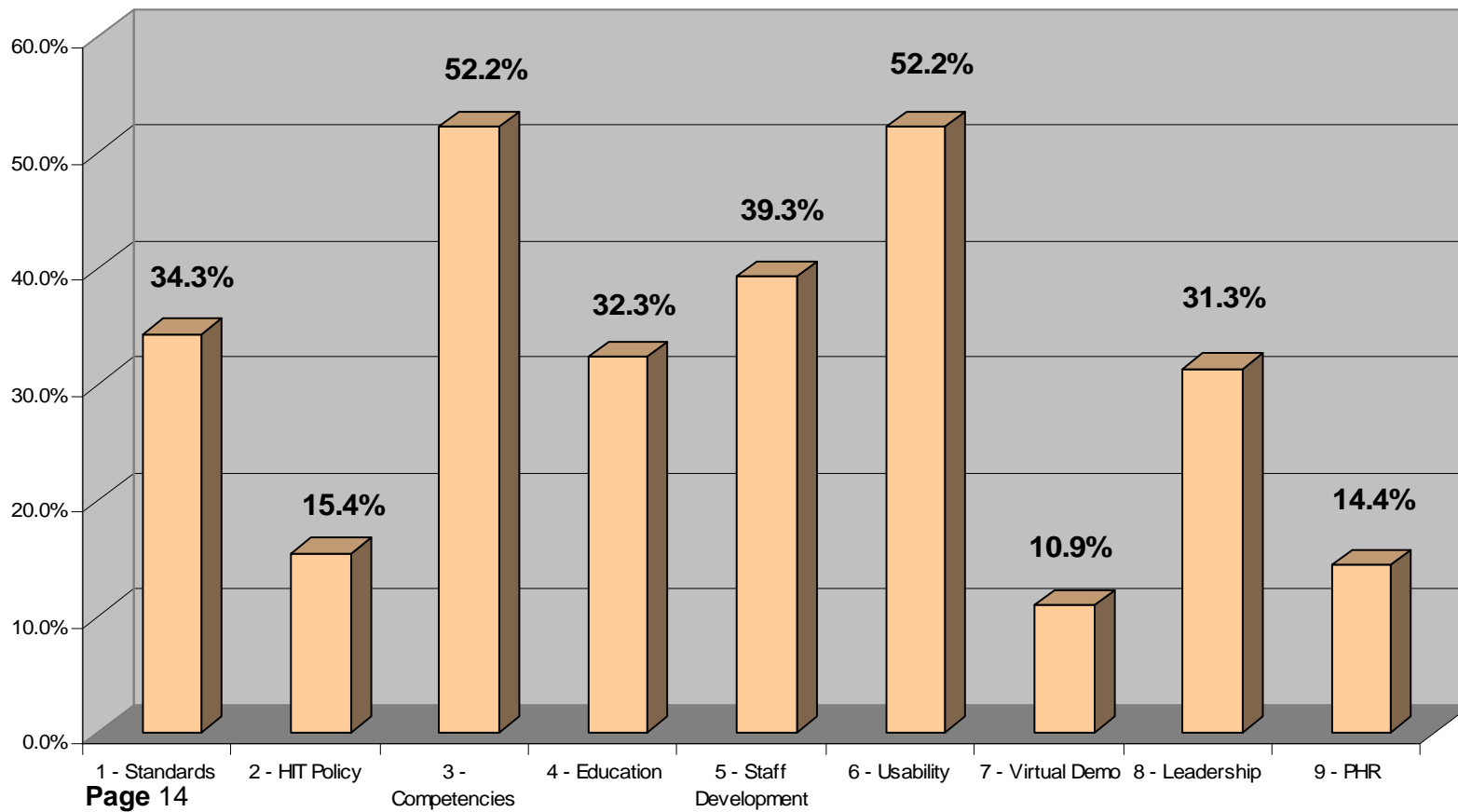# Collab #6 - Usability and Clinical Application Design

- Closely related to the HIT Standards and Interoperability Collaborative

- Ranked *the* highest Priority

- More than half respondents agreed to participate 53.5 % (n = 123)

- Work of the Collab#7 Virtual Demonstration Center will be dependent upon this group's work

Improve Usability of Clinical Applications

Percentage of Participants

60.0%
52.2%   52.2%
50.0%
39.3%
40.0%   34.3%   32.3%   31.3%
30.0%
20.0%   15.4%   14.4%
10.9%
10.0%
0.0%

1 - Standards | 2 - HIT Policy | 3 - Competencies | 4 - Education | 5 - Staff Development | 6 - Usability | 7 - Virtual Demo | 8 - Leadership | 9 - PHR

Page 14

Measurable Outcomes of Each Collaborative

1. Definition, Scope of Project
2. An inventory and analysis of existing resources
   - Publications
   - Research
   - Subject matter experts
   - Ongoing Projects
3. Identification and access to subject matter experts and constituent targets
4. Educational web-based audio conferences (target = 2)
5. Conference presentations
6. A comprehensive white paper-type document (modeled after TIGER Summary Report)
7. Define topic-specific evaluation criteria
8. Submit articles for publication and dissemination amongst broader TIGER audience
9. Chapter in the 4th Edition of the Nursing Informatics Series *Where Caring and Technology Meet*

Report Format

- Executive Summary
- Action Plan/Specific Goals of the Collab
- Background – Overview of the topic including key projects, publications, and subject experts
- Recommendations for significant gaps
- Case Studies/Exemplars
- Recommendations
- Resource lists/tools
- Participants/Affiliates/Sponsors
- Distribution

The TIGER Initiative

Evidence and Informatics Transforming Nursing:
3-Year Action Steps toward a 10-Year Vision

Technology Informatics Guiding Education Reform (TIGER)
www.tigersummit.com

Usability/Clinical Application Design - Facilitators

Nancy Staggers, PhD, RN, FAAN

Associate Professor, Informatics

Interim Director, Informatics Program

College of Nursing, University of Utah

- Dr. Nancy Staggers has an extensive background in clinical informatics, from determining user requirements to application prototyping, system selection, large systems implementation, and enterprise system evaluation. She has held executive positions, including Associate CIO, Information Technology Services for the Health Sciences Center at the University of Utah, Program Director for ECIS, Catholic Healthcare West, and Director for Corporate Informatics in Department of Defense.

- Dr. Staggers' area of research is human-computer interaction and interface design in healthcare applications. She has completed a number of studies related to the optimal design of applications for nurses, mostly recently her work was on designs for an electronic medication administration records (eMAR) in electronic health records (EHR). Her most recently funded recent funded research examines the usability of a worldwide EHR.

- She is the chair of an ANA national workgroup who has just completed the revision of the Scope and Standards for Nursing Informatics for the US

Usability/Clinical Application Design - Facilitators

Michelle R. Troseth, RN, MSN

Executive Vice President and Chief Professional Practice Officer

Clinical Practice Model Resource Center (CPMRC), Eclipsys

- Michelle has over 20 years experience in creating and sustaining healthy, healing workplaces and integrated healthcare services. Her passion is creating environments that "live" the high-tech/high-touch polarity to transform healthcare locally and globally. Michelle has been a leader in creating professional nursing and interdisciplinary practice environments for over a decade. She has experience in using and co-creating an integrated clinical practice framework to strengthen practice at the point-of-care and improve the quality of work environments for leaders and practitioners across the United States and Canada.

- Michelle is one of the founding leaders of the national Technology Informatics Guiding Educational Reform (TIGER) Initiative and recently served as the Program Chair for the TIGER Summit held in the fall of 2006. She is often a keynote or featured speaker on the topic of Professional Practice and Healthcare Technology at conferences such as Sigma Theta Tau Nursing International Research Congress, Healthcare Information and Management Systems Society (HIMSS), and American Nursing Informatics Association (ANIA).

Briefly describe why you chose this particular TIGER Collaborative to actively participate in?

- *Products must be useable to encourage continued use and become incorporated into the care processes.*

- *Usability is a "make or break" part of a clinical informatics solution. Not just ergonomics, but workflow for nurses.*

- *Many lessons from end-users as DESIGN is translated into PRODUCTION. There is a definite need for standards and guidance.*

- *Solutions must be driven by Nursing vision to ensure workflows are safe and streamlined (no silos).*

- *A good design can make the system easier to use and enhance clinical practice*

What strengths do you bring to this important TIGER Collaborative?

- *Many years of experience!!! Nursing, informatics, Project management, Clinical adoption, Implementation, Design, Authors, Instructors, professional consultant, software architect…….we are blessed!*

- *Focus on the point of care*

- *Diversity in clinical settings: Children's care, Acute care, Long-term care, etc*

- *Experience walking the line between nurses, interdisciplinary teams and "techies"*

- *A desire to learn and share information*

What outcome(s) are you hoping this Collaborative achieves?

- *Creation and publication of usability principles for clinical system design and recommendations to support nursing adoption (e.g., use of clinical systems).*

- *Produce white papers, articles in refereed journals, a 'toolbox" of questionnaires, work flow samples, and a "Lessons Learned" area so that we don't keep replicating our mistakes.*

- *Increase recognition of important human factors, ranging from learning styles of the aging, emerging workforce and the flight of nurses running from poorly designed, planned and implemented systems.*

- *We can help establish some basic expectations of system design, as well as provide some direction on how nurses can be actively involved in system design and development.*

- *Better collaboration between vendors and clinicians.*

• *Increase recognition of the informatics nurse.*

Usability Definitions

- ## More formally
  - The 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 (ISO 9241-11)

- ## Less formally
  - What clinicians want when they say a system should be "easy to use" or "user friendly"
  - A product that can be understood, learned, used and be attractive to users (Usability.net at http://www.usabilitynet.org/tools/r_international.htm)

Usability Axioms

- Early and central focus on users (nurses)
- Iterative design of applications
- Empirical usability measures

Usability and Design

- Design and usability are intertwined
  - Usability involves detailed design activities based upon interactions with real users (nurses)
  - Usability has an overall goal of meeting users' (nurses') needs

Initial Usability Thoughts from the TIGER Summit

- Capable of interoperating with other systems
- Support for standardized terminologies
- Support evidence-based practice
- Enables collaborative and interdisciplinary care
- Informed by and/or positively transforms nursing workflows
- Systems designed using principles of human factors
- Provide seamless access to published literature, knowledge
- Speed the translation of research into practice
- Support the creation of new knowledge
- Work with system developers to maximize clinical system effectiveness and efficiency for nurses.

Initial Usability Thoughts Re-thought!

- Interoperability requirements – shift to interoperability group
  - Capable of interoperating with other systems
  - Support for standardized terminologies
- Design requirements and/or goals
  - Support evidence-based practice
  - Enables collaborative and interdisciplinary care
  - Provide seamless access to published literature, knowledge
  - Support the creation of new knowledge (knowledge discovery requirements)
  - Speed the translation of research into practice
- Usability requirements and/or goals
  - Informed by and/or positively transforms nursing workflows
  - Systems designed using principles of human factors
  - Work with system developers to maximize clinical system effectiveness and efficiency for nurses

Next Steps for Participants:
Sign up to actively participate in a workgroup

1. Collect a list of pertinent references
   - Usability
   - Clinical Application Design
2. Collect case studies and examples that illustrate usability/clinical application design from your experience/environment
   - Exemplars (good, replicable examples)
   - Lessons to be learned (bad examples that can help to inform others what to avoid)
3. Summarize recommendations for:
   - Highly usable applications
   - Good clinical application design
4. Develop recommendations for vendors and providers for usability and good clinical application design
5. Develop a usability/clinical application "toolkit" for healthcare providers and organizations

Team Communication

- Website www.tigersummit.com/usablity

- Email workgroup preference to usability@tigersummit.com

- Email facilitators:
  - Nancy@tigersummit.com
  - Michelle@tigersummit.com

- Next full team meeting: October 31, 2007 at
  - 1 p.m. Eastern/12 p.m. Central/11 a.m. Mountain/10 a.m. Pacific

- Monthly recurring meetings – 4th Wednesday of each month at 1 p.m. Eastern Time