Empowered Consumers, Personal Health Records and Emerging Technologies



NATIONAL CONFERENCE DECEMBER 7-8, 2006 WASHINGTON, D.C.

Empowered Consumers, Personal Health Records and Emerging Technologies

2006

## **User-Centered Design**

Steve Downs - Robert Wood Johnson Foundation

Holly Massett - National Cancer Institute

Patti Brennan - University of Wisconsin-Madison

Stefanie Fenton - Intuit



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## **User-Centered Design**

Holly A. Massett National Cancer Institute

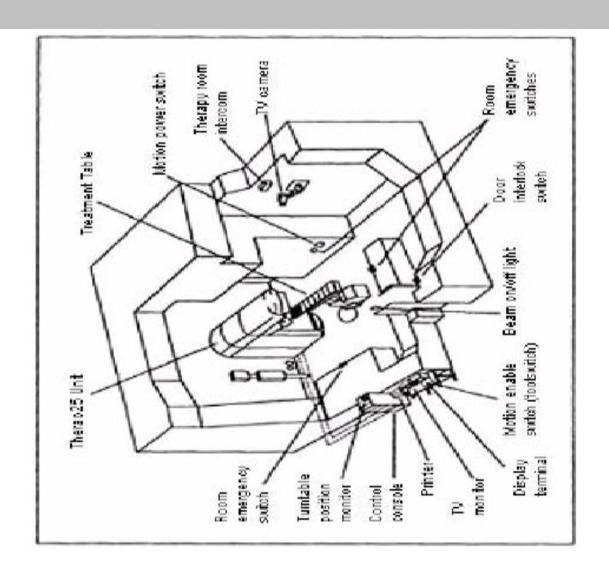




It's all about the users:
Why and how we include them from the beginning

Holly A. Massett, PhD National Cancer Institute

## Therac-25 Case Study\*



\*Case study adapted from presentation given by Dan Russell, Google to the National Cancer Institute, March 2, 2006; https://www.informaticsinaction.com/DanSlides.pdf

### **Therac-25 Case Study (cont.)**

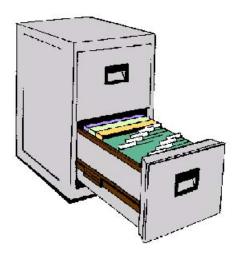
PATIENT NAME : TEST TREATMENT MODE: FIX BEAM TYPE: X	ENERGY (KeV): 25
UNIT RATE/MINUTE 0 MONITOR UNITS 50 TIME (MIN) 0.27 GANTRY ROTATION (DES) 0.00	PRESCRIBED 200 200 1.00 0
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DATE: 84-OCT-26 SYSTEM: BEAM READY TIME: 12:55.8 TREAT: TREAT PAUSE OPR ID: T25VO2-RO3 REASON: OPERATOR	OP.MODE: TREAT AUTO X-RAY 173777 COMMAND:

<sup>\*</sup>Case study adapted from presentation given by Dan Russell, Google to the National Cancer Institute, March 2, 2006; https://www.informaticsinaction.com/DanSlides.pdf

## **Inevitability of PHRs?**

- PHR products now number 125...and growing<sup>a</sup>
- 6 out of 10 Americans support the creation of a secure online PHR<sup>a</sup>
- nearly 1 in 3 surveyed report they or a family member have created some form of medical record keeping<sup>b</sup>

## **Current PHR systems**











#### **APRIL 2006**

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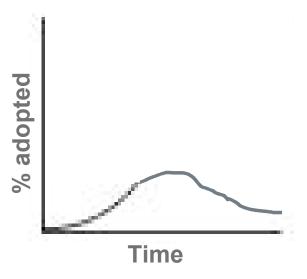
# The value of an idea lies in the using of it.

~Thomas A. Edison

#### **Diffusion of Innovations**

#### Perceived Attributes:

- Relative advantage
- Compatibility
- Simplicity
- Observability
- Trialability



Failed adoption curve

#### Power of medicine

Medical errors the 8th leading cause of death in US<sup>b</sup>

-most are system-related

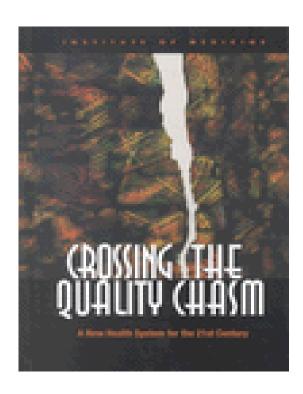
Garden City woman underwent surgery, radiation, only to be told of lab error - she never had the disease

(Newsday, New York, 09/27/2006)

<sup>a</sup>Chantler, Cyril. "The role and education of doctors in the delivery of health care." **Lancet** 1999; 353:1178-81.

bInstitute of Medicine (IOM; November,1999), *To Err is Human: Building a Safer Health System* 

#### **Need for New Health Care**





#### Six Aims for Improvement

- 1) Safe
- 2) Effective
- 3) Patient-centered
- 4) Timely
- 5) Efficient
- 6) Equitable

#### PHRs must function in context



## Scientific approach to developing patient-centered PHRs

- Consider social, organizational & cultural context
- Specify users and tasks
- Predict and measure
- Improve satisfaction
- Accommodate individual differences

### User-centered design (UCD) research

Understand the needs of your users and how your product will behave and be used in their real world.\*

Our goal: Design PHRs that help users meet their needs

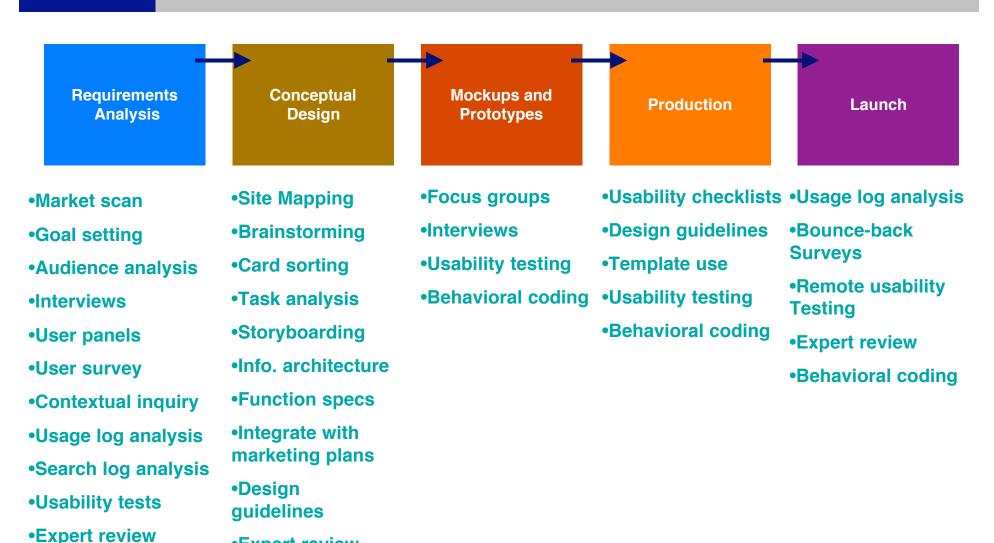
<sup>\*</sup>Adapted from: Garrett, J. J. (2003). The elements of user experience: User-centered design for the web.

#### What to learn

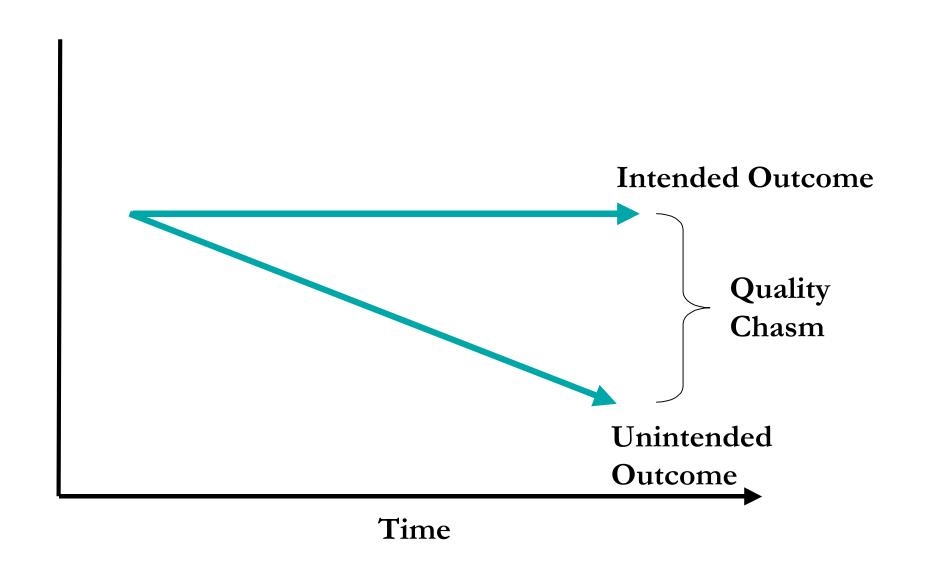
- What people think
- What people do
- People's mental model
- Opinions, preferences, and emotional reactions to a concept or user interface
- How well users respond to your interface design

## **Many UCD options**

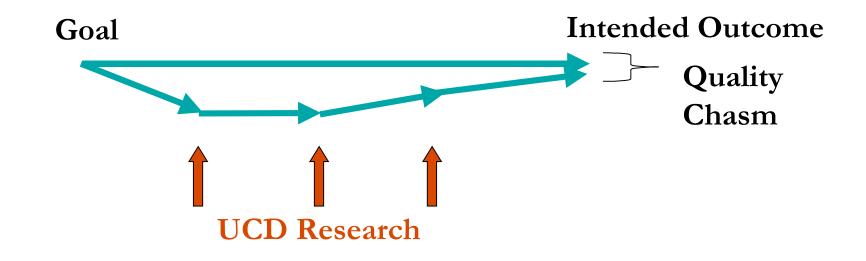
Expert review

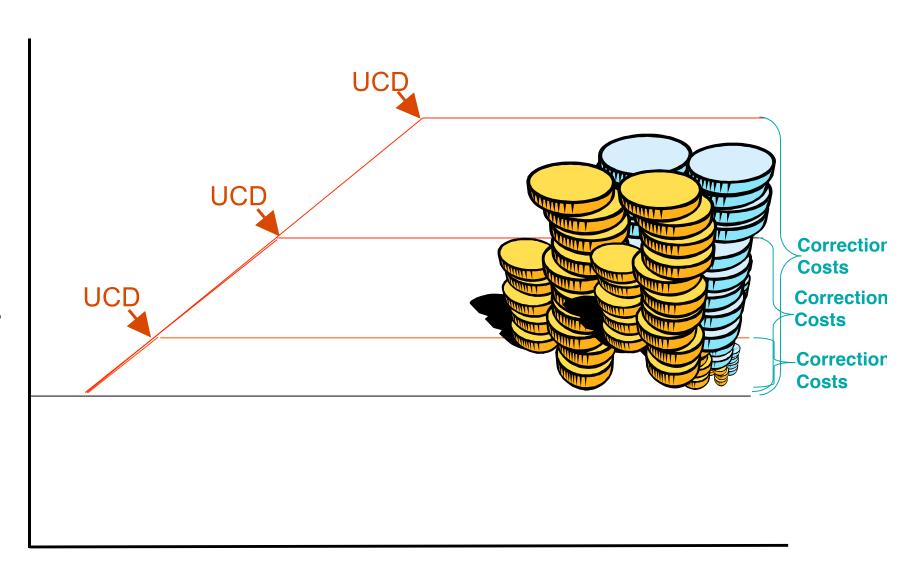


## **The Quality Chasm**



## **Closing the Quality Chasm**





## **Costs of NOT Conducting Research**

- "Inadequate [UCD] in software development projects ... cost the U.S. economy about \$30 billion per year."<sup>a</sup>
- "Once a system is in development, correcting a problem costs 10 times as much as fixing [it] in design.
  - ...[Once released] it costs 100 times as much."

## PHR user challenges

#### Interaction design

- Complexity
- Vocabulary mappings
- Older users
- Health literacy

#### Access and control

- Data entry and data collection
- Error checking
- Online/Offline
- Privacy/security
- Preservation and life long use



## Health literacy: Losing weight safely

"The Dietary Guidelines for Americans recommends a half hour or more of moderate physical activity on most days, preferably every day. The activity can include brisk walking, calisthenics, home care, gardening, moderate sports exercise, and dancing."

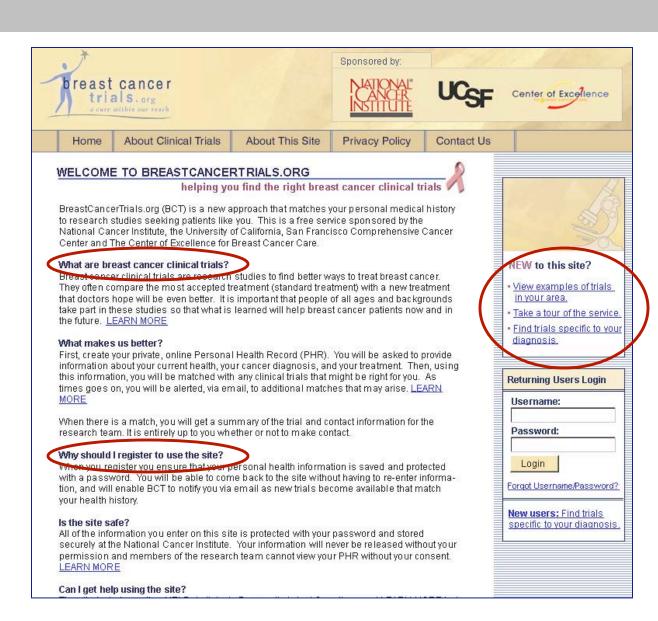


"Do at least 30 minutes of exercise, like brisk walking, most days of the week."

#### caMatch (breastcancertrials.org): Before



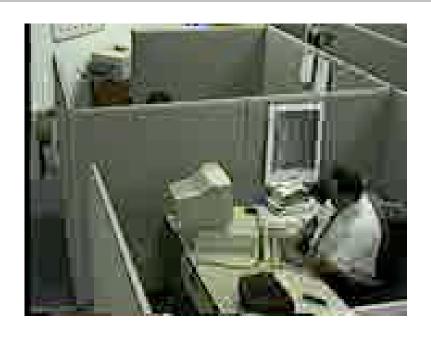
#### caMatch: After



### Final thoughts on UCD

- Conduct UCD early and often: be Informed and Iterative
- Real world: Some information is better than none
- You are not your users—even if you are...
- Garbage In, Garbage Out demand professional, unbiased research
- Essential to act on the findings and re-evaluate your new design

#### "People just need to understand the vision."



"There's a problem? We'll fix it in the next software release."

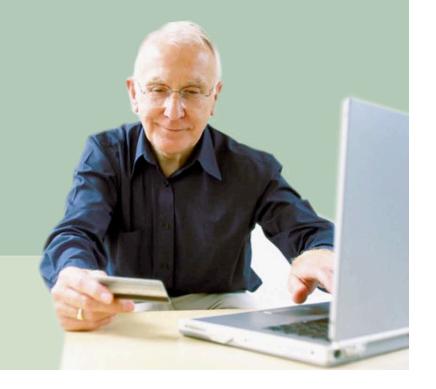
"Users just need more training."

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## **User-Centered Design**

Patricia Flatley Brennan University of Wisconsin-Madison







Personal Health Records:

Design for activation

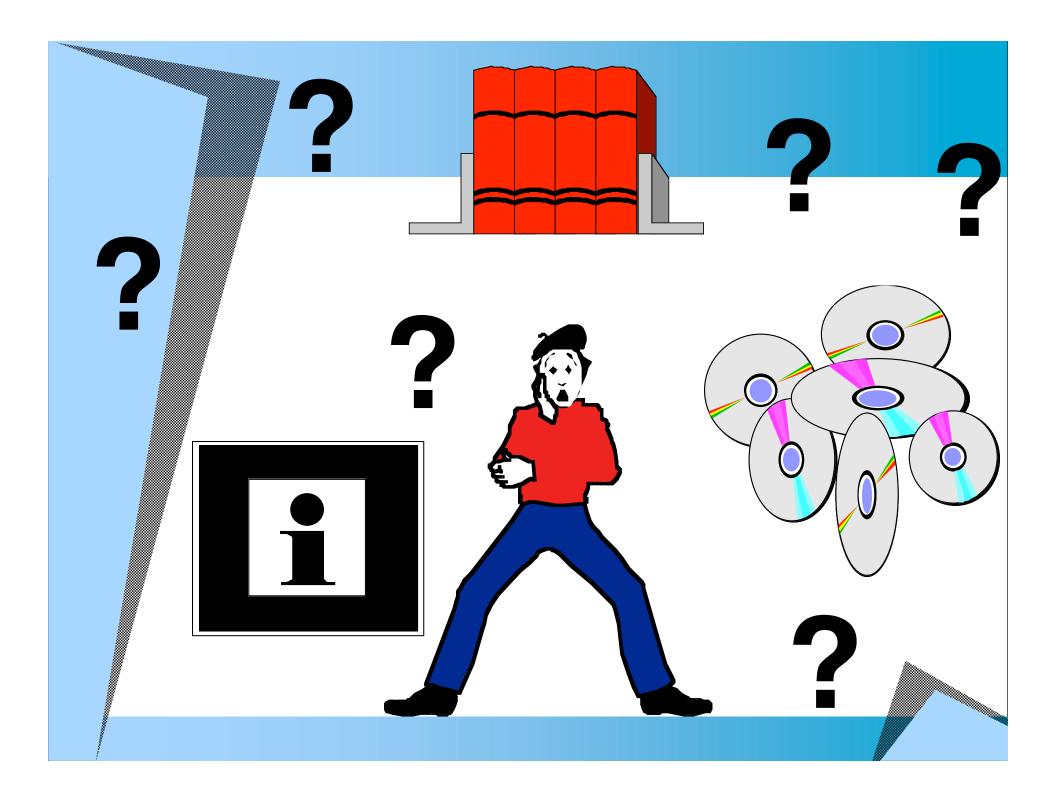
Parrola Flatley Brennan, RN, PhD, FAAN

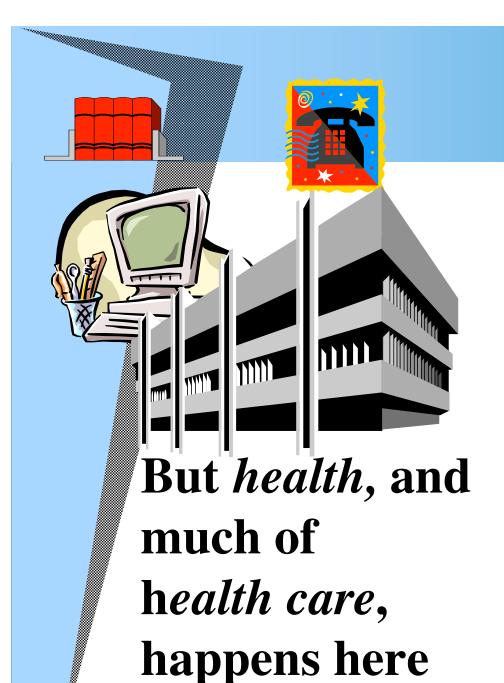
## Overview

- Personal Health Records: Actionable Information
- The challenge of design
- Environments as a way of organizing design recommendations
- Conclusion

# What are we expecting patients to do?

- Motivate
- Monitor
- Mentor
- Mend
- Manage!







## The Contexts of Care

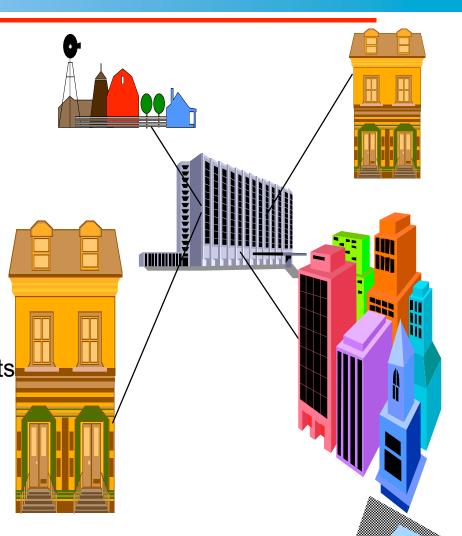
Living Environment

Social Environments

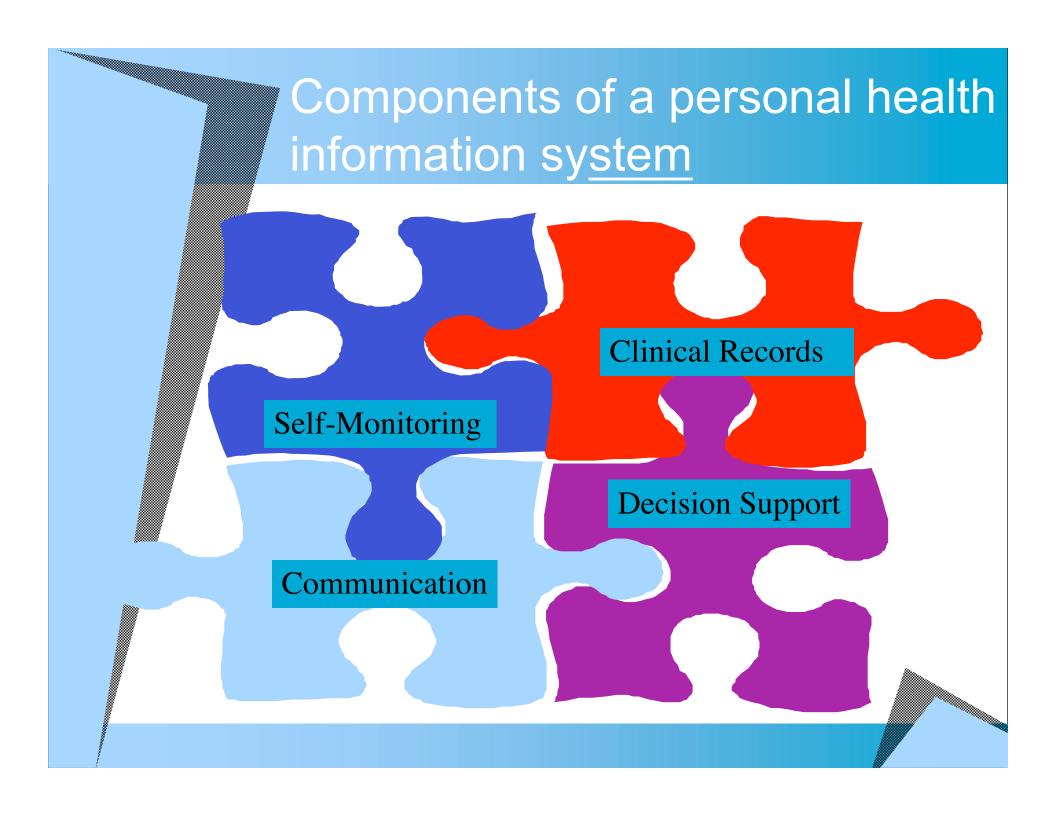
Psychological Environments

Technological Environments

Health Services Environments







# Project HealthDesign

Compilation of personal observations

Extracted elements from clinical records

Links to consumer information









# Project HealthDesign

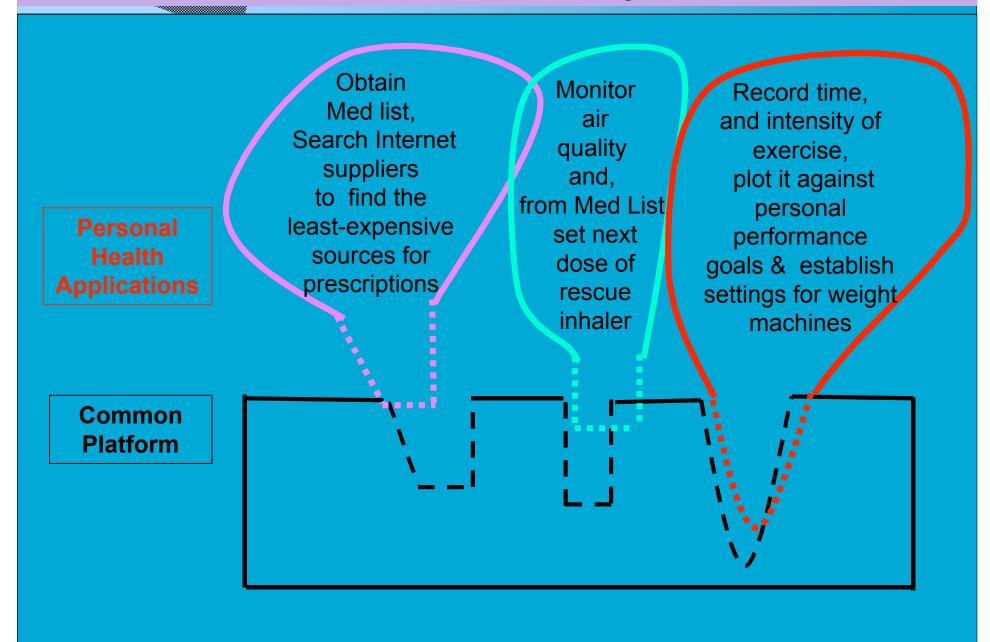
- Re-think the power and potential of personal health records
- Stimulation innovation in the development of applications
- Specify properties of a robust technical platform

# Project HealthDesign

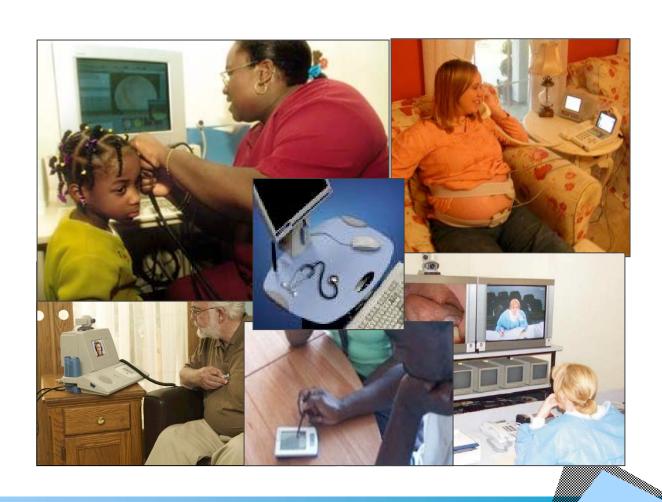
- 3-year, \$3.5 million national program
- Administered by the University of Wisconsin-Madison



#### **Our vision of Personal Health Record Systems**



# www.projecthealthdesign.org



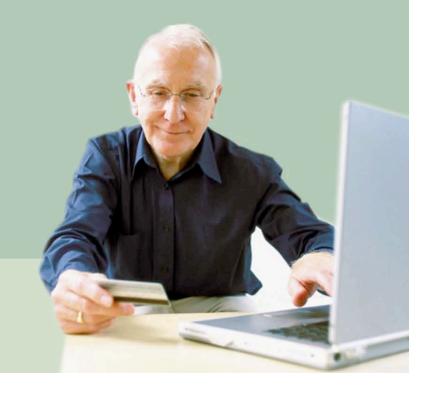
#### Connecting Americans to Their Health Care:

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2006

# **User-Centered Design**

Stefanie Fenton Intuit





# Applying Consumer Driven Invention to Healthcare

#### **Stefanie Fenton**

Director, Healthcare Division

December 7, 2006



# Agenda

- Intuit's Approach to User Centered Design: Consumer Driven Invention (CDI)
- Applying CDI to Healthcare
- What We Have Learned from Consumers
- Overview of Quicken for Healthcare



#### Who is Intuit?



- #1 web delivered application and #1 best-selling software
- 79% retail market share
- Prepared 21 million 2005 tax returns
- 25% of all U.S. tax returns prepared with Intuit products



- #2 best selling software in the U.S. behind TurboTax
- Over 15 million users
- 72% U.S. retail segment share
- 80% brand awareness (in households with PCs)



- 88% U.S. retail segment share
- 3.5 million U.S. small businesses use QuickBooks
- #1 payroll service



#### **Our Mission**

# Revolutionize Peoples' Lives



Create changes so profound that people can't imagine going back to the old way of doing things



#### What Intuit Does

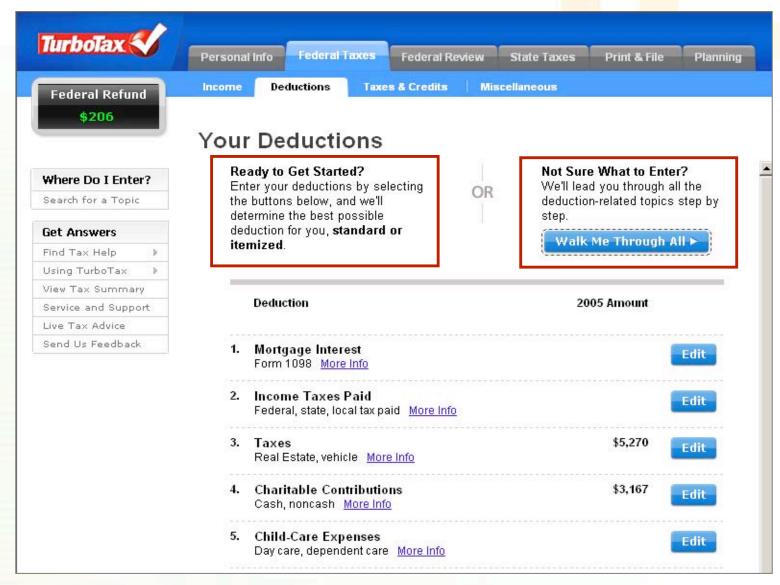
# Simplify and Streamline the Complicated

Build integrated solutions and tools that clarify the complex for consumers

Educate, empower, and help them organize information for action



# Gives Users a Simple Way to Organize Things





#### Puts All The Information In One Place



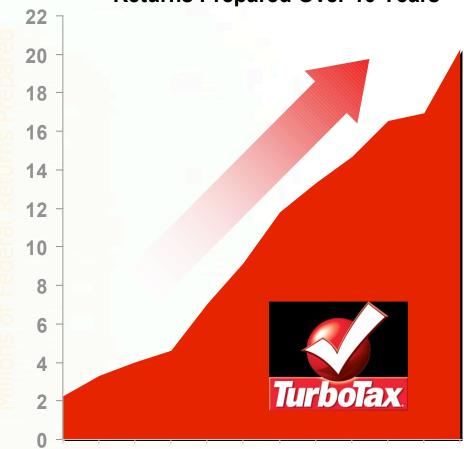
## Consolidates Data from Multiple Sources

Brokerages Banks
Credit Unions
Payroll Providers Mutual Funds





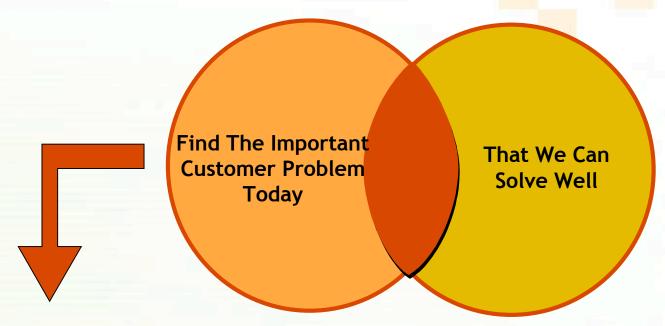
Total (in Millions) of Federal Returns Prepared Over 10 Years





#### **How Intuit Learns**

## Consumer Driven Invention (CDI)



- Deeply understand people's current pain points
- Watch people and build tools that work they way they work
- Create solutions that help them make better decisions and feel more confident
- Focus on the prospect. Non-customer behavior can yield the greatest learnings



#### Follow-Me-Homes: Build From the Outside-in



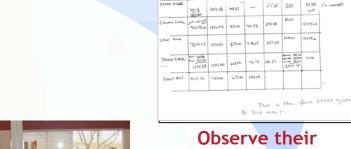
Follow people home



Have them show you how they track information



Capture learnings, review and share



behaviors



**Use Town Halls** and user groups



Listen to their calls and questions



# **CDI Methods and Principles**

#### **Methods**

- Follow-Me-Home observations
- 1:1 interviews
- Town Hall meetings
- Usability testing
- User groups
- User forums
- Surveys

#### Principles

- Observe customers in their own environments
- Trust Follow-Me-Homes more than usability
- Trust the customers' words more than our preconceived notions
- Trust verbatims more than survey research
- See the actions behind the words



## How Intuit is Learning about Healthcare

Since 2004, Intuit has reached out to more than 1,450 consumers to learn about their key points of pain

#### 300+ personal interactions

- More than 75 in-home visits to watch people interact with the healthcare system and identify problems we can help solve
- iLab observation
- Focus groups
- 1:1 interviews

We've scoured hundreds of survey results, but the in-person studies are so valuable we use survey data just to validate our overall direction.



# Homegrown Manual Methods Aren't Working



During our observations, we saw piles of unopened envelopes and letters from collection agencies

Manual methods tend to be time-consuming, inefficient and lead to feeling out of control and overwhelmed

## Findings from Consumer Research

- 41% want new tools to better manage their healthcare
- Consumers care significantly more when they have 'skin in the game'
  - Higher deductibles, FSAs, HSAs, chronic illnesses, recent illnesses or caregivers
- There is a lot of healthcare information coming at consumers
  - EOB's from health plans
  - Bills from providers and facilities
  - Benefit information from employers and plans
  - Reminders and health tips
  - Web sites (plans, employers, PBMs, physicians, labs, public portals, etc.)
- Information is fragmented, unfocused and promotes exasperation—not engagement
  - Instead of acting upon information, people are stuck trying to make sense of it



#### Points of Pain Span Across Cost and Care Issues

#### Consumers want help...

- Making sense of bills and claims
- Avoiding unanticipated expenses
- Understanding how to impact costs and save money
- Interacting effectively with the healthcare system
- Finding accurate information about their medical conditions and treatment options on a self-service basis

Consumers' biggest points of pain focus on solving problems for which they do not have a reliable approach today



## Solution Fundamentals - What Consumers Require

- Data must be kept private and secure
  - More sensitivity over healthcare data than financial data
- Data must be delivered in an understandable way
- Data must be accessible all in one place
- Must be easy to use and take less time than paper methods
  - No manual data entry

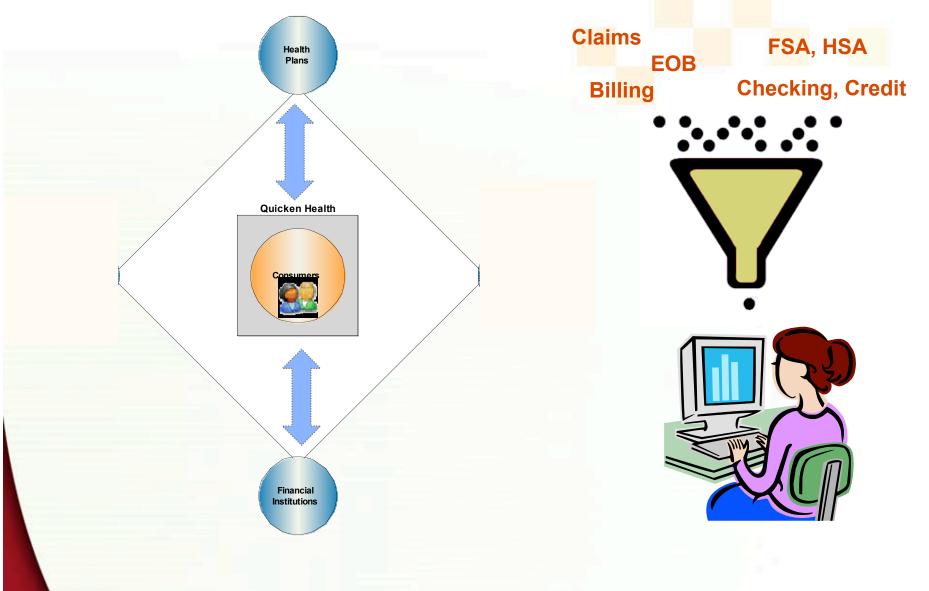


# What Might A Solution Look Like?

- Easy to get, use, understand
- A Web based service
  - Access anytime, anywhere
  - Easy start-up, no installation hassles
- Electronic access to relevant data
  - No more paper
- Secure data transfer
  - Bi-directional certificate-based user authentication and fully encrypted data exchange
- Clear answers to basic questions
  - What is my deductible and how does it work?
  - What is my out of pocket maximum, and how does it work?
  - Who do I owe? How much do I owe? When is it due? Is this bill right?
- Easy electronic bill payment
  - Via my bank if I prefer, no new account needed
- Help with decision making
  - Spend less on Rx drugs
  - Find a high quality, low cost, provider
  - Manage chronic disease effectively using best standards of care



# Quicken for Healthcare



Q & A



# Connecting Americans to Their Health Care:

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