

# Ethical Risks in mHealth

## *Challenges and Solutions*

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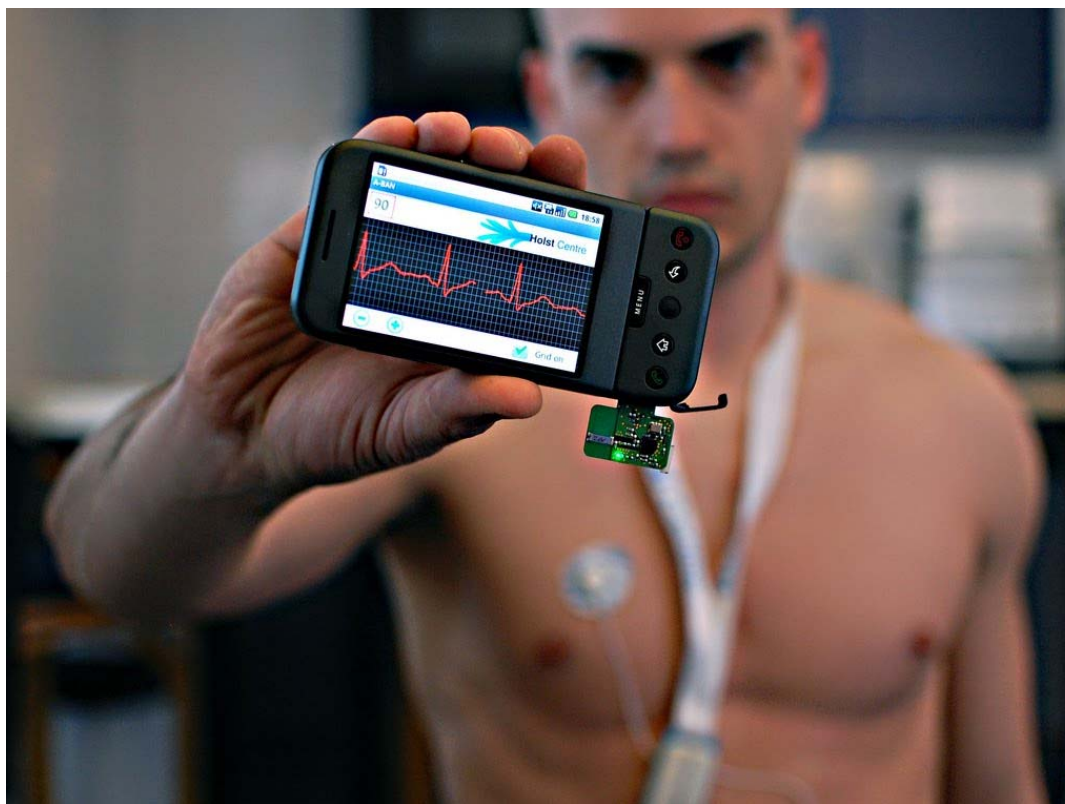
Molecular, Cell, & Developmental Biology

University of California, Los Angeles

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## The Market for mHealth

- mHealth is the use of mobile technology (phones, tablets, wearables, etc) to track and/or collect health data
- Analysts estimate the current value of the mHealth market as \$4.6 billion and growing



# mHealth: Emerging Technologies



Apple WATCH



Where Does It Hurt? 

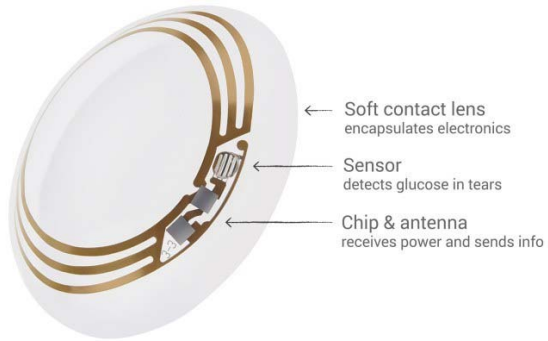
Change View **FEMALE** ADULT FRONT



Click the Body Part Where the Pain Is

**VIEW LABELS**

**VIEW ALL SYMPTOMS**



- The source of data is diverse
- The content of these datasets may be deeply personal
- We pursue large sets of data for extremely varied purposes

## The Potential: Clinical Workflow

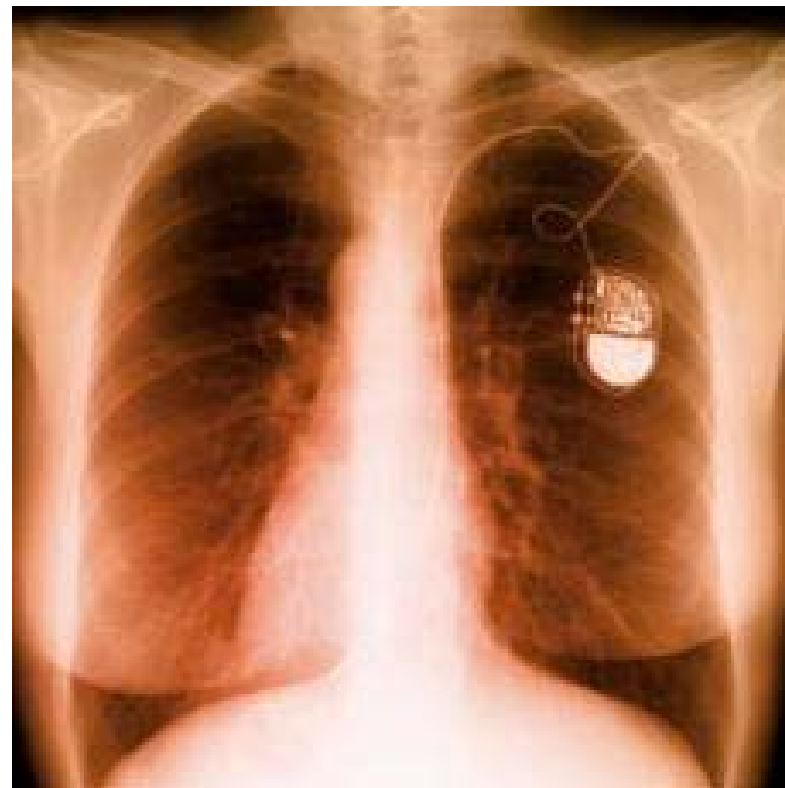


IMB Media

- mHealth Apps can allow HIPAA-compliant communication between clinical teams
- Untethers clinicians from desktops, increases flexibility of care delivery
- Streamlines patient charting
- Portable reference and diagnostic tool

## The Potential: Remote Patient Monitoring

- Continuous monitoring leads to better data gathering
- Increases patient compliance by reducing need for clinical visits
- Save clinicians times and allows fewer providers to serve more patients



<http://www.nlm.nih.gov/medlineplus/pacemakersandimplantabledefibrillators.html>

## The Potential: Patient Self-Tracking



*Horacio Salinas for The New York Times*  
<http://www.nytimes.com/2010/05/02/magazine/02self-measurement-t.html>

## mHealth and Compliance

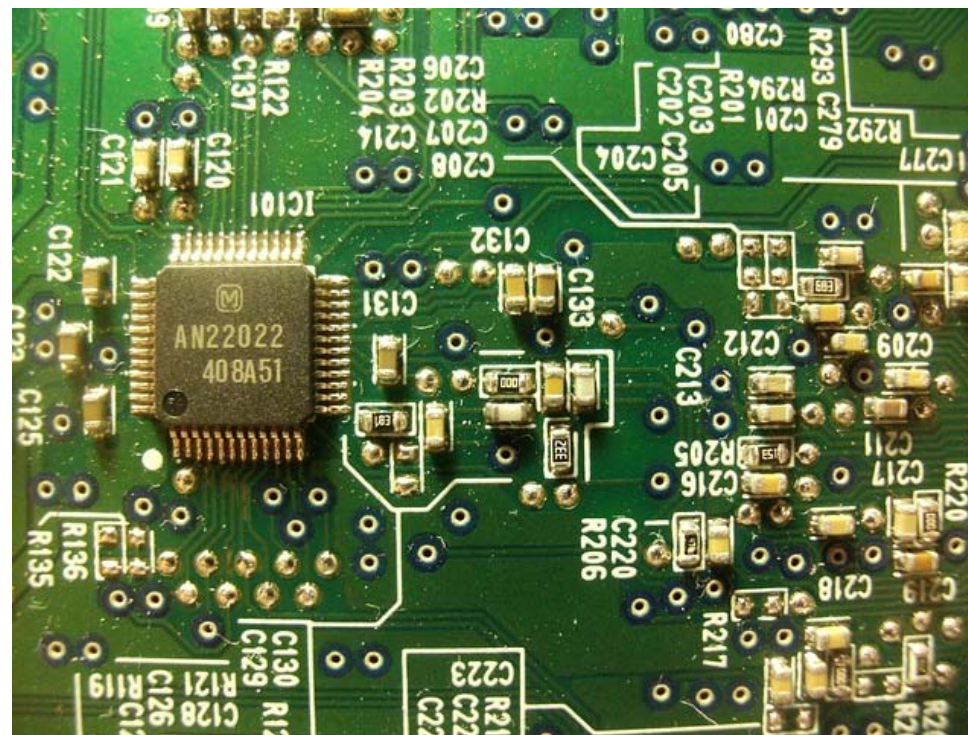


## mHealth Applications Currently in Trial

- **Google Glass and Dietary Tracking**
- **Google Glass and Addiction**
- **Activity Monitors and Smoking**
- **Continuous Glucose Monitoring**
- **Pulse Tracking and Stress**
- **Text Reminders and Compliance**

## Tracking the Stake-Holders

- Clinicians and biomedical researchers
- Engineers and designers
- Commercial entities
- Government
- Public interest
- Data subjects



<http://www.pd4pic.com/computer-computing-information-technology-it-chip-2.html>

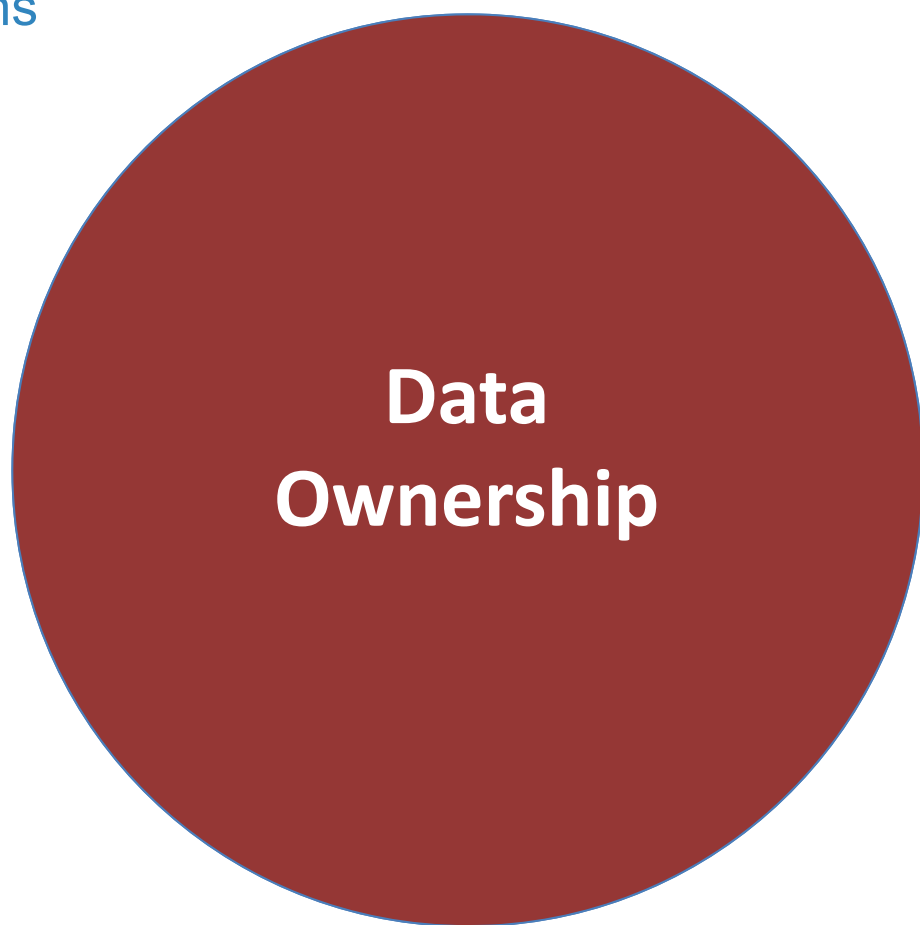
# The Ethics

Ethical Concerns

UCLA



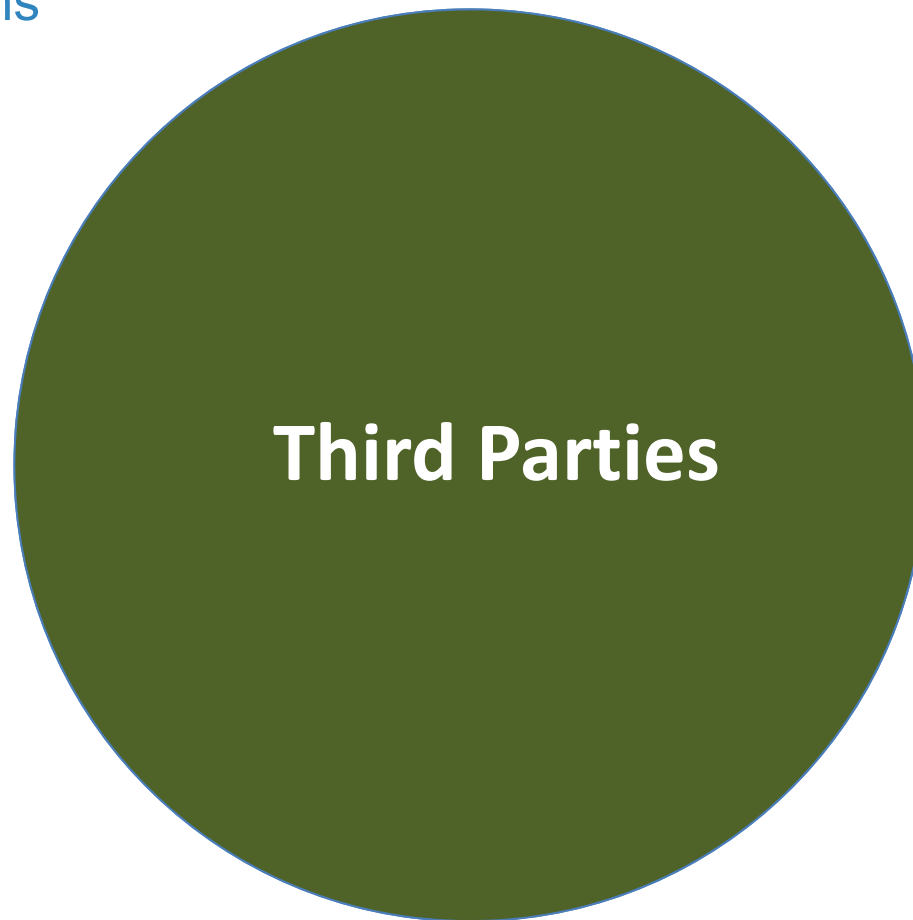
Ethical Concerns



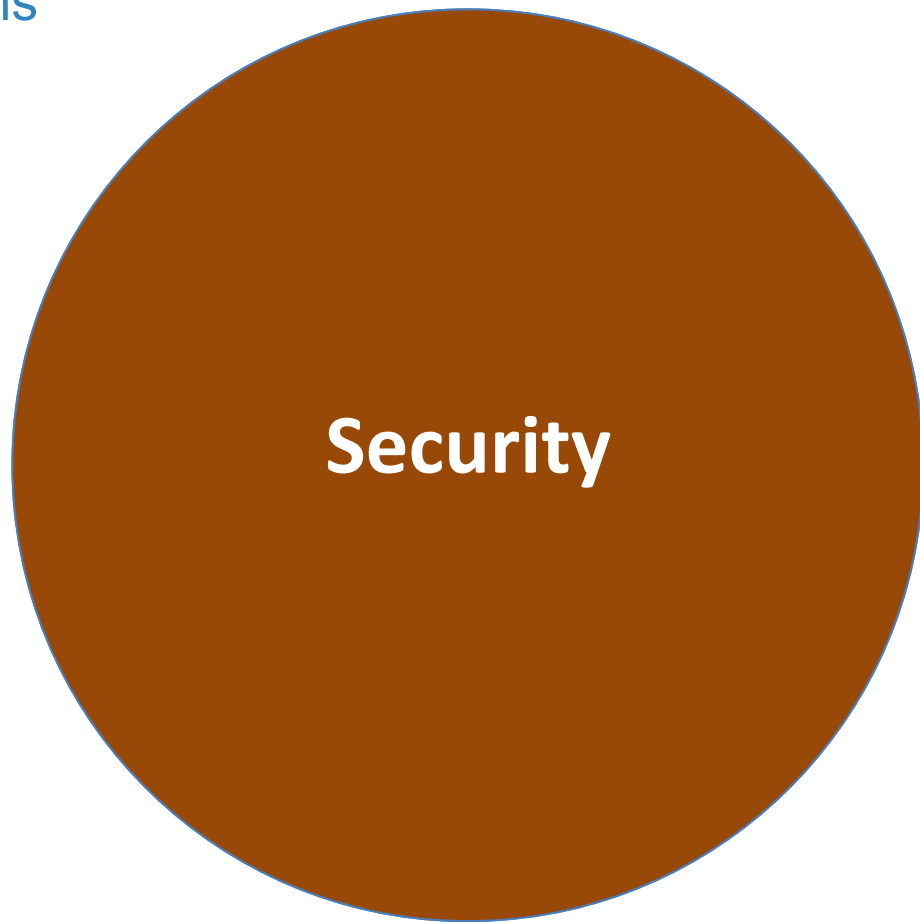
Ethical Concerns



Ethical Concerns



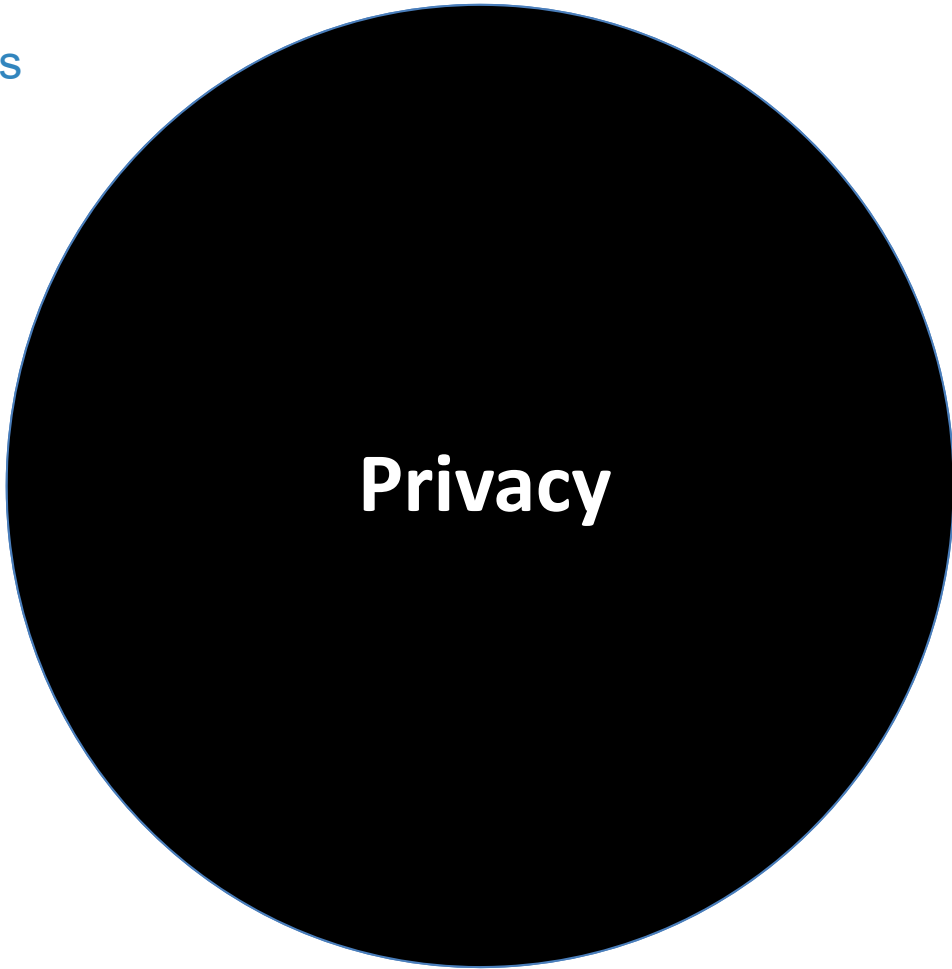
Ethical Concerns



Ethical Concerns



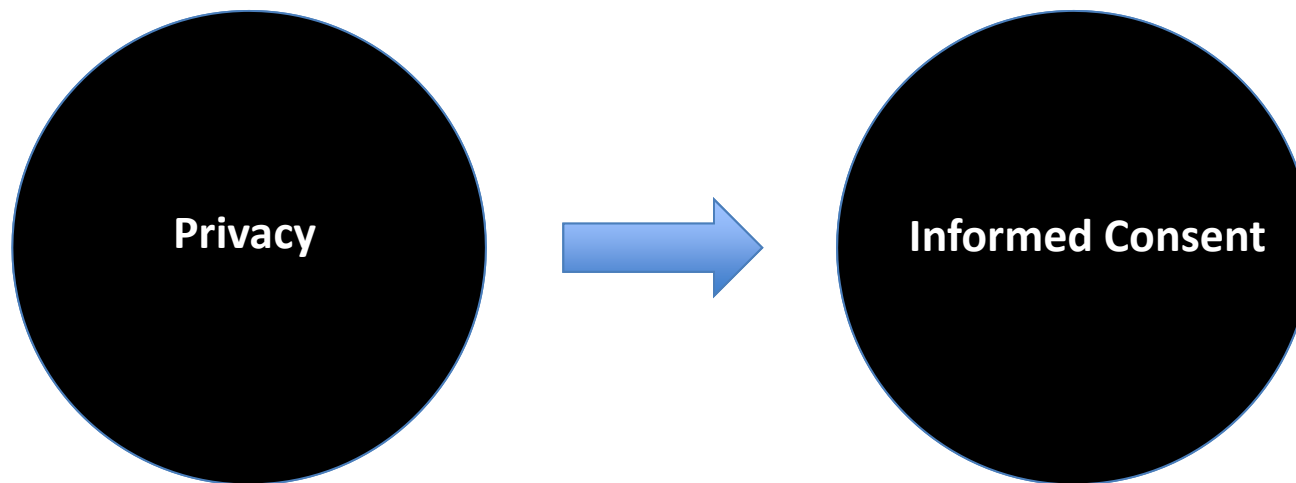
## The Challenges



“Data can be useful or  
anonymous, but never  
both.”

-- Paul Ohm, *“Broken Promises of Privacy: Responding to the Surprising Failure of Anonymization”* *UCLA Law Review* 57, p. 1702

## Reframing Challenges



## Reframing Challenges

- Consent and Feasibility
- Proxy vs Actual Consent
- Consent and the Benefit

## Solutions: Untangling Obligations



# Moving Forward

## Solutions: Untangling Obligations

Researchers and  
Clinicians



Data  
Subjects



- Recognizing that more (or better) data does not take precedence over patient autonomy
- Surveillance and trust
- Medical data and intimacy

## Solutions: Untangling Obligations

Engineers and  
Designers



Government



Data  
Subjects

- Anticipating legal restrictions and applications
- Taking intentional reductions in utility seriously
- Data curators and data guardians



Thank You