Clinical Research Seminar

Using the Internet to Conduct Research and Recruit Subjects

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Christine Chaisson, Director
Data Coordinating Center
Boston University School of Public Health
Types of Studies that Work Best

- Cohort Studies
  - Loss to follow up may be a problem
- Health Education
- Surveys
  - Difficulty determining denominator and low response rate issues raise issues about generalizability
- Traditional Clinical Trials
  - Randomization
  - Data entry
  - Study management/communications
- Online Clinical Trials
  - “Nutriceuticals” or non-invasive interventions
Benefits of Internet in Research

- Capture data in real time
- Data collection for clinical research
  - Paperless
- Communications and management for multi-site trials
- Subject recruitment
  - Reach greater target population
Risks

- No direct contact with subjects
  - Unable to intervene if subjects become distressed or experience other adverse events

- Breach of confidentiality
  - Most common risk
  - Via insecure transfer of data
  - Via environment in which subject is accessing Internet (e.g., Internet café, public library)
Validity

- Non-representative populations (i.e., tend to be of higher SE and educational status)
- Falsification of data
- Multiple submissions by same subject
  - “Subject naught”
- Invalid results places subjects unnecessarily at risk
Consent

- **Waiver of consent**
  - [45 CFR 56.116(d)]: (1) The research involves no more than minimal risk to the subjects;
  - (2) The waiver or alteration will not adversely affect the rights and welfare of the subjects;
  - (3) The research could not practically be carried out without the waiver or alteration;
  - **AND**
  - (4) Subjects will be provided with additional information/results after participation
Consent

- Waiver of documentation of consent
  - [45 CFR 56.117(c)]: (1) Only record linking subject to research would be the consent document and this is the primary risk of harm (i.e., in the event of breach of confidentiality) -OR-
  - (2) Research presents no more than minimal risk to subjects and involves no procedures for which written consent is normally required outside of the research context
  - Can still create a consent page that subjects must read and electronically accept before proceeding

- Subjects may also print/sign consent form from Internet and fax/mail to investigator to receive password for website
Privacy

- Identifiable vs. Anonymous
  - Screen names/handles/e-mail addresses commonly used online
  - Though subject names may not appear with these, often can be “readily ascertained” via search engines
  - Online identity may be as important to a subject as real identity
Privacy

- Public vs. Private
  - Most online activity is publicly accessible
  - Federal regulations base definition of private information on the “reasonable expectation” of privacy
  - e.g., chat rooms, chatters expect privacy and not to have their chat studied
Minors as Subjects

- If research qualifies for waiver of parental permissions, no additional safeguards required
- Otherwise parental consent must be obtained unless criteria for Waiver of Informed Consent or Waiver of Documentation of Informed Consent are met
- Online services can help but none are 100% foolproof
  - AdultCheck
  - NetNanny
Confidentiality

- Breaches
  - Inadvertent disclosure (e.g., stolen laptops/computers with subject data)
  - Deliberate attempts to gain access (i.e., hackers, no documented evidence of this occurring in a research setting)
- E-mail is considered “individually identifiable information” by IRB
- Information or data transmitted by e-mail is not secure unless additional steps are taken (e.g., encryption)
Web Systems Security

- Website on secure server behind firewall
- Server housed in locked room with restricted access
- Data are encrypted (Secure Socket Layering (SSL) technology)
- Login restricted by username and password
- Automatic timeout
- Daily backup of web-server and database
Subject Compensation

- Several Different Approaches May Be Used
  - Mailed check/cash
  - E-money (e.g., PayPal)
  - Electronic gift cards (e.g., giftcertificates.com)
  - Charitable donation

- Be careful with raffles!
  - Closely scrutinized by IRB
  - Must be conducted in a way that is equitable to all subjects
Study Advertisement/Recruitment Sites

- Online search engines
  - Google
  - Yahoo
- Links on other sites
  - Gout.com
- Trial listing services
  - Centerwatch
  - Study response project
- Banner Ads
  - Gay.com
- NIH
  - ClinicalTrials.gov
Welcome to StudyResponse!

The StudyResponse project facilitates online research for behavioral, social, and organizational science researchers by distributing email participation requests to adult research participants. The StudyResponse project accumulates the characteristics and outcomes across research studies in order to explore the features of studies that encourage quality responding. The StudyResponse project is hosted by the School of Information Studies at Syracuse University and has received institutional review board approval (#02165).

We need you to participate in online research!

Every StudyResponse research project offers incentives for voluntary participation in social science research. Many of the projects are questionnaires about topics that people find interesting. By registering with us as a research volunteer, you may be able to:

- Obtain incentives while participating in social science research
- Learn about current social science research topics
- Contribute to the development of social research and its applications in the family, the workplace, and society
Centerwatch Clinical Trial Site

Welcome to the CenterWatch Clinical Trials Listing Service!

What's New @ CenterWatch

Clinical Trials Today

Patient Notification Service
Disease Specific

BU Alzheimer's Disease Center

Research Participation

Why Participate in Research?

Your participation in research provides important information regarding possible effective treatments and prevention for Alzheimer's disease. Only through community participation in research will progress be made in the fight against Alzheimer's disease.

Types of Research Studies and Their Purpose

We have several different types of ongoing studies at the ADC. Each study has its own goals. Our memory and aging studies help us learn about the changes that occur in people's memory as they age. Clinical trials (or treatment trials) and prevention trials help to determine if new or currently used medications can prevent Alzheimer's disease or slow its progression. Our family and genetic studies look at the link between Alzheimer's disease and genetics; these studies help us understand genetic risk factors associated with Alzheimer's disease.

Caregiving studies specifically focus on issues related to activities in daily life, such as driving, coping emotionally with caregiving activities, and support strategies for caregivers. Our imaging studies help us learn how brain images can provide more information about diagnosing and detecting Alzheimer's disease. If we can identify changes that are occurring in the brain throughout the disease process, we can help to diagnose and treat people with Alzheimer's disease as early as possible in the disease.
Craig’s List

For local research studies. However, note there are many restrictions on posts:

- Cannot post continuously
- Cannot post same ad repeatedly
- Cannot post same ad in more than one city at a time
- Restrictions vary by city
  - Designated cities restrict posts to 3 days (Boston, San Francisco, New York)
  - Other cities allow posts for up to 45 days
Craig’s List “Volunteers”

Would you like to change a life in one hour a week? -

Eco Designs -

Dedicated Volunteers Needed -

Healthy Women Volunteers Needed 45-64 years old - (BWH)

Brain Imaging Research Study of the Social Brain in Autism - (Boston University School of Medicine)

Volunteers to help with hospital equipment going to poor countries - (North Andover, MA)

Fun people needed!!! - (Beverly)

Psychology study on emotional pain and self-injury - (Harvard University)

Do you have Asthma and allergy to cats or dust mites? - (BOSTON-MGH)

Participants needed for non-invasive vision studies - (Cambridge/Central Square/MIT)

Couples Needed for Study of Veteran Relationships - (Jamaica Plain)

Has somebody suggested you cut back or quit drinking? - pic

Spend time with a needy person - (Reading)
ClinicalTrials.gov is a registry of federally and privately supported clinical trials conducted in the United States and around the world. ClinicalTrials.gov gives you information about a trial's purpose, who may participate, locations, and phone numbers for more details. This information should be used in conjunction with advice from health care professionals.

Read more...

- **Search for Clinical Trials**
  Find trials for a specific medical condition or other criteria in the ClinicalTrials.gov registry. ClinicalTrials.gov currently has 57,460 trials with locations in 156 countries.

- **Investigator Instructions**
  Get instructions for clinical trial investigators/sponsors about how to register trials in ClinicalTrials.gov.

- **Background Information**
  Learn about clinical trials and how to use ClinicalTrials.gov, or access other consumer health information from the US National Institutes of Health.
Disease Specific Sites: Link on TAP’s Gout.com

By sharing information about your gout, you can help researchers identify factors that cause repeated gout attacks. Conducted by a collaborative team at the Boston University School of Medicine, this study is funded by the National...
Case Study: The Non-Gay Identifying Men Who Have Sex with Men Studies (US and India)

- Compensation
  - US: giftcertificates.com
    - Eligible AND ineligible subjects randomly selected for online gift code
    - Code was displayed in a separate window with text warning respondent to print or carefully write down code (i.e., NOT e-mailed)
  - India: Used similar method with an online vendor in India
Case Study: The Non-Gay Identifying Men Who Have Sex with Men Studies (US and India)

- Recruitment
  - US: Google AdWords, gay.com, manhunt.com, African-American and gay community newspapers (Boston, NYC, Washington DC)
  - India: Banner advertising in gay chat room on indiatimes.com website
Accrual of Eligibles and Ineligibles: March 29, 2005-January 3, 2006

Manhunt banner begins to appear

NYC/DC print and online advertising

Recruitment budget spent

Google AdWords increased to $1,000/month
Internet in Clinical Trials

- Study management and communications
- Randomization
- Data collection
- Real-time SAE reporting
- Data querying
- Real-time reporting
- Form dissemination
- FAQ
- Etc.
Great for International Trials

Welcome to the DIFLUNISAL TRIAL

Participating Sites:

- Boston University, USA
- Mayo Clinic, USA
- Kumamoto University, Japan
- Shinshu University, Japan
- University Hospital San Matteo, Pavia, Italy
- Hospital Santo Antonio, Portugal
- Umea University, Sweden

Investigator Login: 📣Investigators 📣Boston
Data Entry, Screening, Randomization, Tracking

- Data entered at each study center (single entry)
- Data transferred to central data coordinating center over the internet
- Data "cleaner" at initial capture
- Data management performed centrally

Meteor Meniscal Tear with OA Research: a Randomized Trial

Brigham and Women's Hospital
Cleveland Clinic
Hospital for Special Surgery
Mayo Clinic Rochester
Vanderbilt Medical Center

Data Coordinating Center

Username: 
Password: 

Submit

If you forgot your password or you are a new user, then please click here.
Stratified Randomization

Randomization

Screening ID
Re-enter Screening ID

Study ID
Re-enter Study ID

Last Name, First Name

Birth Date (mmddyyyy)

Gender

Race

Hispanic

Dependence and Recent Use

Check Entries

Home
Confirm Eligibility and Randomize

<table>
<thead>
<tr>
<th>Eligibility check list</th>
</tr>
</thead>
<tbody>
<tr>
<td>The subject has been Randomized into the intervention group. The Subject ID is 1032.</td>
</tr>
</tbody>
</table>

- ✔ HIV diagnosis confirmed
- ✔ Between 18 and 70
- ✔ Subject has a telephone
- ✔ Subject lives within 150 miles
- ✔ Subject is not trying to become pregnant
- ✔ Subject can provide 2 contacts
- ✔ Subject does not have legal charges pending
- ✔ Subject meets the drinking requirements
Real-time Reporting

Home

Enrollment Report

<table>
<thead>
<tr>
<th></th>
<th>Male</th>
<th>Female</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Screened</td>
<td>78</td>
<td>29</td>
<td>107</td>
</tr>
<tr>
<td>Eligible</td>
<td>55</td>
<td>23</td>
<td>78</td>
</tr>
<tr>
<td>Consented</td>
<td>50</td>
<td>23</td>
<td>73</td>
</tr>
<tr>
<td>Randomized</td>
<td>50</td>
<td>23</td>
<td>73</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>A</th>
<th>B</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Randomized</td>
<td>38</td>
<td>35</td>
<td>73</td>
</tr>
<tr>
<td>Gender: Male</td>
<td>26</td>
<td>24</td>
<td>50</td>
</tr>
<tr>
<td>Gender: Female</td>
<td>12</td>
<td>11</td>
<td>23</td>
</tr>
<tr>
<td>IVD: Yes</td>
<td>19</td>
<td>17</td>
<td>36</td>
</tr>
<tr>
<td>IVD: No</td>
<td>19</td>
<td>18</td>
<td>37</td>
</tr>
<tr>
<td>Site: 1</td>
<td>38</td>
<td>35</td>
<td>73</td>
</tr>
<tr>
<td>Site: 2</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>
### Electronic Data Capture “Cleaner”

#### Interviewer Read:

Now I’m going to ask you about some symptoms or problems.

#### Interviewer Instruction:

If the answer to Part A is YES, ask when they had the symptoms. Note: PAST = you had the symptom or problem in the past (more than three months ago) but no longer have it. If the answer to Part A is NO, skip to the next question.

<table>
<thead>
<tr>
<th>Symptom</th>
<th>A Have you ever had it?</th>
<th>B When did you have it?</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>2.1 Trouble hearing</td>
<td></td>
<td>2</td>
</tr>
<tr>
<td>2.2 Ringing in ears</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>2.3 Wear a hearing aid</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>2.4 Trouble swallowing</td>
<td>1</td>
<td>2</td>
</tr>
</tbody>
</table>
Secure, Web-based Data Querying (no faxes)

Data Problems

Please click on a reason to open a particular problem and resolve it.

<table>
<thead>
<tr>
<th>Site</th>
<th>Client</th>
<th>Visit Date</th>
<th>Reason</th>
<th>Corrected Value</th>
<th>Original Value</th>
<th>Created</th>
<th>Corrected Resolved</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>demo3</td>
<td>01/08/2003</td>
<td></td>
<td>Birthdate is greater than HIV date</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Peter0803</td>
<td>08/08/2007</td>
<td>Q28 Must select an option chosen in Q27</td>
<td></td>
<td></td>
<td>09/27/2007</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>SusieQ123</td>
<td>08/08/2007</td>
<td>Q28 Must select an option chosen in Q27</td>
<td></td>
<td></td>
<td>09/27/2007</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>test3</td>
<td>01/05/2008</td>
<td></td>
<td>Birthdate is greater than HIV date</td>
<td></td>
<td></td>
<td>01/09/2008</td>
</tr>
</tbody>
</table>
# Web-based Problem Resolution

Please click on a reason to open a particular problem and resolve it.

<table>
<thead>
<tr>
<th>Counselor</th>
<th>Interviewed</th>
<th>BMC MRN</th>
<th>First</th>
<th>Last</th>
<th>DOB</th>
<th>Reason</th>
<th>Corrected Value</th>
<th>Comment</th>
<th>Created</th>
</tr>
</thead>
<tbody>
<tr>
<td>7</td>
<td>09/10/2007</td>
<td>3034858</td>
<td>A</td>
<td>M</td>
<td></td>
<td>6</td>
<td>Alcohol AND drug use in the last 30 days &gt; 0 but either 30 day alcohol is blank or zero OR all of the 30 day drug questions are blank or zero.</td>
<td>10/01/2007</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>09/25/2007</td>
<td>3516464</td>
<td></td>
<td></td>
<td></td>
<td>9</td>
<td>Duplicate last name, first name, dob, and MRN with a different SSN</td>
<td>10/03/2007</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>08/22/2007</td>
<td>3516464</td>
<td></td>
<td></td>
<td></td>
<td>9</td>
<td>Duplicate last name, first name, dob, and MRN with a different SSN</td>
<td>10/03/2007</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>09/21/2007</td>
<td>2130225</td>
<td></td>
<td></td>
<td></td>
<td>9</td>
<td>Duplicate MRN with same Interview Date and Counselor ID</td>
<td>10/10/2007</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>09/21/2007</td>
<td>2130225</td>
<td></td>
<td></td>
<td></td>
<td>9</td>
<td>Duplicate MRN with same Interview Date and Counselor ID</td>
<td>10/10/2007</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>09/19/2007</td>
<td>2765425</td>
<td></td>
<td></td>
<td></td>
<td>9</td>
<td>HQ is complete and substance abuse reported (pg.1), but 'Alcohol in past 3 months' (pg. 1) not answered.</td>
<td>10/10/2007</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>09/20/2007</td>
<td>3340951</td>
<td></td>
<td></td>
<td></td>
<td>4</td>
<td>Alcohol AND drug use in the last 30 days &gt; 0 but either 30 day alcohol is blank or zero OR all of the 30 day drug questions are blank or zero.</td>
<td>10/10/2007</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>10/03/2007</td>
<td>3514439</td>
<td></td>
<td></td>
<td></td>
<td>1</td>
<td>Substance abuse NOT reported (Pg.1), but BI was indicated (pg.11)</td>
<td>10/22/2007</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>10/09/2007</td>
<td>2785668</td>
<td></td>
<td></td>
<td></td>
<td>8</td>
<td>Substance abuse NOT reported (Pg.1), but BI was indicated (pg.11)</td>
<td>10/22/2007</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>05/22/2007</td>
<td>3544831</td>
<td></td>
<td></td>
<td></td>
<td>8</td>
<td>Duplicate last name, first name and dob with a different MRN</td>
<td>10/22/2007</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>09/19/2007</td>
<td>3544818</td>
<td></td>
<td></td>
<td></td>
<td>8</td>
<td>Duplicate last name, first name and dob with a different MRN</td>
<td>10/22/2007</td>
<td></td>
</tr>
</tbody>
</table>
Click-through to Correct Data

MaSBIRT Web Site

Navigation
Main
- Home Page
- Search
- Print Teleforms
Reports
- MaSBIRT Report
- Activity Report
- Report Archive
Lists
- Problem List
- Flagged List
- Query List

Data Problem Correction Page

<table>
<thead>
<tr>
<th>Counselor</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interview Date</td>
<td>8/23/2007</td>
</tr>
<tr>
<td>BMC</td>
<td></td>
</tr>
<tr>
<td>MRN</td>
<td></td>
</tr>
<tr>
<td>First</td>
<td></td>
</tr>
<tr>
<td>Last</td>
<td></td>
</tr>
<tr>
<td>Reason</td>
<td>Substance abuse was reported in prescreen and the questionnaire was completed but no substance abuse was reported for any of the substance categories.</td>
</tr>
</tbody>
</table>

Please enter a corrected value, if possible. If the correction cannot be expressed as a single value, please enter a comment.

Corrected Value

Comment | Substance abuse reported for marijuana |

Created | 11/7/2007 11:34:00 AM |

Submit
Online Clinical Trials: Nutraceuticals

Progression of Knee Osteoarthritis: A Double-Blind, Placebo-Controlled Once Weekly Dosing Regimen

Vitamin D for KOA

Symptomatic knee OA has an incidence of 240/100,000 person/years and is one of the most frequent cause of dependency in lower limb tasks, especially in the elderly. It causes 68 million work loss days per year and more than 5% of the annual retirement rate1-3. It is the most frequent reason for joint replacement at a cost to the community of billions of dollars per year. No effective medical remedies for OA currently exist. However, the pharmaceutical industry is attempting to develop drugs that retard progression of OA. If efficacious, these proprietary medications will be expensive to employ in a population in which OA is endemic. Furthermore, there is evidence that vitamin D supplementation, a simple non-proprietary intervention, could slow progression of OA. Even if only modestly effective, it could have considerable impact by reducing the societal burden of OA.

This is a randomized clinical trial using Internet-based randomization, electronic data capture, coordination and monitoring. The Tufts-New England Medical Center Department of Rheumatology will be enrolling participants with knee pain to participate in this trial. Vitamin D 14,000 IU will be compared to placebo in a randomized placebo-controlled clinical trial testing the efficacy of vitamin D, 14,000 IU versus placebo taken orally once per week, as a disease-modifying agent among individuals with symptomatic knee osteoarthritis (OA). Tolerability and safety will be assessed by adverse effects (AE) reporting, physical examination, vital signs, and clinical laboratory tests. The primary clinical outcome will be assessed by changes in the WOMAC questionnaire. The primary pathological process measure will be change in knee cartilage volume as measured by magnetic resonance imaging (MRI).

This study is being conducted at Tufts-New England Medical Center.
Example: Paperless Trial System

- MGH / Roche Diagnostics collaboration
- Web-based electronic data capture
- Double entry of paper forms
- Data cleaning (queries)
- Monitoring
- Reporting
- Data exporting
- Electronic Signature (21 CFR, part 11)
<table>
<thead>
<tr>
<th>Reports</th>
<th>Forms (data entry)</th>
<th>Queues</th>
</tr>
</thead>
<tbody>
<tr>
<td>Visit Status Summary</td>
<td>Inclusion/Exclusion</td>
<td>Awaiting Double Entry</td>
</tr>
<tr>
<td>Baseline Demographics</td>
<td>Minnesota Questionnaire</td>
<td>Awaiting Data Checking</td>
</tr>
<tr>
<td>Interim Medical History Endpoints</td>
<td>Baseline Demographics</td>
<td>Awaiting Problem Resolution</td>
</tr>
<tr>
<td>Decompensated CHF and NYHA Classes</td>
<td>Interim Medical History</td>
<td>Awaiting Monitoring</td>
</tr>
<tr>
<td>Data Problems</td>
<td>Concomitant Medications</td>
<td>Awaiting Signing</td>
</tr>
<tr>
<td>Protocol Deviations</td>
<td>Living Condition/PE/EKG</td>
<td>Signed</td>
</tr>
<tr>
<td>View Forms By Subject ID</td>
<td>Treatment Decision</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Adverse Events</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Echocardiogram</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Excel Files</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Monitor Initiated Data Problems</td>
<td>End Lab Data</td>
</tr>
<tr>
<td>Enrollment Date</td>
<td>Discontinuation</td>
</tr>
</tbody>
</table>
Possibilities

“We now have the potential to conduct a cohort study of users of the World Wide Web” …

“…[the Internet] can have people recruit themselves, enter their own data into our computers, and provide for fast, convenient electronic follow-up.”

Example of Cohort Study

Internet-based study of time to pregnancy
- Elizabeth Hatch, Kenneth Rothman Laura Wise, BUSPH co-investigators
- Study taking place in Denmark where centralized medical records are available
- Subjects consent online and provide Central Population Registration # and consent to view record
Internet-based Study of Time to Pregnancy

- Over 7,000 women screened to date
- 3,700 eligible and have consented to take part
- Subjects followed bi-monthly or until pregnant
- 85% of subjects had 4 month follow up
- Self reported medical history validated against medical record
Online Gout Study, Yuqing Zhang, PI Study

- Subjects recruited online
- Each subject serves as own control
  - control period = no symptoms
  - hazard period = acute attack
- Online consent with waiver of documentation
- All study questionnaires completed online
- Disease status and symptoms confirmed with medical records
Case-crossover Study of Triggers for Gout

48-Hour Control period

Without Acute Gout Attack

1-24 hrs

48-Hour Hazard Period

Acute Gout Attack

25-48 hrs

1-24 hrs

Triggers?
## Recruitment Plan

<table>
<thead>
<tr>
<th></th>
<th>Method</th>
<th>Issue</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Referral through former</td>
<td>Only 1 subject enrolled</td>
</tr>
<tr>
<td></td>
<td>rheumatology fellows</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Banners/ads and links to</td>
<td>Costly or difficult to get permission</td>
</tr>
<tr>
<td></td>
<td>other sites</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Search engines (link to search</td>
<td>Google</td>
</tr>
<tr>
<td></td>
<td>terms)</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Prevention magazine</td>
<td>Lag time for publication</td>
</tr>
<tr>
<td>5</td>
<td>e-Zines</td>
<td>Not up to our standards</td>
</tr>
<tr>
<td>6</td>
<td>Set up a chat room</td>
<td>Too time intensive/ Concern re Medical</td>
</tr>
<tr>
<td></td>
<td></td>
<td>questions</td>
</tr>
<tr>
<td>7</td>
<td>Traditional print media</td>
<td>Expensive, too many markets</td>
</tr>
</tbody>
</table>
Online Search Engine
Google Ad Linked to Search Term
Incentives

- 5 Points accumulated for each questionnaire with $1/point cash pay-out at end of study
- ‘Gout Study’ pens mailed with Medical Record Release forms as incentive to sign and return forms

- Screened: 2,857
- Eligible: 2,064
- Enrolled: 742
- Subjects*: 272
- Haz & Ctl: 197

*Search Engine Ad Cost: $9,339 ($34 per subject)

Ad displayed: 866,703
Ad clicked: 58,369
Screened: 2,857
Eligible: 2,064
Enrolled: 742
Subjects*: 272
Haz & Ctl: 197
Study Continues: Gout II

• Original Gout Study: 02/03 - 05/05

• New Gout Study: 11/05 –
  • Recruitment strategy to use Google based on results of Gout I
But Things Change…

In the meantime, Google went public and prices went up -- dramatically

- Ad placement went from first or second ad to third or fourth
- Cost/click rose from $0.16 to > $0.40
- Click-through rate dropped from 6.9% to 2.4%
**RECRUITMENT: G1 VS G2**

- Ad displayed: 866,703  
  **NEW 2,084,013**

- Ad clicked: 58,369  
  **NEW 50,668**

- Screened: 2,857  
  **NEW 2,110**

- Eligible: 2,064  
  **NEW 1,578**

- Enrolled: 742  
  **NEW 469**

- Subjects*: 272  
  **NEW 185**

- Haz & Ct: 197  
  **NEW 90**

*Search Engine  
Ad Cost: $9,339  
($34/subject)  
**NEW $87**
Hi All,

Boston University is conducting an online study to determine possible triggers for acute gout flares. If you have had an acute gout attack within the past year, reside in the US and would like to participate, we could use your help. All questionnaires are completed entirely online and all information is strictly confidential.

For more information please visit our website:
https://dcc2.bumc.bu.edu/goutstudy/

If you have questions or concerns about this study, please contact us at goutinfo@....

Thanks,
Online Gout Study
Typical Chat Room Postings

Why yes, I do have a few questions or concerns about this study.

1. Why is the listed website close to, but not actually, a BUMC website?
2. Why is the root site "under construction?"
3. Why is the author or organizer of the study remaining anonymous - "Online Gout study," forsooth.
4. What level of statistical control could you possibly expect by polling a group?

Beware that gout study. They insist on sending emails to you as attachments instead of as text and they will send annoying 'thank you' messages and 'birthday greeting' messages.

> another pleb trying to milk the gout group of hard earned cash no doubt. "I"
> miss the gout police arnold and walter they would have sussed out this dodgy
> character
Current Strategies

- Google advertisements
- Link on Gout.com
- Postings under volunteer section of Craig’s list (selected cities)
- Link on Centerwatch
Hits to Online Gout Study Website in Last Year

- Google Ads: 36,488
- Craigslist: 596
- TAP website, gout.com: 182
- CenterWatch: 1
The online case-crossover study is a novel approach to study triggers for recurrent disease flares

Yuqing Zhang\textsuperscript{a,•}, Christine E. Chaisson\textsuperscript{b}, Timothy McAlindon\textsuperscript{c}, Ryan Woods\textsuperscript{b}, David J. Hunter\textsuperscript{a}, Jingbo Niu\textsuperscript{a}, Tuhina Neogi\textsuperscript{a}, David T. Felson\textsuperscript{a}

\textsuperscript{a}Boston University Clinical Epidemiology Research and Training Unit, The Department of Medicine at Boston Medical Center, A203, Boston University School of Medicine, 715 Albany St., Boston, MA 02118, USA

\textsuperscript{b}The Data Coordinating Center, Boston University School of Public Health, Boston, MA, USA

\textsuperscript{c}Tufts New England Medical Center, Boston, MA, USA

Accepted 17 April 2006
Conclusions

- Several types of study designs lend themselves to Internet implementation
- The Internet poses unique challenges in risk to human subjects, validity of study data, obtaining informed consent, privacy, confidentiality, and recruitment
- Important to begin with a well-defined target population to determine the feasibility of Internet recruitment and retention
- Things change quickly so be prepared to revise your strategies