

SMS 2.0: Implementation of text messaging in HIV healthcare, education, and research

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Learning Objectives

Upon completion of this presentation, learners should be better able to:

- Identify advance text messaging tools for HIV prevention and treatment.
- Implement text messaging tools in one or more of three HIV domains: healthcare, education, and/or research.

Outline

- Short Message Service (SMS) Use
- SMS Data Capture Types
- Considerations
- GSM Cartographic Analysis
- SMS Gateway
 - SMS Gateway Programs
- SMS, EMR & PHI
- Biomedical Adherence
- Sexual Health Education
- SMS in HIV Research: Pilot Study
- SMS in HIV Research: MTN017

Short Message Service (SMS) Use

- Over 3.7 billion active users SMS text messaging is the most widely used data application in the world¹
 - or 74% of all mobile phone subscribers
- Youth, African Americans, Latinos lead trends²

1.MobiThinking. 2012. "Global Mobile Statistics 2012 Home: All the Latest Stats on Mobile Web, Apps, Marketing, Advertising, Subscribers and Trends..." <http://mobithinking.com/mobile-marketing-tools/latest-mobile-stats>.

2.Smith, Aaron. 2011. *Americans and Text Messaging | Pew Research Center's Internet & American Life Project*. <http://pewinternet.org/Reports/2011/Cell-Phone-Texting-2011.aspx>.

SMS Data Capture Types

- One-way Out
 - Messages/Reminders
- One-way In
 - SMS Form/Field mobile data collection
 - GIS (Geographic Information Systems)
- Two-way
 - SMS-based CASI - Comp/Human
 - OC (Open Communication) - Human/Human

Considerations

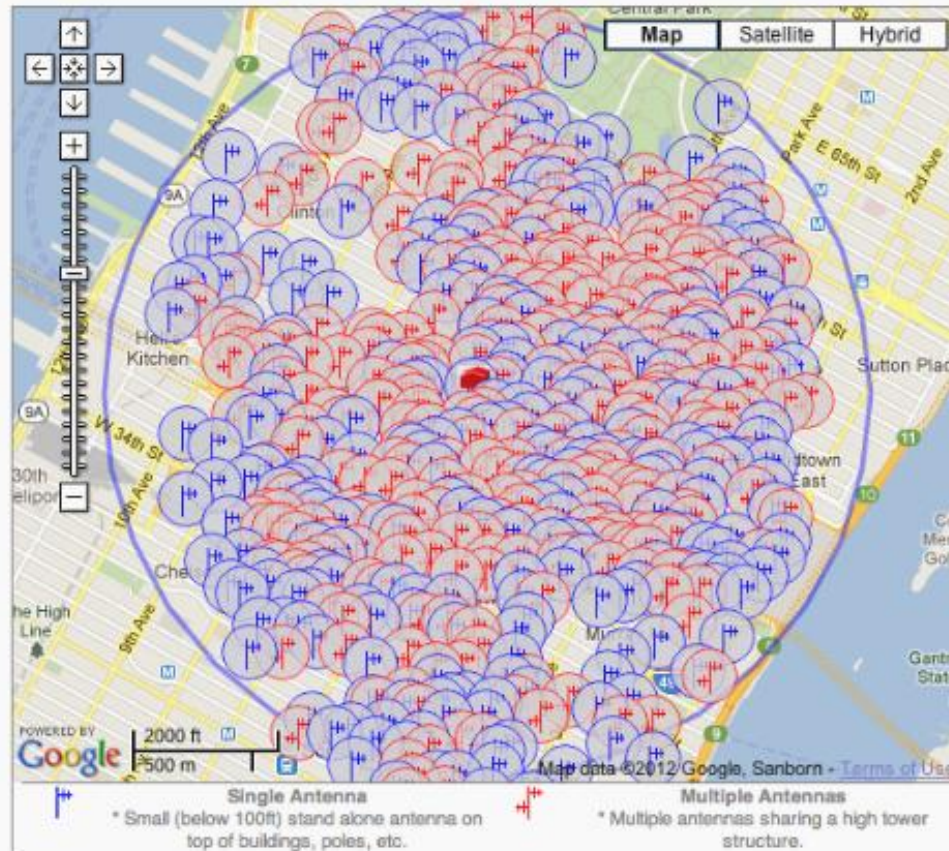
- Why use SMS?
 - Is it appropriate?
 - Population (N) Size?
- Site Capacity
 - Computer
 - GSM Capabilities
- What to use?
 - Developer, Open Source, GSM Gateway Service
- What's the Cost?
 - Computer x site
 - SMS messages
 - \$0.01-\$0.20 x #m x N
 - send/receive vs. send
 - Compensation
 - Open Source = Free
 - SMS/Web CASI inverse

Considerations (cont'd)

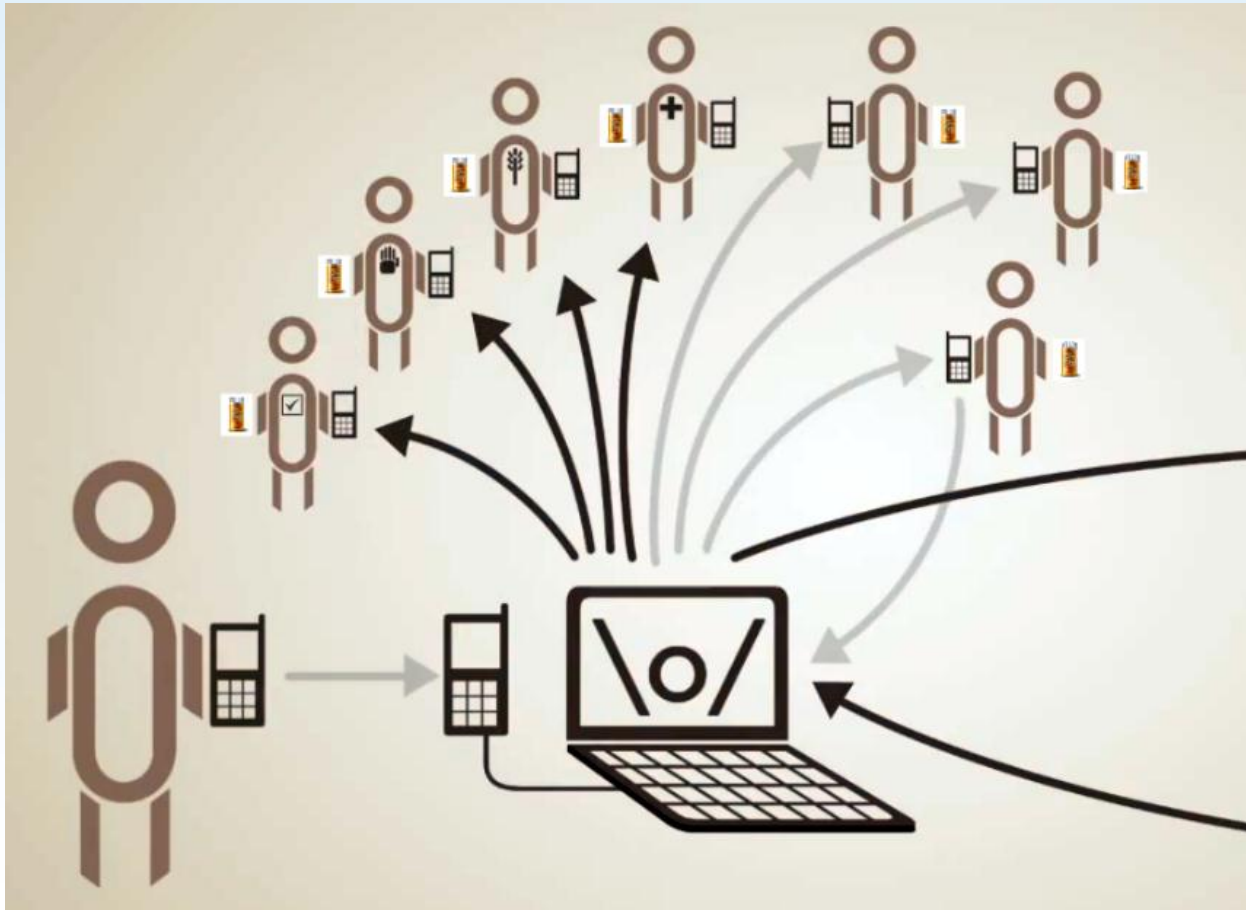
- Technological Literacy
 - Participants & Staff
 - Cultural Norms
- Question types
 - Yes/NO
 - Multiple choice
 - Open ended
- Question structure
 - Sequence
 - Confirmatory
 - Skip Patterns
- Data Management
 - Transmittal
 - Database/Repository
 - Disposal

GSM Cartographic Analysis

• Antenna Sites - (Manhattan (borough), New York)



SMS Gateway



SMS Gateway Programs

- FrontlineSMS (Free/Open Source/CPU native app)
- RapidSMS (Free/Open Source)
- JavaRosa (Free/Open Source)
- Mobile Researcher (Pay/Web Hosted)
- Episurveyor (Free/Open Source)
- OutlookSMS plug-in (Pay/CPU native app)

SMS, EMR & PHI

- SMS modular integration with Electronic Medical Record (EMR)
 - Clinician text data in
 - System send info out to clinician, billing, patient
- Public Health Information (PHI)
 - Security concerns
 - Third party software
 - SMS service provider
 - Information on mobile handset

Biomedical Adherence

- Medication reminders
 - Antiretroviral Therapy
- Appointment reminders
- Appointment scheduling
- Medication refilling
- Behavioral reporting
- Biomedical protocol compliance
 - Single event
 - Multiple events

Sexual Health Education

- SexINFO
- Sexual health text messaging program for youth in San Francisco
- By texting a message, youth can find...
 - What to do if the condom broke
 - Get help deciding if they're ready to have sex
 - Clinic locations

Sexual Health Education (cont'd)

- Hookup
- Health text messaging program for youth throughout California
- Texting keyword
 - Weekly health tips
 - Find a clinic in their zip code

SMS in HIV Research: Pilot Study

- N=11
- MSM in NY
- High Unprotected Anal Intercourse
- HIV Partner Testing
- Daily SMS reminder
- Daily SMS-based CASI

*Unpublished data, HIV Center for Clinical and Behavioral Studies

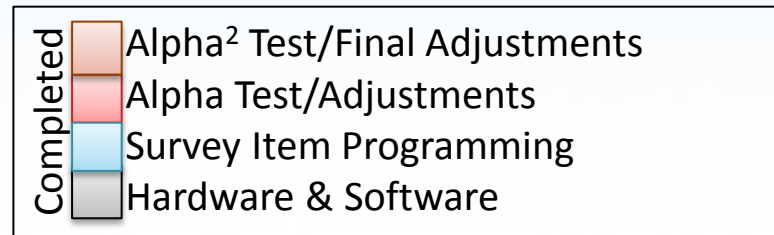
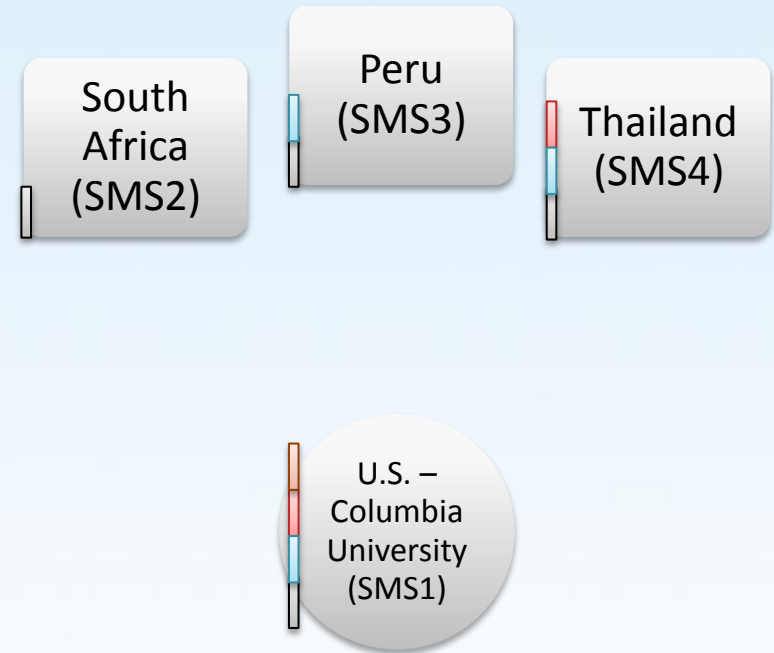
SMS in HIV Research: MTN017

- N=200
- MSM+Trans.
- South Africa, U.S., Peru, Thailand
- 4 languages, 8 sites
- Rectal/Oral Microbicide
 - 3 study arms, Clinic visits, Bio-markers, Web CASI,
- Daily SMS reminder
- Daily SMS-based CASI/Diary

*Unpublished data, HIV Center for Clinical and Behavioral Studies

SMS System in MTN 017

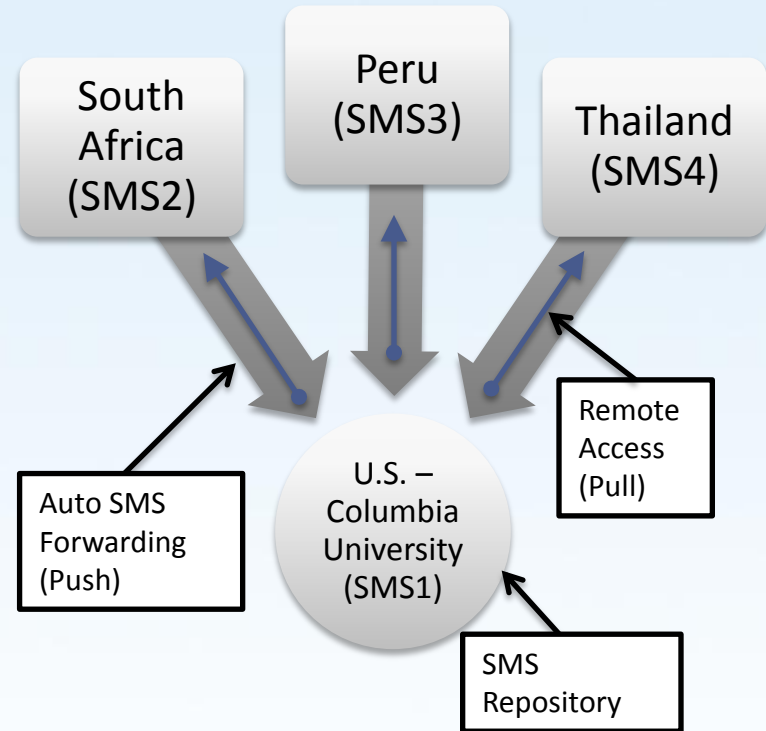
- Each Country has its own SMS system
 - Eliminates international SMS fees
 - System in site's active language
- All sites using same system
 - FrontlineSMS
- Capacity remains with the site post MTN 017



*Unpublished data, HIV Center for Clinical and Behavioral Studies

SMS System in MTN 017 (cont'd)

- Data Push/Pull biomedical informatics techniques
 - Automated SMS forwarding via email to a secure and centralized SMS repository (Data Push)
 - Remote access to all SMS systems and databases by Columbia Univ. BRWG (Data Pull)
 - Automated and Manual data aggregation are secure and reciprocally redundant



*Unpublished data, HIV Center for Clinical and Behavioral Studies

Summary

- Considerations
 - Capacity
 - GSM Cartographic Analysis
 - SMS Gateway Programs
- SMS integration with EMR & PHI
- Biomedical adherence to ART
- Enhanced sexual health education
- SMS in HIV research could improve data factors

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- Dr. Alex Carballo-Diéíguez
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