


Computing and Global Health Lecture 9 Behavior Change Communication

Winter 2015
Richard Anderson

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Today's topics

- Eduardo Jezierski
- Behavior Change Communication
- Projecting Health




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Readings and Assignments

- Readings
 - Literacy Bridge
 - Village Reach
- Homework 8
 - ODK
- Homework 9
 - TBD

Date	Topic
Jan 7, 2015	Overview
Jan 14, 2015	Surveillance
Jan 21, 2015	Tracking
Jan 28, 2015	Medical records
Feb 4, 2015	Logistics
Feb 11, 2015	Patient support
Feb 18, 2015	Treatment support
Feb 25, 2015	Health worker support
Mar 4, 2015	Behavior change
Mar 11, 2015	Computing and Global Health Panel

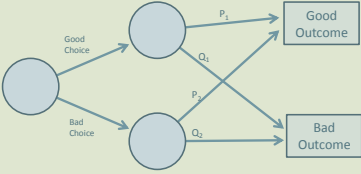
CSE 691, Gates Commons
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Behavior Change Communication

- Vast improvements in health possible through behavior change



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Sanitation






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Disease Prevention







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Maternal and Child Health

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Lifestyle

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Theory

- Social cognitive theory
- Key variables
 - Self-efficacy
 - Outcome expectations
 - Self control
 - Reinforcements
 - Emotional coping
 - Observational learning
- Behavior explained as interaction of personal factors and environment

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Theory

- Theory of Planned Behavior
 - Behavior is dependent on intention to perform the behavior
 - A person must perceive they have ability to perform behavior

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Theory

- Stages of change model
 - By default, people will get stuck in early stages
 - Different types of action empirically shown to help progress

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Behavior Change for Newborn Survival

- Clean delivery, thermal care, breast feeding, folic acid supplementation, antenatal care, tetanus vaccination, awareness of danger signs, extra warmth for low birthweight babies
- Specific interventions can reduce neo-natal and maternal mortality

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Behavior change management

1. Identify epidemiologically targeted key behaviors.
2. Identify suitable target groups for a behavioral intervention.
3. Develop appropriate behavior change transaction(s) for each target group.
4. Leverage the influence of social networks to expedite behavior change.
5. Build mechanisms to sustain and institutionalize new behaviors.

Lifestyle vs Newborn Care Behavior

	Lifestyle/Addictive	Newborn Care
Locus of behavioral action	Individual	Family
Behavioral context	Psychosocial: rooted in individual experience	Sociocultural: rooted in cultural value system
Perceived risk	Usually aware of some risk	Not aware of risks
Perceived barriers	Habit patterns, pleasure/pain choices	Cultural factors enforced by social norms
Mode of behavioral transmission	Peer-to-peer	Transmitted along generations through familial hierarchy
Social sanction	Not valued by society as a whole	Usually the norm with universal social sanction

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From Digital StudyHall to Digital PublicHealth

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The History of D*

- Digital StudyHall pioneered a technology and methodology for remote education with low cost digital video
- D* designated the use of the DSH platform to multiple domains
 - Digital Green (DG) for agriculture
 - Digital PolyClinic (DPC) for health
 - Digital Self Employment (DSE) for livelihood

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Digital StudyHall

- Support weak schools with video content from expert teachers
- Local teacher mediates the video content
 - Based on the TVI model
 - Provide better content and support teacher development
- Important to match content with target audience
- Cost realism

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DSH History: The Idea

- How can computing systems research be applied to help the very poor?
- Solve the digital content distribution problem to make distance education possible
- Concept paper, Randy Wang et al., Princeton, November 2003

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DSH History: Experimentation

- Minimize cost of video playback in the classroom
- Attempt to use low cost television sets
- Target rural schools with irregular power
- Low cost video and audio production
- Develop video production tools based on open source software
- Randy Wang joins MSR (TEM Group)



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DSH History: Building the Lucknow hub

- Developed content creation model with a strong school
- Recorded core content for all grades
- Teacher training workshops
- Range of different types of schools
 - Government, private, informal
- Simplification of the technology
 - DVD players instead of computers
- Randy Wang joins TEM Group at MSR
- Expansion to other HUBs
 - Bangalore, Pune, Dhaka, Calcutta



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DSH History: Independence

- Relationship with MSR ended in 2008
- Activities in Lucknow continued, but many hubs stopped working
- NSF sponsored study exposed challenges in working with government schools
- Randy Wang moved to Intel, Shanghai in 2010
- New set of projects developed by DSH Lucknow with a new manager



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Digital Green

- Video based education for farmers
- Community created videos demonstrating agricultural practices
- Facilitated showings of videos in farmer groups
- Digital Green (NGO) providing technology, training, content archive and advocacy



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DG History: The Idea

- Apply Digital StudyHall to agriculture
- Formative research conducted with Bangalore based NGO (Green)
 - Promote organic farming practices
 - Film extension workers introducing practices
 - Public showings in evenings
- Rikin Gandhi started work at MSRI as a volunteer



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DG History: Experimentation

- Video creation
 - Wide range of topics and video styles
- Screening methodologies
 - In homes
 - In public square
- Process
 - Hire 'animators' responsible for conducting showings and maintaining equipment
 - Follow up from meetings



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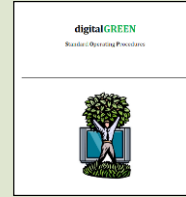
DG History: Spin Out

- Studies measuring “cost per adoption”
 - Compare DG with extension agent
 - Emphasis on monitoring
- Microsoft identified forming an NGO as a success criteria for the project
- Support from BMGF to form NGO



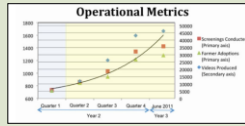
DG History: Building an NGO

- Business model
 - Partner with NGOs implementing agricultural programs
 - Become trainers and managers of content and technology
- Shift focus to low income states in India
- Strengthen process model
- Process innovation:
 - Shift video creation to the community
- Technology innovation:
 - Pico-projector



DG History: Expansion

- Substantial growth
- Partnership with NRLM in India
- Expansion to projects in Africa
- Identification of other domains
 - Health, Sanitation, Nutrition, Livelihood



Digital Public Health

- Digital Green model applied to community health education
- Community created video content for externally defined health messages
- Video showings in community to promote behavior change



* Now known as Projecting Health

DPH History: Building a Partnership

- PATH/DG partnership established
- DG Video Training workshop for PATH staff
- Identification of possible differences between Health and Agriculture
 - Message review
 - Evaluation of impact
 - Dissemination models
- Funding for pilot
- Identification of implementation partner

Applying the Digital Green model to health

- Digital Green model
 - Participatory process for content production
 - Locally generated digital video database
 - Human-mediated instruction for dissemination and training
 - Regimented sequencing to initiate a new community
 - Integrated performance monitoring

Year	Viewers	Adopters	Adoption rate	People Disseminated
2011	10,000	1,000	10%	10,000
2012	20,000	2,000	10%	20,000
2013	30,000	3,000	10%	30,000
2014	40,000	4,000	10%	40,000
2015	50,000	5,000	10%	50,000

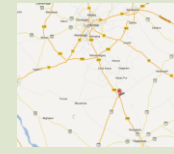
Surestart project

- PATH led project in UP and Maharashtra
- 2006-2011, BMGF Funded
- Community engagement to support maternal and newborn health
 - Governance and public health interventions
 - Mentoring ASHAs
- Maternal health messaging
 - Danger signs
 - Birth preparedness
 - Thermal care
 - Breast feeding
- Mothers' group
 - ASHA led group of expecting mothers
 - Monthly meeting with activities



Bacchrawan, Raebareli, UP

- Gran Vikas Sanstham
 - Well established local NGO
 - Active since 1977
 - Demonstration site for SureStart
- High performing district
- Project initially covered 20 villages with 54 mothers' groups
- Direct continuation of Surestart
- Supervisory structure already in place
- Expansion to another 80 MGs' in 2013



Message creation

- Health messaging developed by experts
 - Standard messaging that has been adopted by health organizations
- List of messages for a topic given to video team
 - Messages must appear in the video

Birth preparedness requires a prior identification of—

- Skilled, capable and eligible people like doctors, nurse and ANMs to do the delivery;*
- Clean cloth to wrap the baby and the mother;*
- Clean thread to tie the cord;*
- Clean new blade to cut the cord by a trained person;*
- important phone numbers and address of near by hospital, ambulance and any such people who have a vehicle to carry the pregnant woman in case of emergency to the hospital/doctor;*
- Saving money for such situations.*

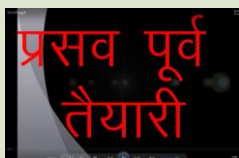
Video creation

- GVS employees trained in video production and editing
 - No previous background
- Training includes basics of film
 - Different types of shots
- Video team had creative control on videos
- Developed story lines for videos
- Initial videos produced were of high quality



Review

- Critical to ensure accuracy of messaging
- Community advisory board created
 - Health system and community membership
- Approvals
 - Storyboards
 - Final videos
 - Community and PATH review
- Recommendations from CAB have been included in videos
- Errors in videos have been detected



Dissemination

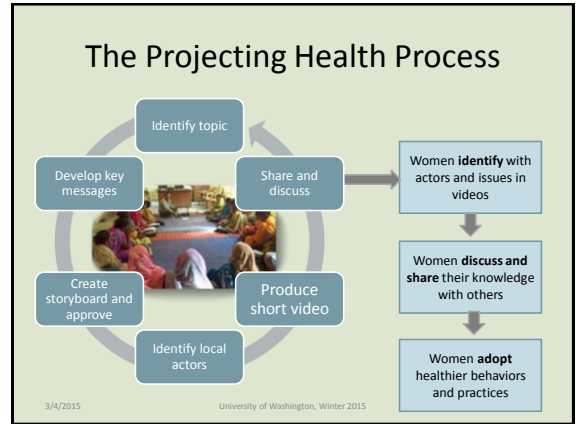
- ASHAs trained to use videos
 - Technical training on Pico projector
 - Training in facilitation
- Videos shown in existing mothers groups
 - Substitute videos for learning activities
 - Attempt to keep format the same



Technology

- Video creation with Kodak playtouch camera
- Edit with Microsoft Movie Maker
 - (sound problems)
- Video sharing for review
- Post to YouTube
- Load on Pico projector for showings

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Overall Project Achievements - India

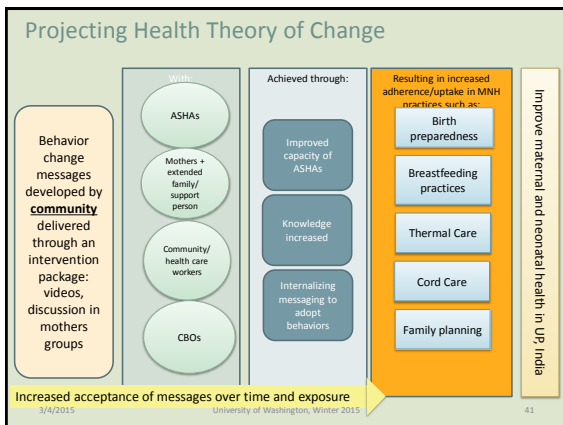
	Partner 1: GVS	Partner 2: NYST	Total
Villages implemented in	27	57	84
Community health workers trained	55	81	136
Number of people in video production teams trained	8	6	14
Mother's Groups	55	81	136
Videos Produced	21	13	34
Screenings	2,139	2,100	4,239
Women reached by groups	10,871	13,938	24,809

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Projecting Health Videos

Breastfeeding <ul style="list-style-type: none"> •Optimal breastfeeding practices •Exclusive breastfeeding •LAM 	Thermal care <ul style="list-style-type: none"> •Thermal care overview •Delay bathing
Family planning <ul style="list-style-type: none"> •Permanent methods •Temporary methods •NSV-No scalpel vasectomy •IUCD Copper-T 	Cord care <ul style="list-style-type: none"> •Cord care overview •Myths and misconceptions
Birth preparedness <ul style="list-style-type: none"> •Birth preparedness overview •Maternal danger signs •Maternal nutrition •Newborn danger signs 	Other <ul style="list-style-type: none"> •Immunizations •Community-based emergency transportation systems

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Endline Evaluation: Objectives

Primary objective:

To assess the effectiveness of the PH intervention in increasing knowledge and changing practices of the women between ages 18 and 45 exposed to the video messages on key maternal and neonatal health (MNH) areas.

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Endline Evaluation: Key Outcomes

Maternal and neonatal health (MNH) areas and focus outcome indicators

Birth Preparedness	Breastfeeding
<ul style="list-style-type: none"> Identify a place to deliver Institutional delivery Saving money for an emergency Planning for emergency transport Preparing blade, thread for cord cutting Prepare a clean cloth for wrapping baby after birth 	<ul style="list-style-type: none"> Gave colostrum Early initiation of breastfeeding within 1 hour of birth Exclusively breastfed for 6 months

Endline Evaluation: Key Outcomes

Thermal Care	Cord Care	Family Planning
<ul style="list-style-type: none"> Bathed baby between 3 -7 days after birth Held baby skin to skin or wrapped in a clean cloth after birth 	<ul style="list-style-type: none"> Cord was cut using a clean blade and tied with a clean cord Nothing was applied to the cord 	<ul style="list-style-type: none"> Using a family planning method (temporary or permanent)

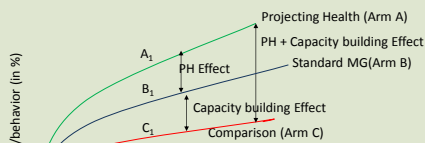
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Evaluation design

- Comprehensive evaluation (July 2013-July 2014)
- Post-only study design with 3 arms:



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Methods

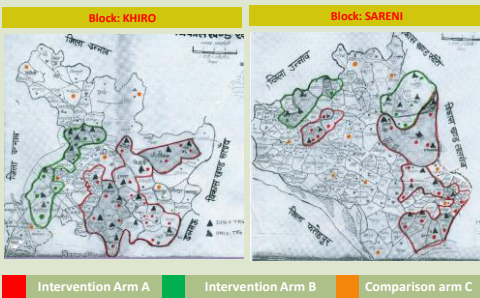
- Household survey with structured questionnaire among women between 18-45 years
 - Participants selected using set criteria, intervention arms recruited from participant list, and comparison arm from a household listing exercise
- Semi-structured interviews with community healthcare workers (ASHA)
- Ethical approval from REC and the local UP-based IRB
- Data collected by external organization, June-July 2014

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Sample villages



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Findings overview

- Practices of women
- Knowledge of women (spontaneous response)
- Source of knowledge
- Sharing of messages with others



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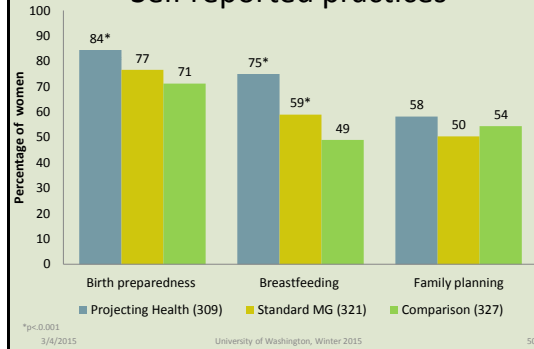
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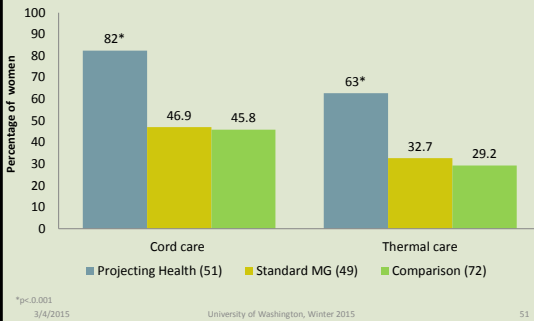
Respondents

Attributes	Projecting Health	Standard MG	Comparison
Total (n)	309	321	327
Mean age of respondents (years)	26	26	26
Mean number of live births (n)	2	2	2
Literacy : Illiterate (%)	33	30	29
Occupation: Housewife (%)	90	93	88
Religion : Hindu (%)	94	92	95
Religion : Muslim (%)	6	8	5

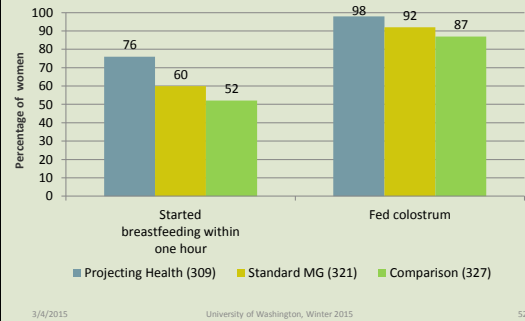
Self reported practices



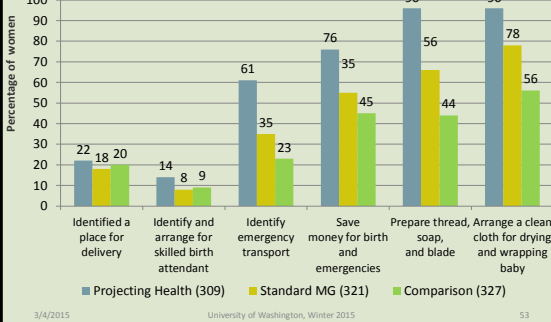
Birth Practices: Women Who Delivered at Home



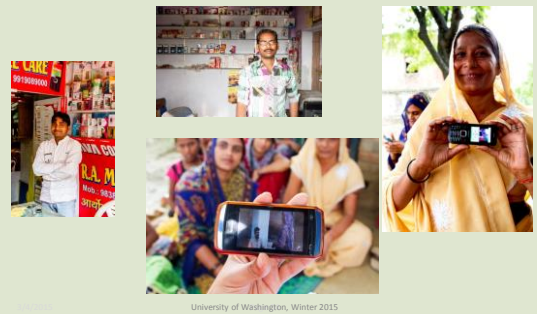
Breastfeeding: Uptake of Optimal Practices



Birth Preparedness: Change in Knowledge



Current work



Next week

- Panel discussion, CSE 691
 - Cliff Schmidt, Literacy Bridge
 - Emily Bancroft, Village Reach
 - Brian Taliesin, PATH



VILLAGE REACH
Starting of the Last Mile

