Computing and Global Health
Lecture 9
Behavior Change Communication

Winter 2015

Richard Anderson

Today's topics

- Eduardo Jezierski
- Behavior Change Communication
- Projecting Health

Readings and Assignments

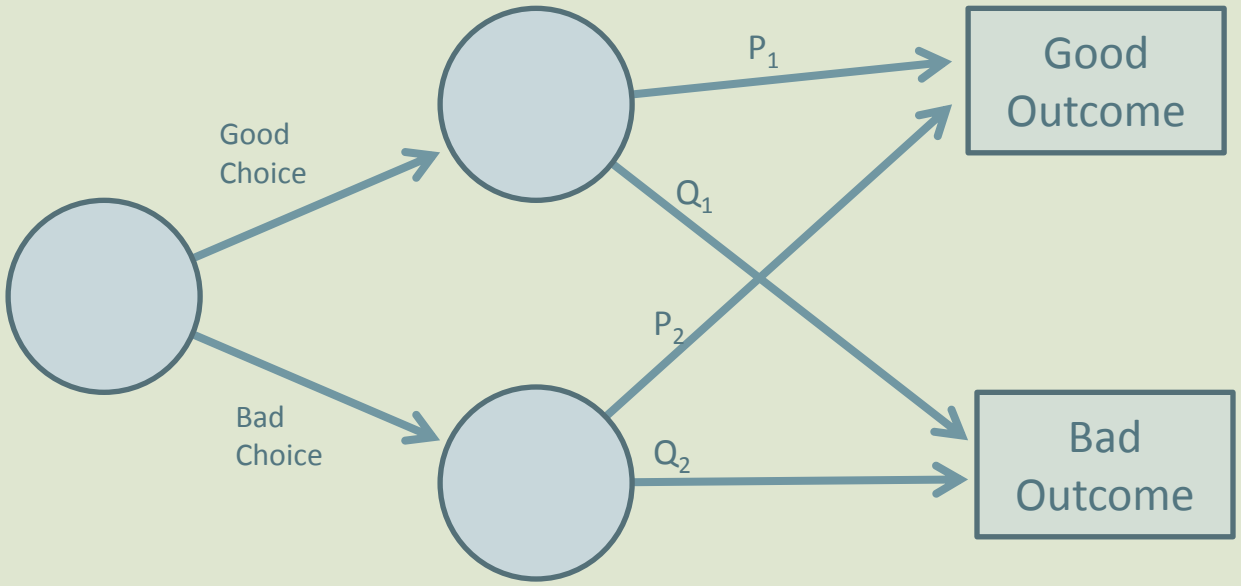
- Readings
  - Literacy Bridge
  - Village Reach
- Homework 8
  - ODK
- Homework 9
  - TBD

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
6:30 PM

Behavior Change Communication

- Vast improvements in health possible through behavior change



Sanitation

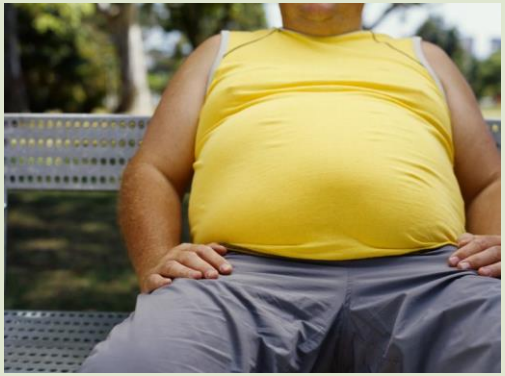

LIFEBUOY


GLOBAL HANDWASHING DAY
OCTOBER 15
GLOBAL HANDWASH DAY 15OCT

Disease Prevention

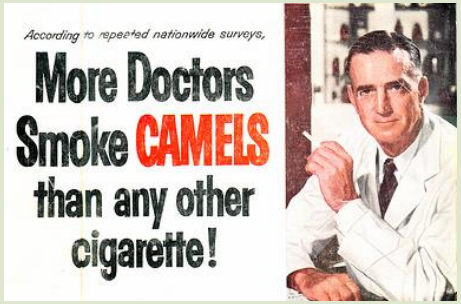
Maternal and Child Health

Lifestyle




Русский Стандарт
Водка
IMPERIA


SUPER
BIG
GULP


According to repeated nationwide surveys,
More Doctors
Smoke CAMELS
than any other
cigarette!

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

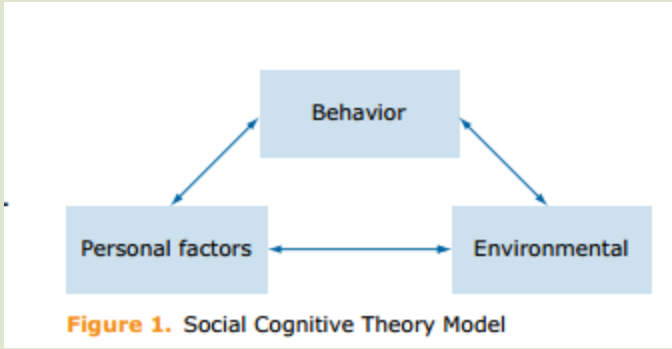


Figure 1. Social Cognitive Theory Model

Theory

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

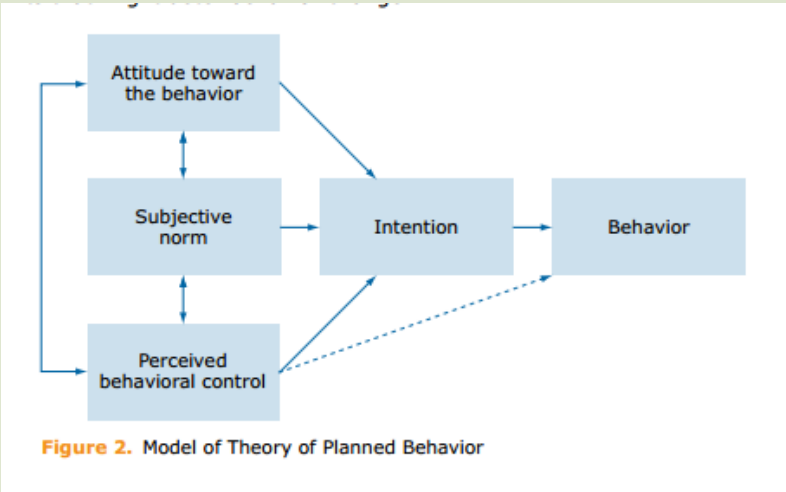


Figure 2. Model of Theory of Planned Behavior

Theory

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

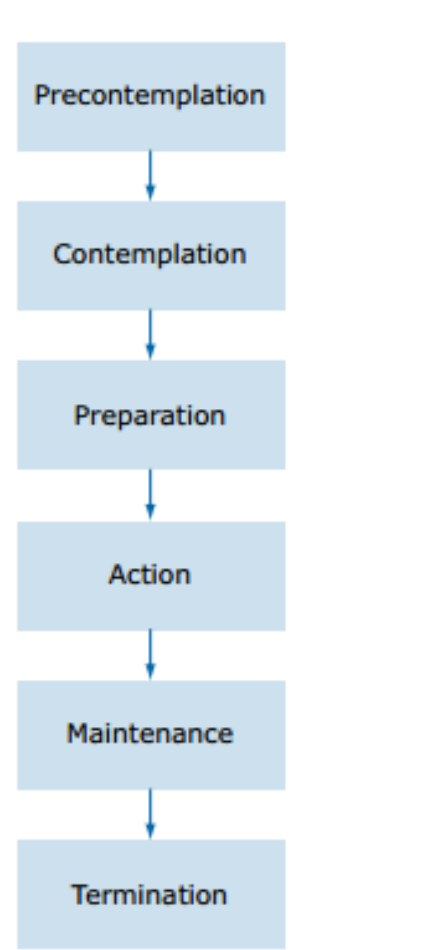
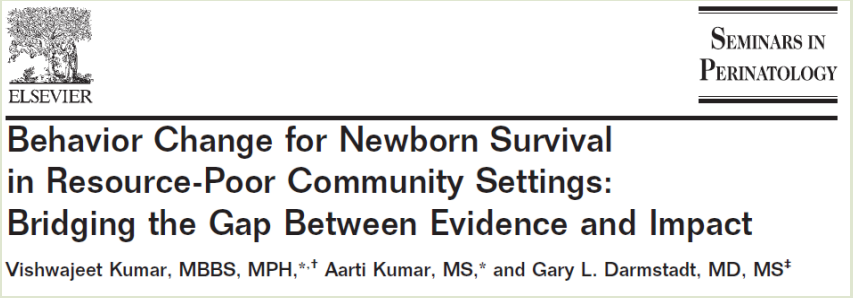


Figure 3. Stages of Change

Behavior Change for Newborn Survival

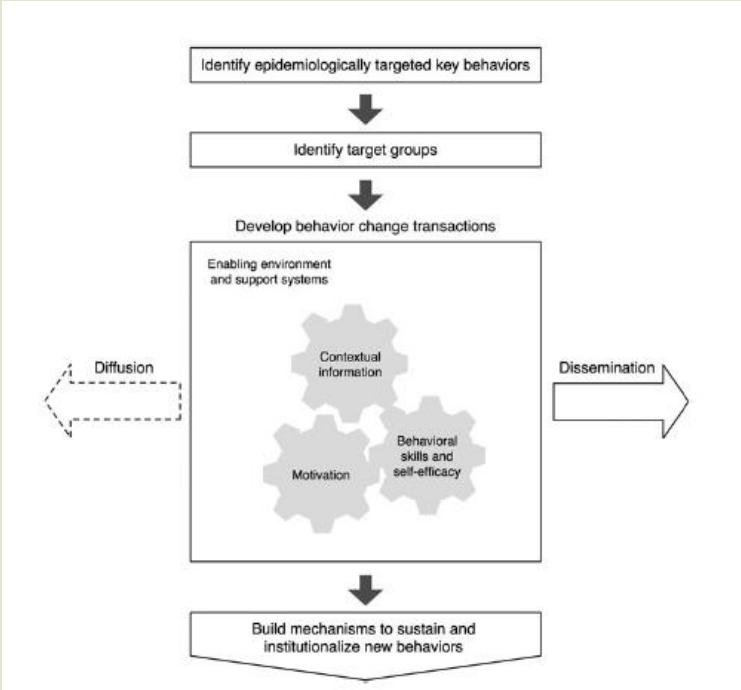


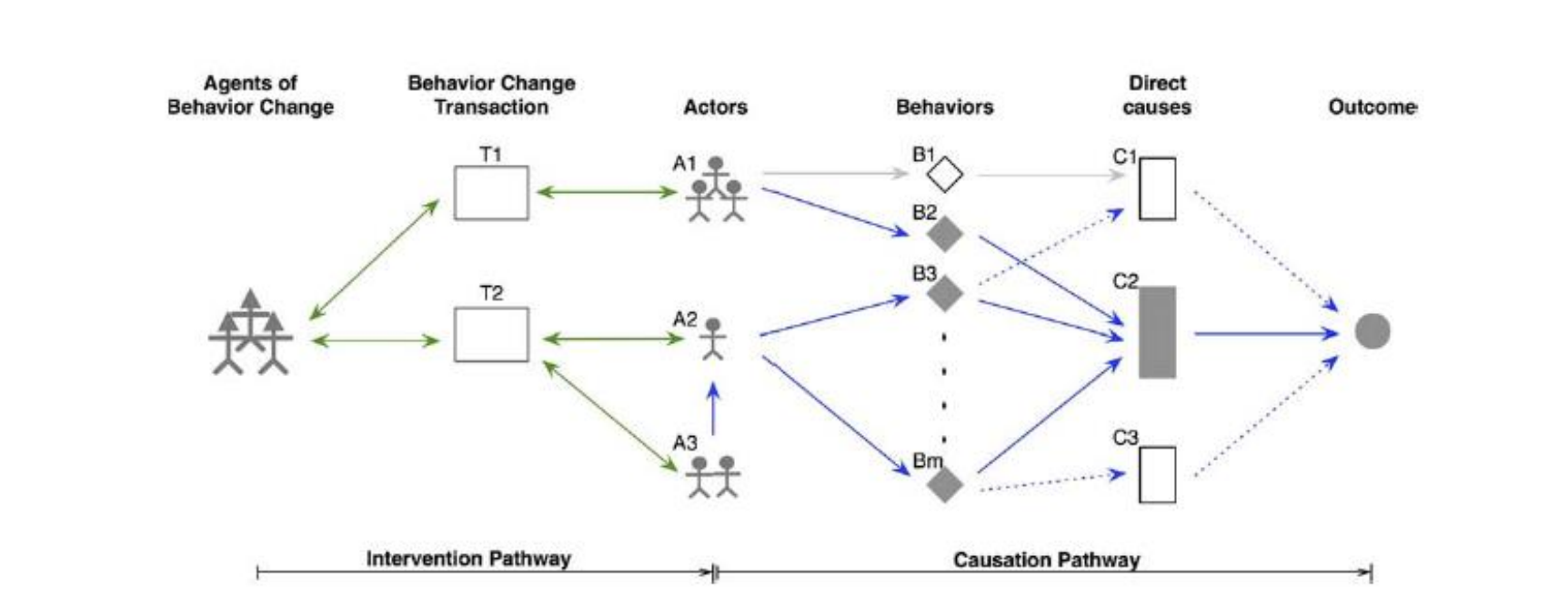
- Specific interventions can reduce neo-natal and maternal mortality

- Clean delivery, thermal care, breast feeding, folic acid supplementation, antenatal care, tetanus vaccination, awareness of danger signs, extra warmth for low birthweight babies

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

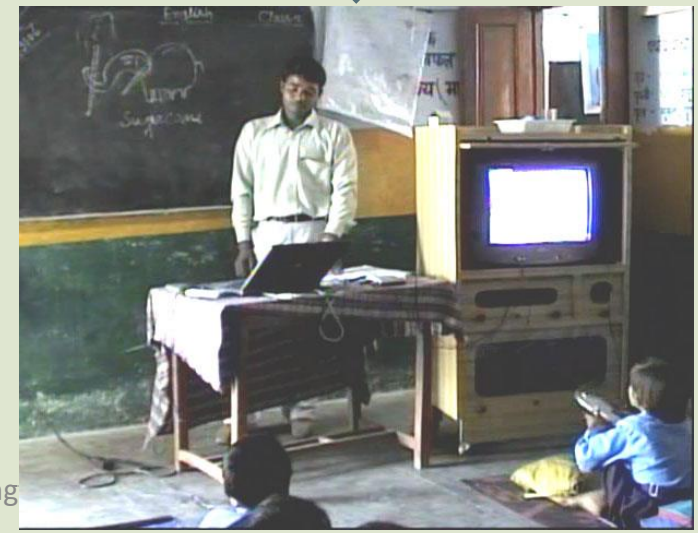
From Digital StudyHall to Digital PublicHealth

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

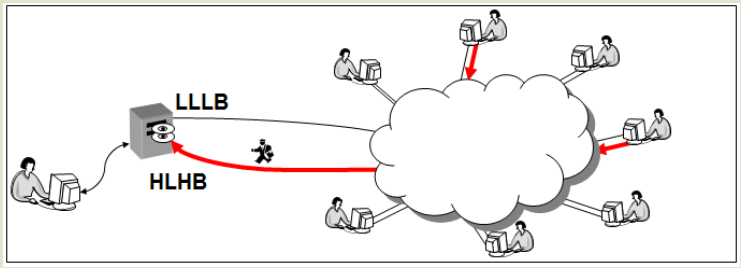
Digital StudyHall

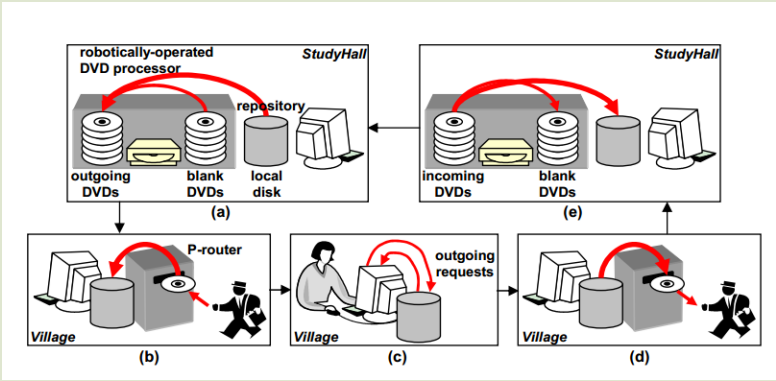
- Support weak schools with video content from expert teachers
- Local teacher mediates the video content
  - Based on the TVI model
  - Provide better content and support teacher development
- Important to match content with target audience
- Cost realism



DSH History: The Idea

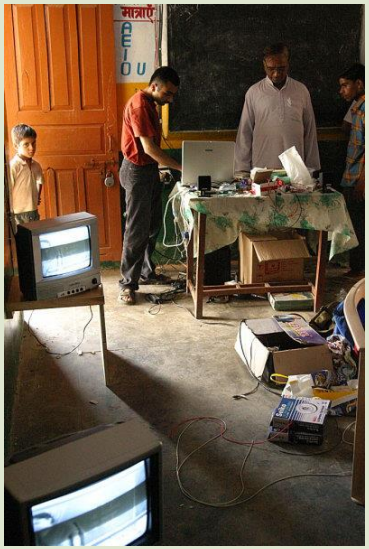
- How can computing systems research be applied to help the very poor?
- Solve the digital content distribution problem to make distance education possible
- Concept paper, Randy Wang et al., Princeton, November 2003





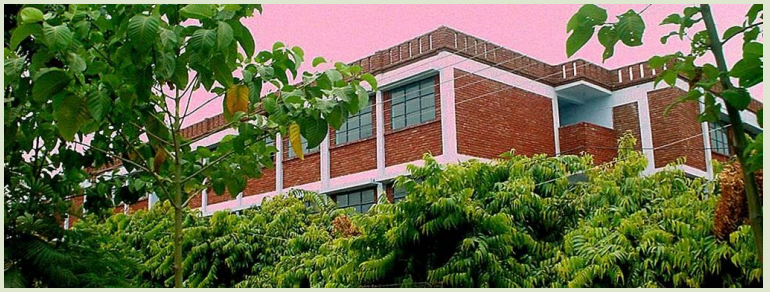
DSH History: Experimentation

- 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)



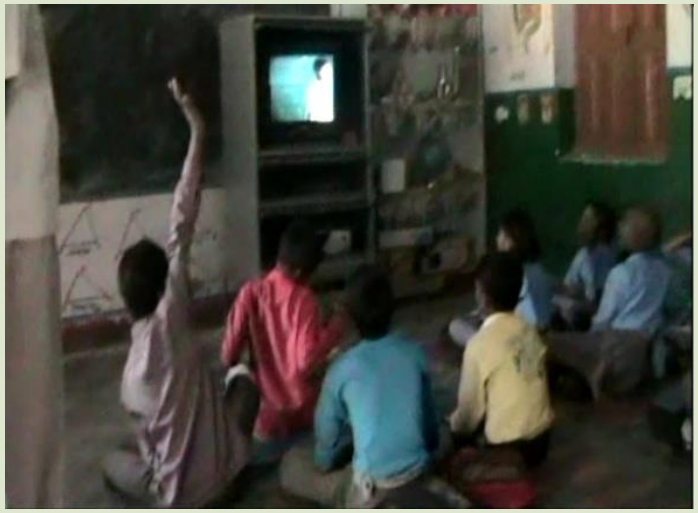
DSH History: Building the Lucknow hub

- 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



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

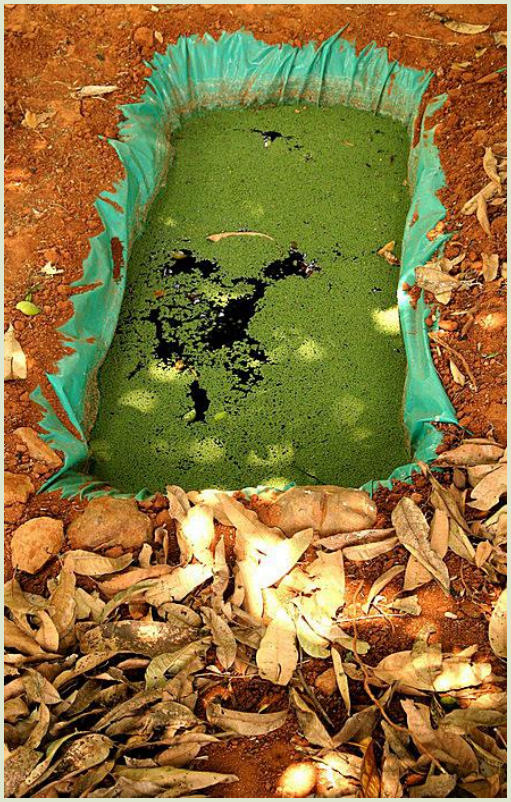


Digital Green

- 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

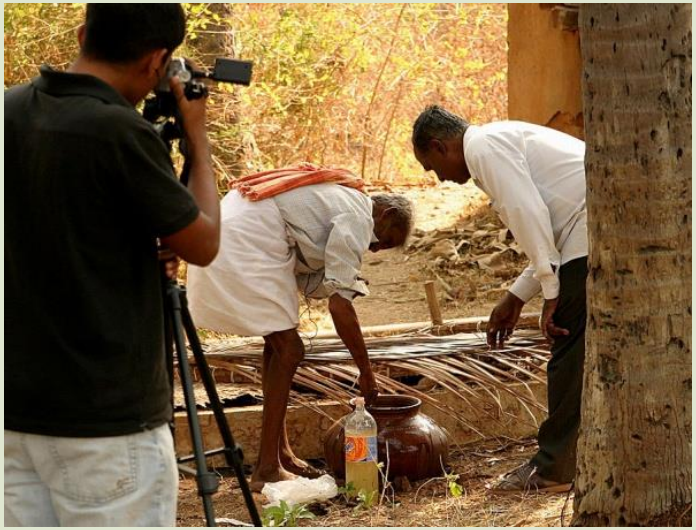
DG History: The Idea

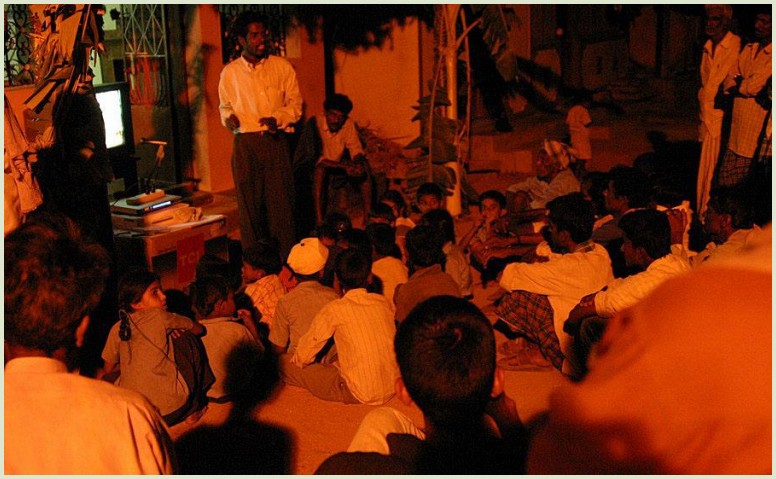
- Apply Digital StudyHall to agriculture
- Formative research conducted with Bangalore based NGO (Green)
  - Promote organic farming practices
  - Film extension workers introducing practices
  - Public showings in evenings
- Rikin Gandhi started work at MSRI as a volunteer



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



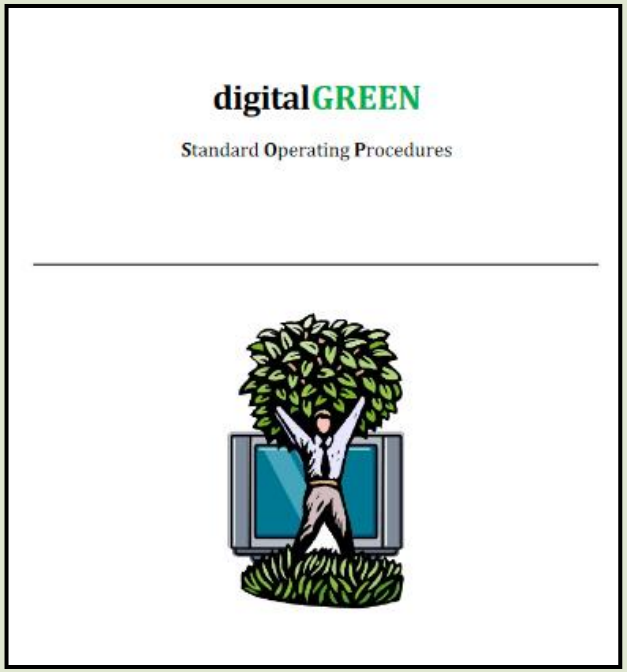


DG History: Spin Out

- 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

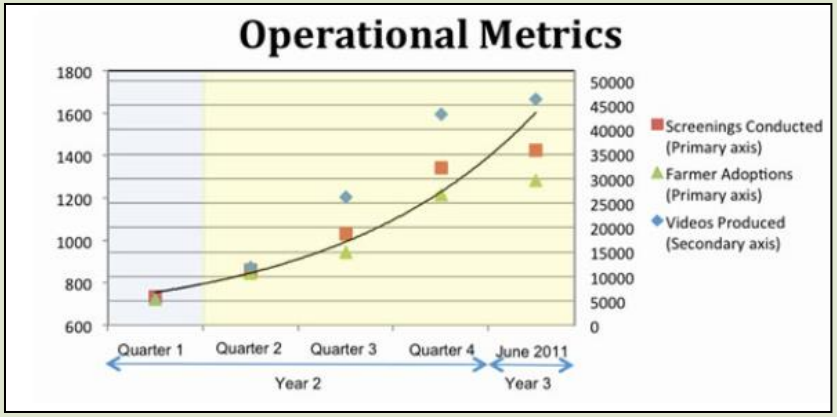
DG History: Building an NGO

- 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

PATH
A catalyst for global health

digitalGREEN

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

Seed Treatment of Wheat
Agriculture, Pest and disease Management, Disease control, Chemical, Wheat.
00:12:12 Produced On: 28 Dec 2010
362 viewers | 0 Adoptions

Sowing of Wheat in SWI method
Agriculture, Crop Intensification, System of Wheat Intensification, Weeding, Wheat.
00:08:54 Produced On: 07 Jan 2011
234 viewers | 6 Adoptions

Water Management of Wheat
Agriculture, Water Management, Irrigation Management, , Wheat.
00:06:14 Produced On: 21 Jan 2011
368 viewers | 76 Adoptions

Rat Control Method
Agriculture, Pest and disease Management, Rodent Control, Chemical, Wheat.
00:05:39 Produced On: 05 Feb 2011
541 viewers | 7 Adoptions

Key Statistics

Groups attending disseminations	Number of videos shown	Adoption rate	Average disseminations per day	Average dis
8693	2071	52.64 %	96.00	

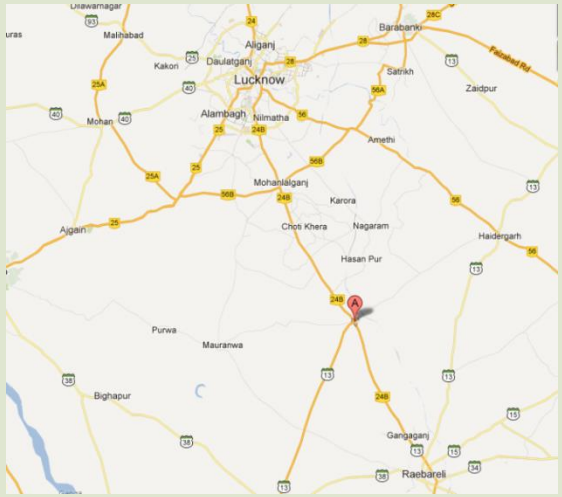
State	Viewers	Villages	Videos Produced	Disseminations
Madhya Pradesh	37117	683	1125	43404
Jharkhand	8353	178	247	8451
Orissa	19043	357	508	32462
Karnataka	28146	237	432	33391
Bihar	9737	110	111	4570
Andhra Pradesh	18033	110	25	5046
Oromia	335	19	8	42
Ashanti	5	0	5	0
Uttar Pradesh	0	0	0	0
India	120769	1694	2461	127366

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

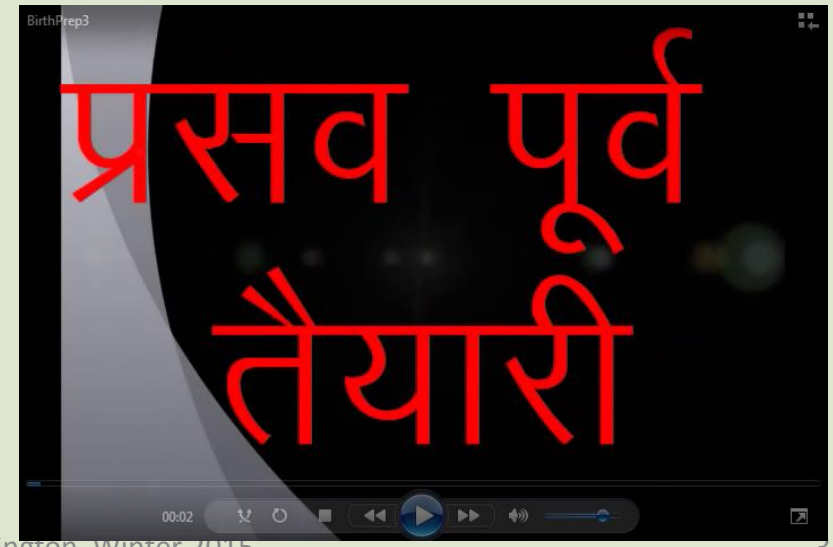
Birth preparedness requires a prior identification of—
a). Skilled, capable and eligible people like doctors, nurse and ANMs to do the delivery;
b). Clean cloth to wrap the baby and the mother;
c). Clean thread to tie the cord;
d). Clean new blade to cut the cord by a trained person;
e). important phone numbers and address of near by hospital, ambulance and any such people who has a vehicle to carry the pregnant women in case of emergency to the hospital/doctor;
f). 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

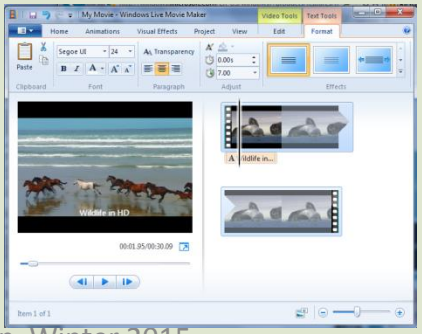


Dissemination

- 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



The Projecting Health Process

Women **identify** with actors and issues in videos

Women **discuss and share** their knowledge with others

Women **adopt** healthier behaviors and practices

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**

Projecting Health Videos

Breastfeeding

- Optimal breastfeeding practices
- Exclusive breastfeeding
- LAM

Thermal care

- Thermal care overview
- Delay bathing

Family planning

- Permanent methods
- Temporary methods
- NSV-No scalpel vasectomy
- IUCD Copper-T

Cord care

- Cord care overview
- Myths and misconceptions

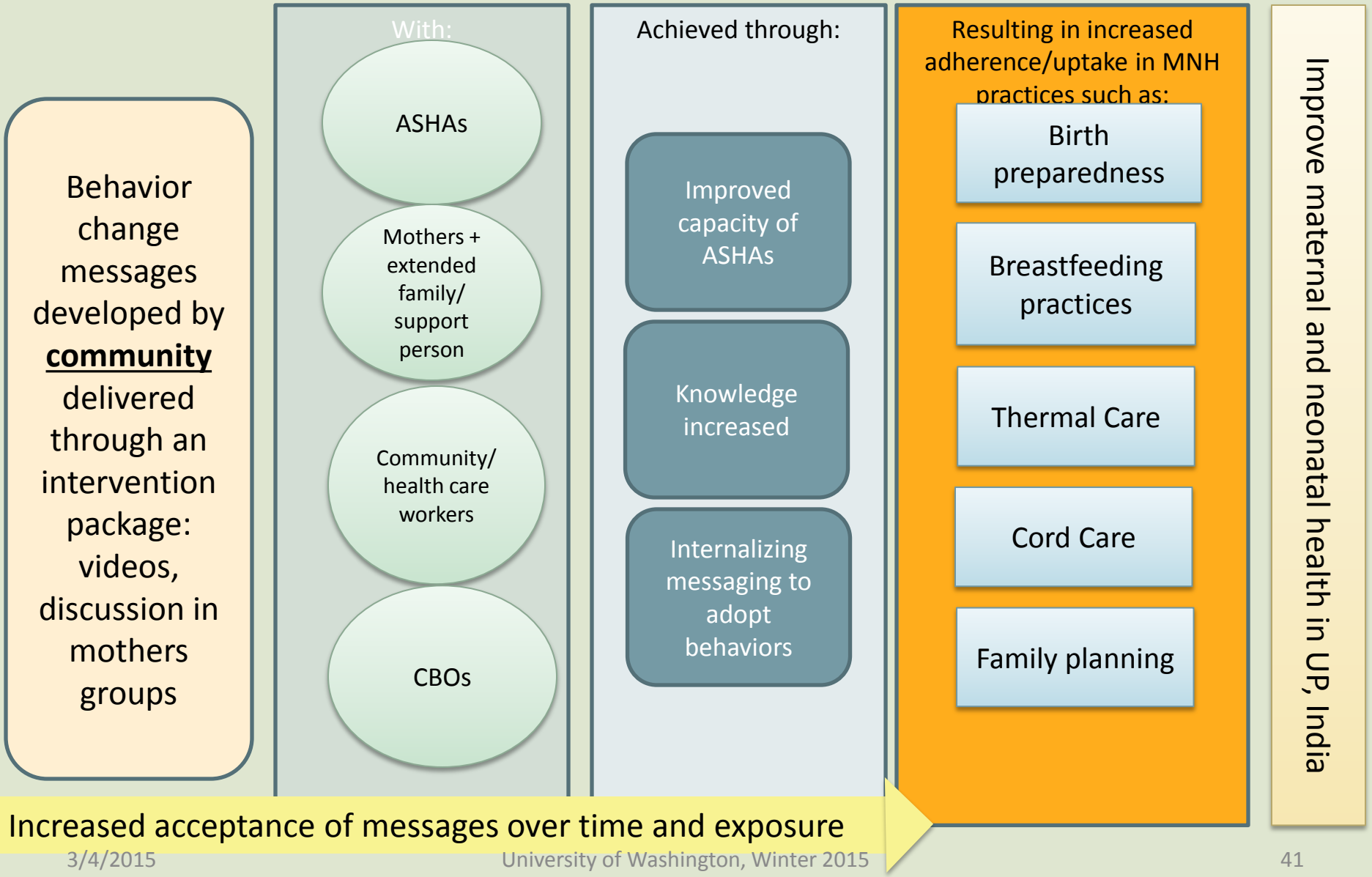
Birth preparedness

- Birth preparedness overview
- Maternal danger signs
- Maternal nutrition
- Newborn danger signs

Other

- Immunizations
- Community-based emergency transportation systems

Projecting Health Theory of Change



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.

Endline Evaluation: Key Outcomes

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

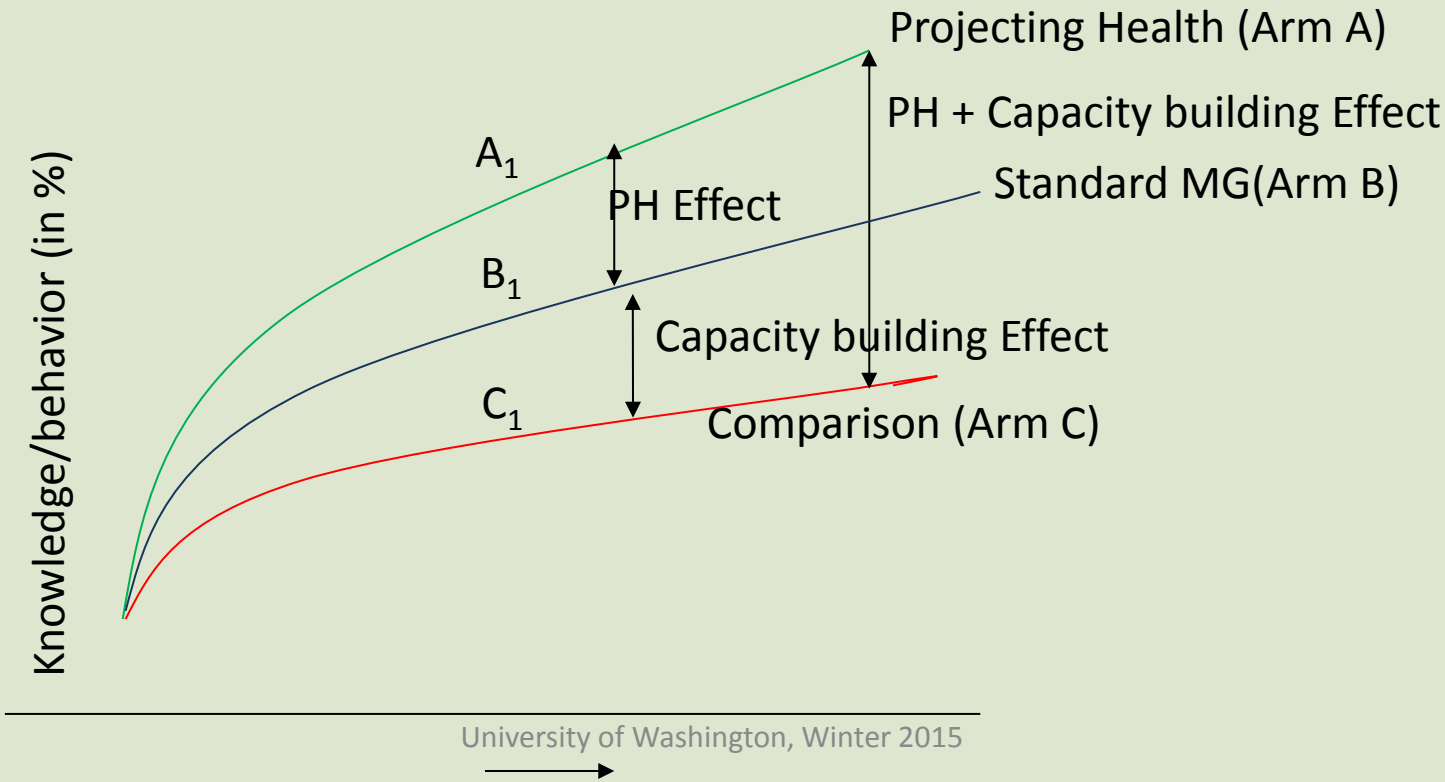
Birth Preparedness	Breastfeeding
• Identify a place to deliver • Institutional delivery • Saving money for an emergency • Planning for emergency transport • Preparing blade, thread for cord cutting • Prepare a clean cloth for wrapping baby after birth	• Gave colostrum • Early initiation of breastfeeding within 1 hour of birth • Exclusively breastfed for 6 months

Endline Evaluation: Key Outcomes

Thermal Care	Cord Care	Family Planning
• Bathed baby between 3 -7 days after birth • Held baby skin to skin or wrapped in a clean cloth after birth	• Cord was cut using a clean blade and tied with a clean cord • Nothing was applied to the cord	• Using a family planning method (temporary or permanent)

Evaluation design

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

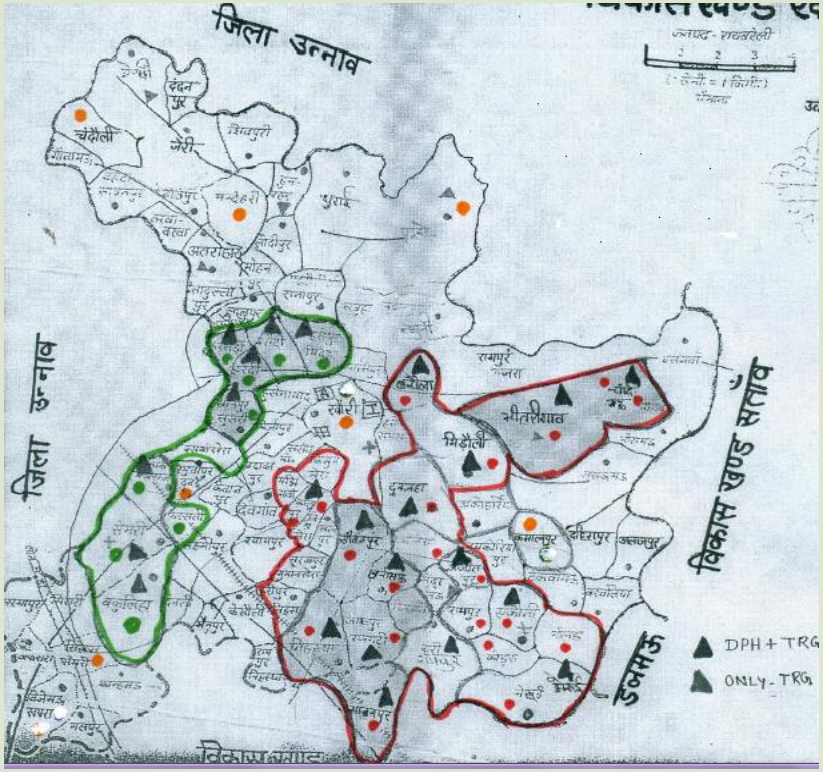


Methods

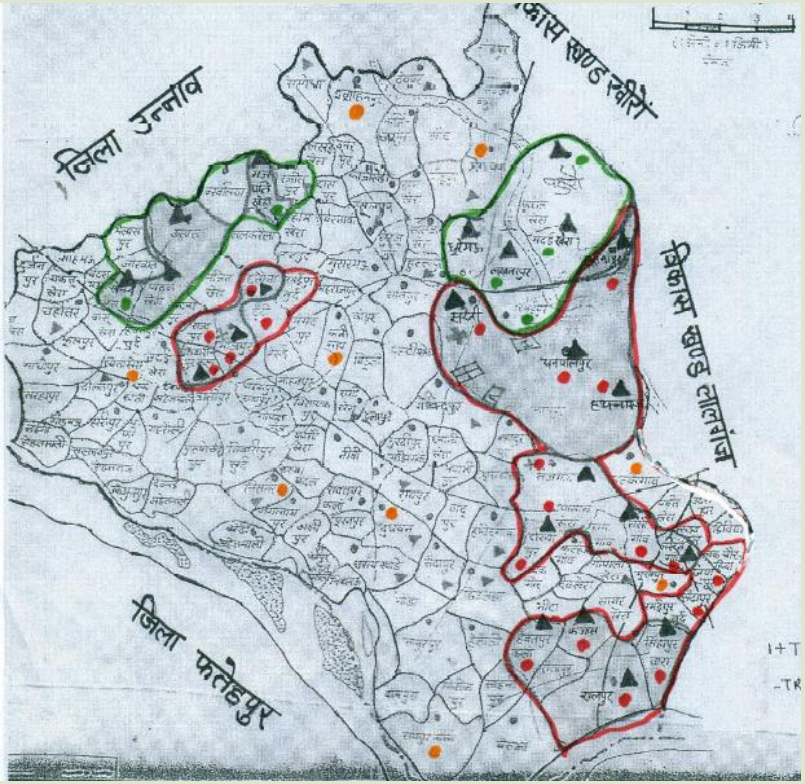
- Household survey with structured questionnaire among women between 18-45 years
  - Participants selected using set criteria, intervention arms recruited from participant list, and comparison arm from a household listing exercise
- Semi-structured interviews with community healthcare workers (ASHA)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

Sample villages

Block: KHIRO



Block: SARENI



Intervention Arm A | **Intervention Arm B** | **Comparison arm C**

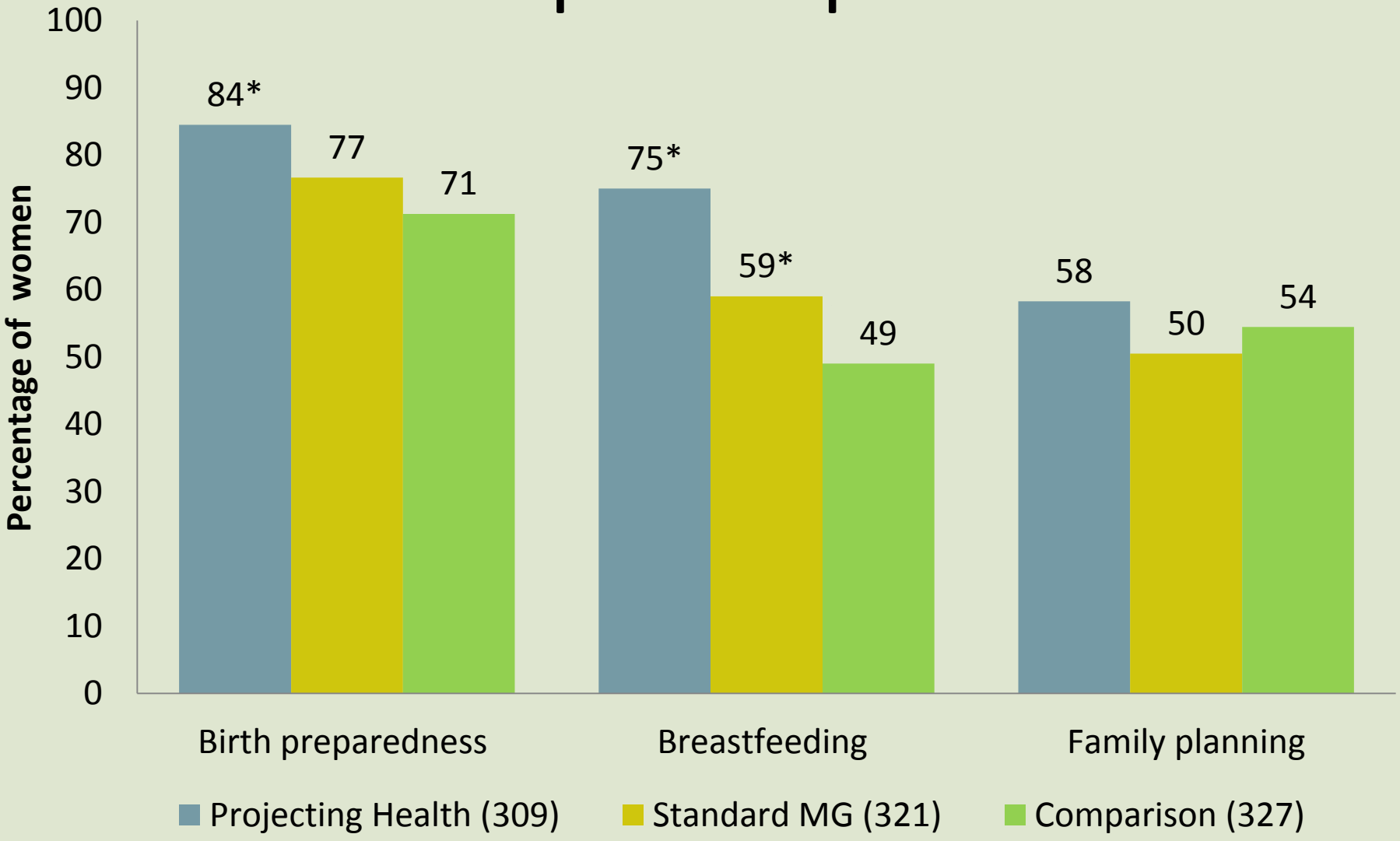
Findings overview

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

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



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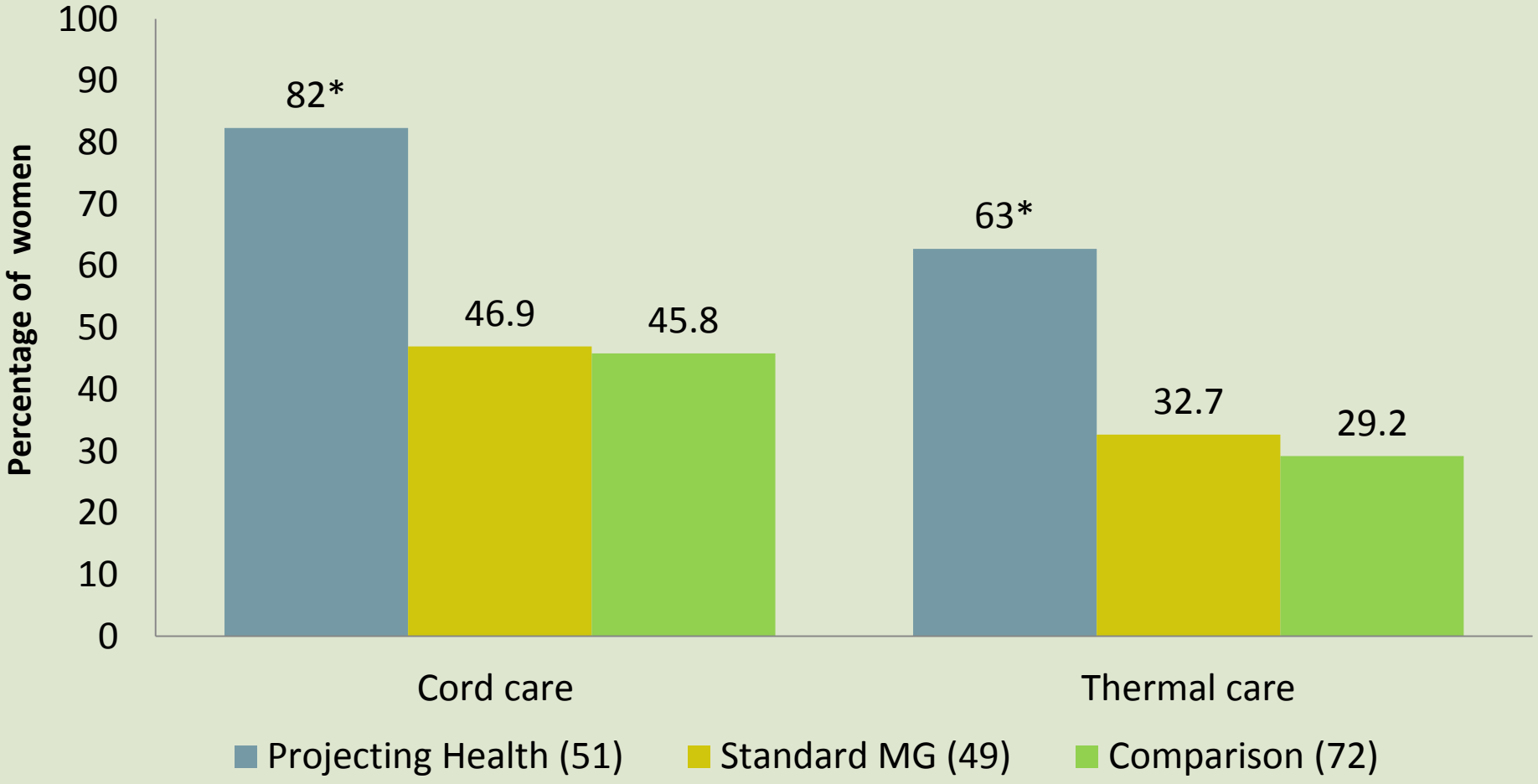
Birth Practices: Women Who Delivered at Home



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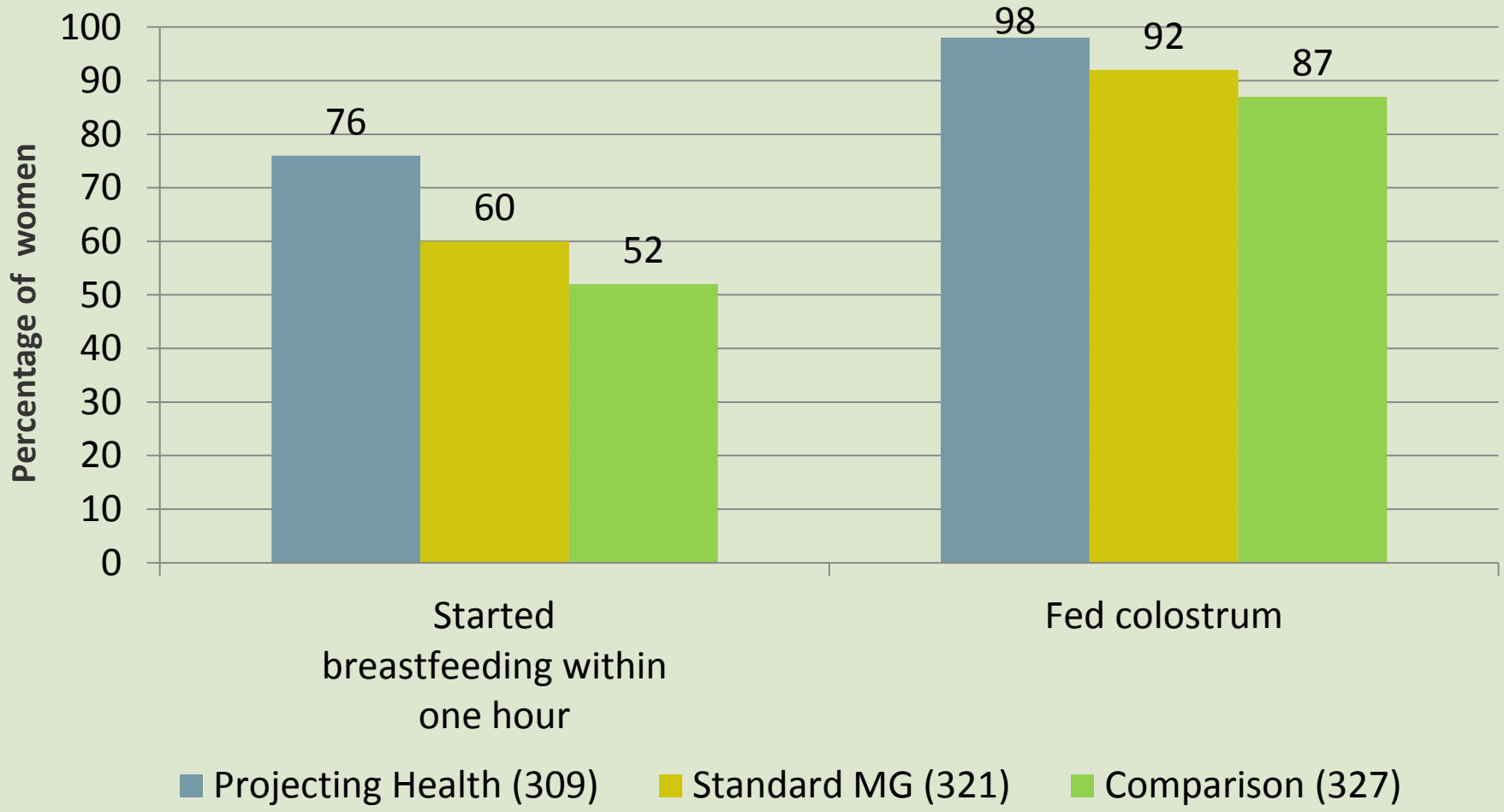
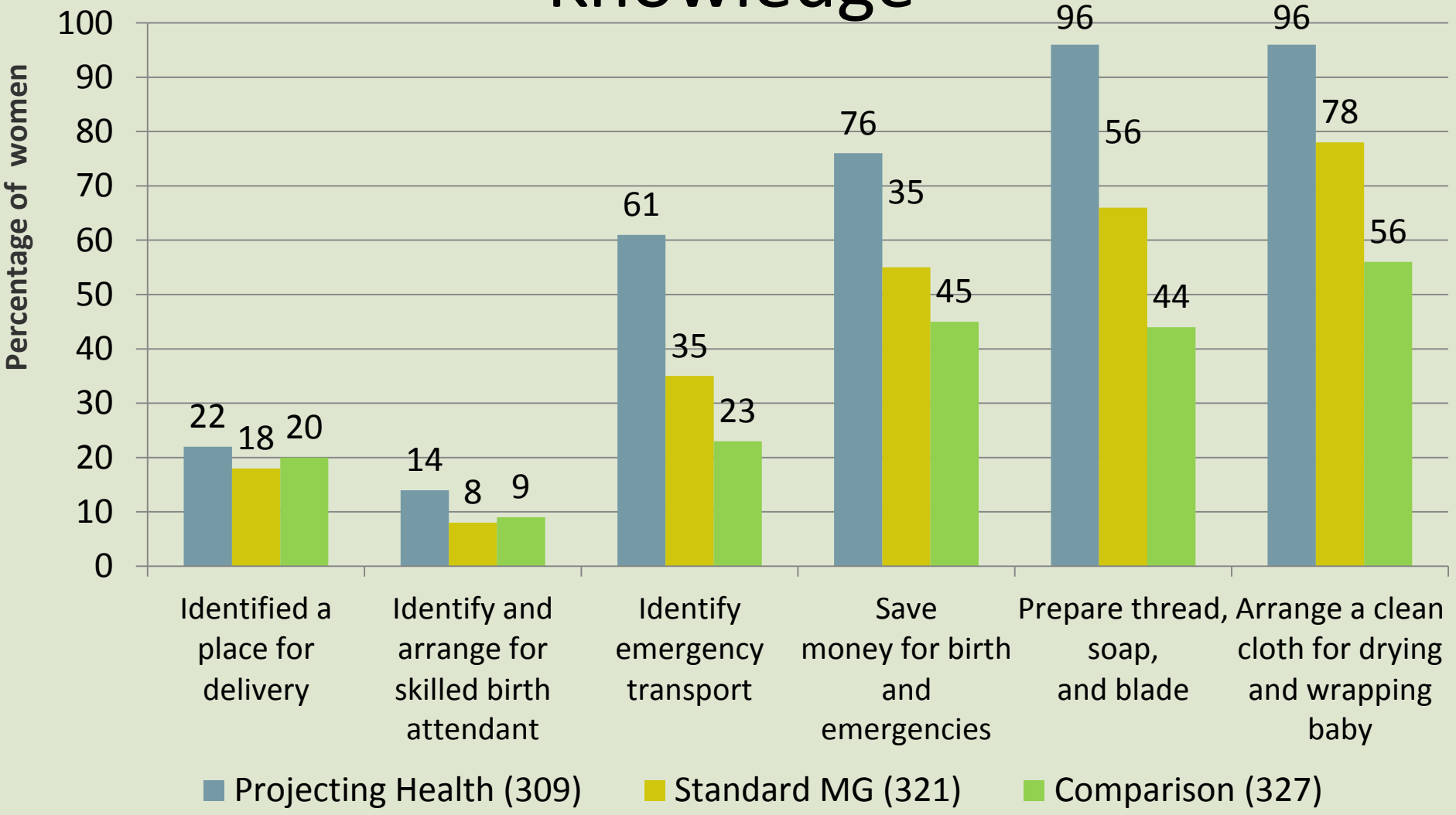
Breastfeeding: Uptake of Optimal Practices



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 at the Last Mile

PATH