IMPROVISATION & INTERVENTION FIDELITY

Opportunities and Challenges in Working with Community Health Workers to Confront Health Disparities

Steven K. Rothschild, MD
Associate Professor
Departments of Preventive Medicine and Family Medicine
Rush University Medical Center

Rush is a not-for-profit health care, education and research enterprise comprising Rush University Medical Center, Rush University, Rush Oak Park Hospital and Rush Health.

DISCLOSURES (1)

Research funding received from
- •NIH: NIDDK, NHLBI, and NINR
- •John A. Hartford Foundation of New York
- •Lloyd Fry Foundation (Chicago)

I do not receive funding and am not on the speakers bureau of any pharmaceutical companies or other industries.

2

DISCLOSURES (2)

- Steven Whitman, PhD
- Susan Swider, RN, PhD
- Lynda Powell, PhD
- Magdalena Nava, MPH
- Molly Martin, MD
- Carmen Lynas, PhD
- Imke Janssen, PhD
- Stephanie Fitzpatrick,PhD
- Jaime Delgado
- Elizabeth Avery, MS

The CHWs and Community Members of MATCH, Block-by-Block, and MATCH2 whose efforts and commitment make this work possible.

Overview of Presentation

- Why Community Health Workers?
- Limitations of CHW literature
- Principles of Clinical Trial Design
- Intervention Fidelity & Why it Matters
- The MATCH study and outcomes
- The Block-by-Block study and outcomes
- Limitations of Intervention Fidelity
- Getting the right balance between improvisation and Intervention Fidelity in studies of CHWs

4

Definition of CHW

"A frontline public health worker who is a trusted member of and/or has an unusually close understanding of the community served. This trusting relationship enables the worker to serve as a liaison/link/intermediary between health/social services and the community to facilitate access to services and improve the quality and cultural competence of service delivery.

A community health worker also builds individual and community capacity by increasing health knowledge and self-sufficiency through a range of activities such as outreach, community education, informal counseling, social support and advocacy."

APHA, Community Health Workers Section. 2015

Despite over 60 years of work with COMMUNITY HEALTH WORKERS and thousands of projects around the world, CHWs remain unfunded or underfunded and poorly understood by the medical community & health policymakers.

6

Despite over 60 years of work with COMMUNITY HEALTH WORKERS and thousands of projects around the world, CHWs remain unfunded or underfunded and poorly understood by the medical community & health policymakers.

WHY????

7

Principles of Clinical Trial Design

1. Objective Investigator
2. Conceptual Model
3. Appropriate Comparison Group
4. Randomization
5. Blinding of Participants
6. Consistent Implementation of Treatment
7. Blinding of Research Assistants
8. Complete Follow-up of all Participants

Powell, L

8

Cochrane Review, 2013

RUSH

"The delivery of some healthcare interventions by lay health workers has been controversial, and the effectiveness of lay health workers as a group has been a topic of ongoing debate following the widespread expansion of their use in the 1970s.

Debate has centered around a number of issues, including:

- **Variability in training and ongoing supervision**
- **Insecure funding for incentives, equipment and drugs**
- **Failure to integrate lay health worker initiatives with established health systems.**

9

Limitations of CHW Literature

RUSH

- Failure to state hypothesis and outcomes *a priori*
- Absence of clear conceptual intervention model
- Weak attention to intervention fidelity
- No behavioral attention control
- Failure to blind outcome assessment
- Poor participant retention

Lewin S, Dick J, Pond P, Zwarenstein M, Aja GN, van Wyk BE, et al. Cochrane Database of Systematic Reviews. 2005

Viswanathan M, Kraschnewski J, Nishikawa B, Morgan LC, Thieda P, Honeycutt A. Agency for Healthcare Research and Quality. 2009.

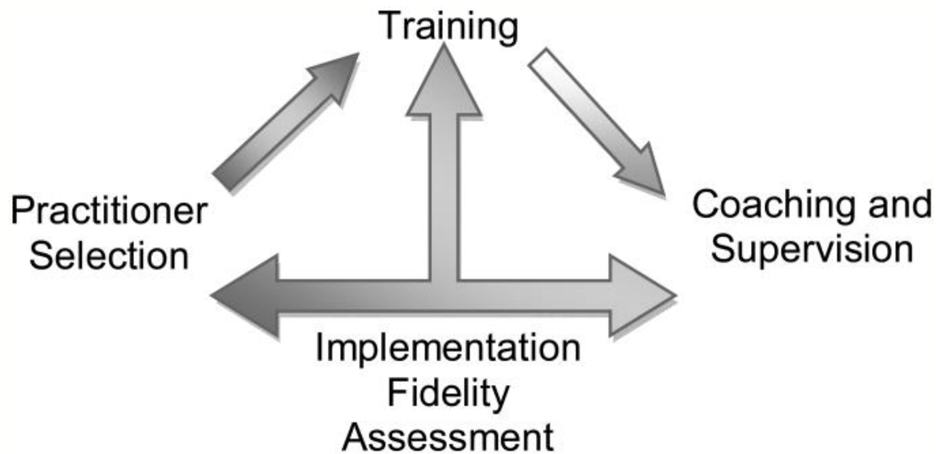
FIDELITY & Why It Matters

- Degree to which intervention is delivered as intended
- Ensures that intervention gets intended outcome
- **Critical to successful translation of evidence-based interventions into practice**

Breitenstein S, et al. 2010

12

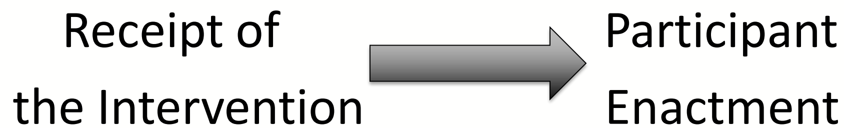
Practitioner-level



Fixsen et.al. 2005
Breitenstein S, et al. 2010

13

Participant-level



Lichstein, Et.al.

14

Mexican-American Trial of Community Health workers

RUSH

- Behavioral Randomized Controlled Trial
- Efficacy: Testing CHWs under ideal conditions
- Population:
  - Community-dwelling urban Mexican-Americans
  - Defined as born in Mexico themselves - or - 1 parent or 2 grandparents born in MX
  - Type 2 Diabetes mellitus *without* major end-organ complication

[R01 DK061289]

15

A priori Hypotheses

RUSH

- Indigenous CHWs
  - Individuals drawn from community
  - Shared language, culture, experience
  - Did NOT have diabetes
- Trained to teach culturally appropriate diabetes behavioral self-management skills
- Self-management education and coaching one-on-one in participant’s home

16

A priori Hypotheses

PRIMARY STUDY OUTCOMES

Improved physiologic risk factors after 2 years

- Mean A1c – glucose control
- % with Blood Pressure at goal (<130/80)

©2006 RUSH University Medical Center

17

A priori Hypotheses

SECONDARY STUDY OUTCOMES

Improvements in self-management behaviors

- daily self-monitoring of blood glucose
- medication adherence
- adherence to diet and physical activity recommendations

MEDIATING HYPOTHESIS

Improvements in diabetes self-efficacy

18

INTERVENTION

- Diabetes Self-management training
- Delivered by Community Health Workers
- 36 home visits over 24 months, 1-on-1 coaching
  - Scheduled every 2 weeks for 1st year
  - Scheduled every month in 2nd year
- Behavioral Content from American Association of Diabetes Educators (AADE-7)

©2006 RUSH University Medical Center

<u>Diabetes Self-Management BEHAVIORS (AADE-7)</u>

1) Check blood glucose daily and understand the results

2) Take action to respond to abnormally high or low blood glucose results

3) Obtain regular medical care and communicate your concerns with your medical providers

4) Take medications as prescribed by your medical provider

5) Check your feet regularly

6) Engage in daily physical activity

7) Make healthy dietary choices, with emphasis on reducing the fat content of meals

©2006 RUSH University Medical Center

CHWs help participants change these behaviors through:

- Re-Interpretation of signs & symptoms
- Verbal persuasion
- Modeling of healthy behaviors
- **Performance Mastery:**
  - **Action Plan**
  - **Identify barriers – Problem solving**
  - **Follow-up**

©2006 RUSH University
Medical Center

Self-Management Skills to enhance performance mastery

1) Problem-solve using brainstorming *"lluvia de ideas"*

2) Record adherence to specific diabetes behaviors through the use of a journal or written log *"márquelo"*

3) Restructure the environment to either support desired behaviors or reduce the risk of unhealthy behaviors *"cambielo"*

4) Seek out social support from family members or friends

5) Use strategies to reduce stress

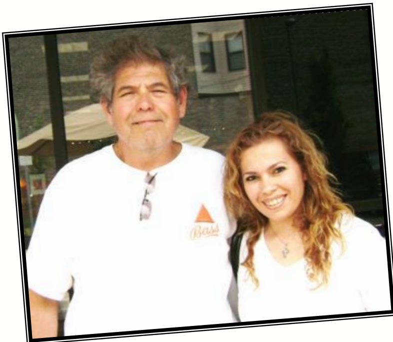
INTERVENTION FIDELITY

- Recruitment of CHWs
- Training
  - 24 hours of Diabetes core content
  - 60 hours of Self-management training
  - 4 hours of evaluation
- Demonstration of mastery / competency
  - Knowledge post-test
  - Structured observations through role-plays

©2006 RUSH University Medical Center

23

INTERVENTION FIDELITY



- CHWs documented content of visits, duration, skills taught
- All encounters audiotaped with random audits and feedback by physician, psychologist

- Average visit time ~ 90 minutes
- High rates of adherence / completion

24

©2006 RUSH University Medical Center

QUALITY CONTROL REPORTS

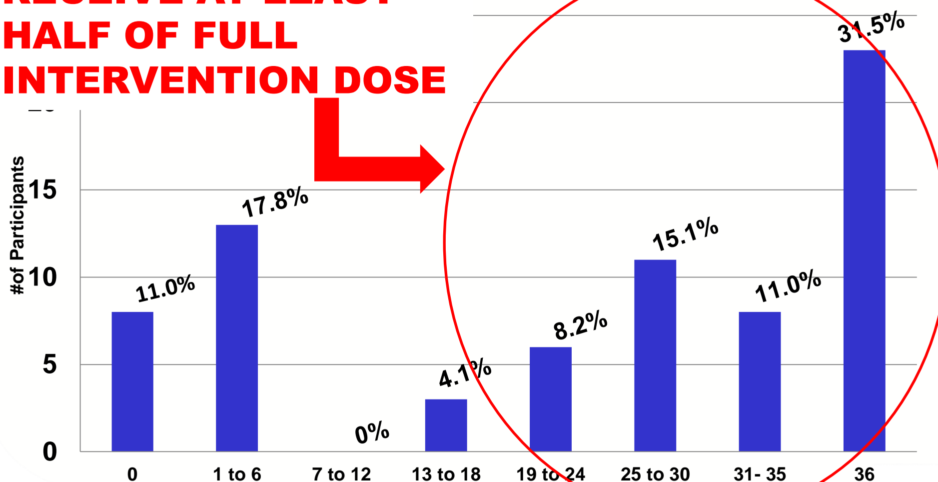
By Individual CHW *and* by Participant

- ✓# of completed visits
- ✓Length of visits
- ✓Topics covered
- ✓Behavioral tools utilized
- ✓Action plans completed
- ✓CHW satisfaction

25

of Completed CHW Visits

2/3 OF PARTICIPANTS RECEIVE AT LEAST HALF OF FULL INTERVENTION DOSE



©2006 RUSH University Medical Center

26

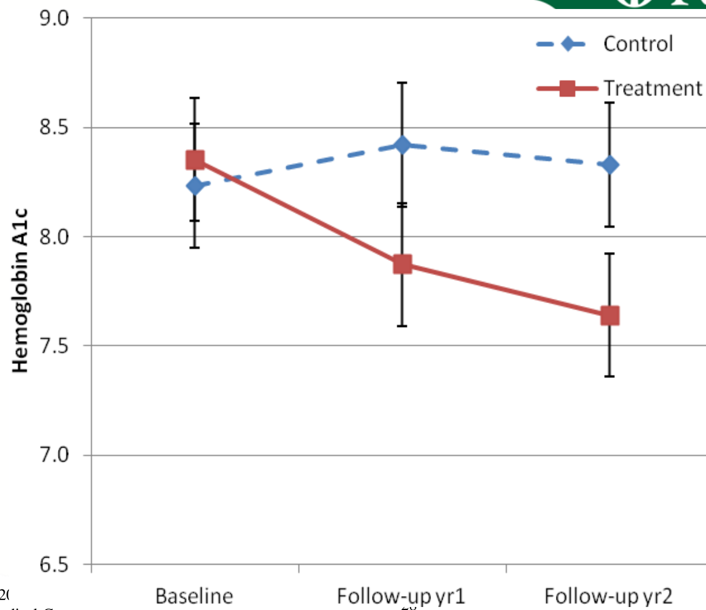
MATCH

Mexican-American Trial of Community Health workers

PRIMARY OUTCOMES

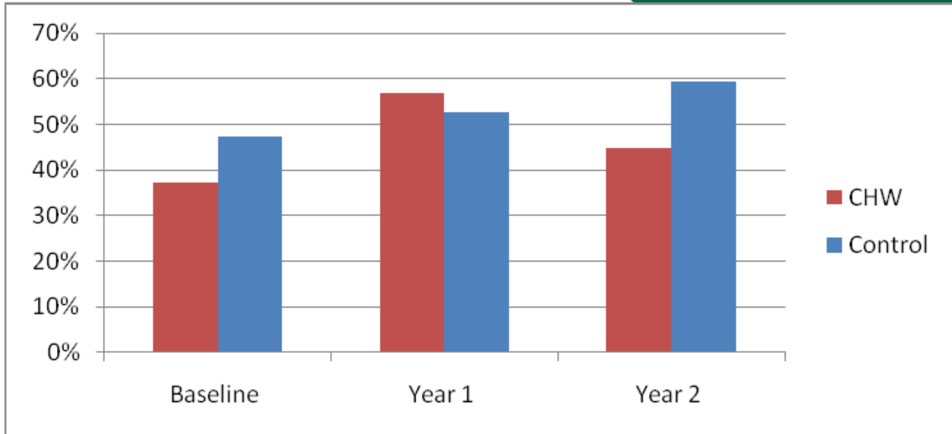
©2006 RUSH University
Medical Center

Hemoglobin A1c levels



©2(
Medical Center

Rates of Blood Pressure control



	Baseline	Year 1	Year 2
CHW	37.2%	57.0%	44.9%
Control	47.4%	52.6%	59.5%

©2006 RUSH University Medical Center

Why Fidelity Matters (1)

BLOCK-BY-BLOCK

Replication of a CHW intervention at a community level in a 72-block area of Northwest Chicago

- ✓ CHW recruitment
- ✓ CHW training
- ✓ Self-monitoring of intervention

Why Fidelity Matters (1)

BLOCK-BY-BLOCK

- ✓ CHW recruitment
- ✓ CHW training
- ✓ Self-monitoring of intervention
- X **Inconsistently defined intervention**
- X **No review of recorded intervention**
- X **No strict prescription of # of contacts**
- X **Infrequent supervision**
- X **No health psychologist**

31

Inattention to Fidelity

Lack of improvement due to

- An ***ineffective*** CHW intervention?
- An effective CHW intervention that was ***not delivered the way it was intended*** ?

What will happen when others adopt the MATCH CHW model…
and make significant changes?

32

CAUTION

Over 50% of time CHWs spent with participants had <u>nothing whatsoever to do with Diabetes or the MATCH intervention</u>

CONCLUSIONS

- Define essential elements of intervention *before* you start
- Criteria for CHW selection
- Train – Practice – Train some more
- Monitor: Self-report AND direct observation
- Control reports
- Be generous with Coaching &
- Frequent team meetings
- Are participants / patients understanding?

35

Let Community Health Workers BE Community Health Workers!