

**Development of an Online
Management Information System
for a Community Health Worker Led
Diabetes Intervention**

Brandy Sinco, MS, Gloria Palmisano, MA,
Michael Anderson, Erin Ashmore, BA , Edith
Kieffer, PhD, Michael Spencer, PhD

American Public Health Association Annual Meeting
Philadelphia, PA
11/9/2009

Disclosure Statement

**I have no conflicts of interest and am not
involved in any off-label or experimental
uses of a commercial product or
service discussed in my presentation.**

**Although our web database was built from
Microsoft Access and Adobe Cold Fusion,
I do not own stock in Microsoft nor in Adobe.**



Outline

- Overview of the REACH Detroit Partnership
- Roles of Community Health Workers
- Web database needs regarding family and community interventions
- How CHW's, researchers, and programmer worked together on design and development
- Training
- Conclusions and lessons learned



REACH Detroit Partnership

- Goal: To eliminate disparities in Type 2 Diabetes, complications and risk factors among African Americans and Latinos in two Detroit communities
- Origin: CDC -sponsored REACH 2010 initiative
- Community Based Participatory Research (CBPR): Equitably involve community members, organizational representatives, and researchers in all aspects of research and decision making



Family Health Advocates (FHAs)

- Full-time paid staff – CHW's who worked primarily for Family Level Intervention
- Taught the culturally tailored diabetes curriculum
- Conducted home/clinic visits, case management, one-on-one support, etc.
- Crucial in maintaining links to community and health care providers, advanced cultural competency efforts
- Assisted in all aspects of project implementation / sustainability – processes, procedures, evaluation, etc.



Community Health Advocates (CHA's)

- Full-time Vista volunteers – CHWs who worked in Community Level Interventions
- Conducted Diabetes awareness activities (health fairs, presentations, workshops, support groups, etc.)
- Increased physical activity community resources (developed/sustained fitness classes, recruited fitness instructors)
- Promoted healthy eating (cooking demos, community gardens, produce mini-markets, etc.)
- Assisted in evaluation activities



Need for a Web Database

- Evaluation and management tool for our 4 interventions
- Needed to be accessible in Detroit (project home) and in Ann Arbor (location of University of Michigan)
- Family Intervention. Document client interviews, lab tests, home visits, translations, and doctor visits accompanied by FHA's; also track daily schedules of FHA's
- Health System Intervention. Dates and subjects for CME (Continuing Medical Education) sessions
- Community and Social Support Interventions. Locations, services, dates, attendance for all community activities.
- Example: How many exercise classes occurred in 2007? What were the class titles and locations?



Origin of Our Web Database

- Family intervention database began as a desk top Access database, developed by Michael Anderson, a REACH Family Health Advocate
- As project grew, the project database needed additional features, such as:
 - Multi-site accessibility
 - More in-depth tracking of client recruitment .
 - Interactions between clients and community health workers (class attendance, accompanying clients to doctor appointments, withdrawal dates and reasons)
- Locations of community activities and participation counts



Design Process: Mutual Respect And Understanding Are the Keys

- Key to developing a successful information system : mutual respect between the community health workers, academic researchers, and information technology staff
- Developed mutually agreed upon goals and time table
- Began with a picture of a form or report, often in Microsoft Word or other word processing program
- Programmer converted the Word document to a web page, sent a link to the community health workers, and asked for feedback on whether the web version met their needs

Example From Joint Design Effort Between CHW's and Computer Programmer

- Goal: Enable the FHA's to enter their daily schedules, while documenting how the CHW's spend their time and all of their interactions with clients.
- Start Time: _____ End Time: _____
- Client ID (If activity involved specific client) _____
- Activity:
 - Accompany client to doctor visit
 - Diabetes support group
 - Class preparation
 - Remind client of lab test
 - Driving

Picture of FHA Schedule Web Form

SELECT A FHA AND DATE FOR THE DAILY SCHEDULE

0 Nobody Date: 10/22/2009 Edit FHA Schedule

RowNum	Start Time	End Time	Activity	REACH Client	Client Notes
0	0:00	0:00	4 (FHA) Support Group 5 (FHA) Computer Training 6 (FHA) E-Mail / Calls	Nobody	

Client Notes:

REACH Client:
Nobody
1060
1061

Client Names

Enter Add Event Edit Event Delete Event

- To edit or delete an entry, you must enter the ROWNUM
- To add an entry, ROWNUM is not required and will be computed automatically

Example From Joint Design Effort Between CHW's and Computer Programmer

- Goal: Enable the CHA's to document community resources after surveying their community contacts
- Contact Information (Organization Name, Executive Director, Address, Phone, E-Mail, Bus Routes, Surrounding Streets)
- Physical Activity Resources(Gymnasium, Swimming Pool, Classes, Exercise Classes, etc.)
- Food / Nutrition Resources (Food Pantry, Prepared Meals, Nutrition Classes)
- Handicap Accessibility

Section of Community Assets Web Form

Address: <http://healthylifestyles.ssw.umich.edu/intriv/head/enter/CommunityfrmCommAsset.cfm>

Food / Nutrition Services	Facilities
<ul style="list-style-type: none"> <input type="checkbox"/> Food Pantry <input type="checkbox"/> Prepared Meals <input type="checkbox"/> Nutrition Classes <input type="checkbox"/> Cooking Classes <input type="checkbox"/> Senior Meals Program <input type="checkbox"/> After School Feeding Program <input type="checkbox"/> Referrals for Emergency Food <input type="checkbox"/> Home Delivered Meals Program <input type="checkbox"/> Transportation to WIC offices <input type="checkbox"/> Meal Club <input type="checkbox"/> Food Sales/Distribution (e.g. mini-market/farmers market) <input type="checkbox"/> Healthy Eating Demonstration <input type="checkbox"/> Restaurant with Healthy Menu Options <input type="checkbox"/> Healthy Eating Group / Club 	<ul style="list-style-type: none"> <input type="checkbox"/> Big open space to sell/distribute food <input type="checkbox"/> Big open outdoor area for a garden <input type="checkbox"/> Soup kitchen / food pantry / other food distribution <input type="checkbox"/> Community garden program <input type="checkbox"/> Transportation assistance (e.g. to stores) <input type="checkbox"/> Nutrition education <input type="checkbox"/> Holiday food distribution <input type="checkbox"/> Kitchen Area (e.g. for food preparation)

Other Food / Nutrition Facility:

Enter Data Back to Top

Look-Up Tables

- What if a Community Health Worker thought of a new food / nutrition resource or a new item on any other list?
- Solution: New entry added to a look-up table
- Look-up tables are example of CBPR; Community Health Workers create the entries
- Only designated CHW(s) had permission to edit look-up tables
- Only the programmer(s) had permission to delete entries
- Example of look-up table for healthy eating support groups

Value	Description
1	Healthy Breakfast Club
2	Healthy Eating Support Group
3	Community Healthy Food Meeting and Demo
4	Healthy Lunch Club
5	Recipe Swap Club
6	Healthy Dinner Club

Color Selection

33CC00	33CC33	33CC66	33CC99	33CCCC	33CCFF
33FF00	33FF33	33FF66	33FF99	33FFCC	33FFFF
660000	660033	660066	660099	6600CC	6600FF
666600	666633	666666	666699	6666CC	6666FF
669900	669933	669966	669999	6699CC	6699FF
993300	993333	993366	993399	9933CC	9933FF

- Programmer e-mailed link of web page with color choices and color codes to the Community Health Workers
- 216 choices of colors
- Community health workers selected their choices of colors, e-mailed the color codes to the programmer
- <http://www.reachdetroit.org/colors.cfm>



Keys to Successful Training

- More than one training session may be necessary. There may be too much material to digest in a single session.
- Community Health Workers needed a chance to work with the web database after the initial training. Reconvened later for a follow-up session.
- Requests for revisions were often additional fields, such as client account number or boxes where the Community Health Workers could enter comments.



Keys to Successful Training Continued

- Hands-on experience with step-by-step instructions was preferred by the Community Health Workers
- Programmer needed to create training database that contained practice data, so that the community health workers could get the feel of navigating through the database without worrying about destroying real data.
- Friendly, in-person technical support needed to be available when the community health workers had questions.



Document Client / FHA Interactions

- Sample Report: Tabulate FHA / Client Interactions for 2007

REACH Activity Description	Count
Doctor's Office - Routine Care	28
Support Group	17
E-Mail / Calls	904
Home Visit	81
Community Activity	21
6 Month Assessment	17
1st Year Assessment	34
Teaching	142
Lab Form	70
Translating	3
Healthy Changes Form	34
Total REACH FHA Client Interactions	1351

Community Assets Querying System

- Online public database for local physical activity and healthy eating resources. Developed as team effort between Community Health Workers, researchers, and programmer.

Community Assets - Text Query - Microsoft Internet Explorer

Address: http://healthylifestyles.ssw.umich.edu/public/fmfindany.cfm

REACH
Detroit Partnership

En Español

University of Michigan | School of Social Work
School of Public Health
Site Map | REACH Home

Preventing diabetes and diabetes complications in the African American and Hispanic communities in eastside and southwest Detroit

FIND IT WHERE YOU LIVE: YOUR OWN CUSTOM SEARCH

QUICK SEARCH:

Location: Eastside Southwest Does Not Matter

Exercise / Physical Activity
Click here to search for specific exercise programs or facilities
(for example, a basketball court or swimming pool)

Diet / Nutrition
Click here to search for specific food facilities or healthy eating resources
(for example, nutrition classes or cooking classes)

Spanish Spoken Here Yes Does Not Matter

Handicap Accessible
Click here to search for specific types of handicap access
(for example, handicap parking)

Additional Services
Click here for specific services
(for example, a day care program)

CUSTOM SEARCH:

Internet

Querying System Output Example

- Sample Search: Exercise resources on the east side of Detroit.
- Sample output for one of the community resources.

EXERCISE PROGRAMS	Handicap Accesibility
Big open indoor space	Barrier Free Entrance
Big open outdoor area	Handicap Parking
Gym	Accessible Bathrooms
Playground	
Basketball	
Baseball	
Martial Arts	
Dance Classes	



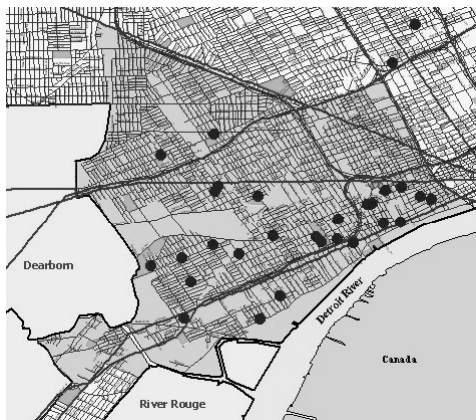
Counts and Attendance at Community Activities

- This table displays the query output for number of sessions and attendees for a variety of diabetes outreach activities.

Activity	Sessions	Attendance
Support Groups	207	1,261
Physical Activity Classes	2,133	23,109
Walking Club Meetings	64	-
Painting or Gardening	7	-
Total Physical Activity Events	2,204	23,109
Food Demos	145	3,201
Mini-Markets	182	-
Total Food / Nutritional Events	327	3,201
Community Education(presentations and information tables)	139	2577

GIS Maps: Locations of Community Resources

Tracking the occurrences and locations of physical activity and healthy eating events enabled us to create GIS maps of where the events occurred. The map below displays the locations of Exercise classes in Southwest Detroit during 2006.



Summary of Lessons Learned

- Desire for the Community Health Worker information system must come from both the CHW's and the researchers
- Development must be a joint effort between a web database programmer, CHW's, and researchers
- When all parties put their minds together, a reporting system can be developed that will be user friendly and empowering for the CHW's, in addition to making reports possible that will enhance project management and the reporting of outcomes
- The outcomes reported from the information system can be displayed with graphics and GIS maps to help illustrate the results at community forums and during site visits
- Literature search indicated that what we have done is innovative



Acknowledgements

- REACH Detroit Partnership Staff and Steering Committee
- CHASS (Community Health And Social Services), Central Coordinating Organization
- Henry Ford Health System, Institute of Multicultural Health
- Centers for Disease Control and Prevention, Racial and Ethnic Approaches to Community Health (REACH) 2010, Grant Number: U50/CCU522189-02
- REACH Detroit affiliated with the Detroit Community Academic Urban Research Center, University of Michigan
- Ms. Erin Ashmore for conducting the literature search
- Mr. Richard Trice and Mr. Giancarlo Guzman for their insight on the community / social support interventions

- Thanks to the University of Michigan School of Social Work for Hosting Our Website and Web Database.



Contact Information

Brandy Sinco, Statistician and Programmer/Analyst	Michael Anderson, Family Health Advocate Supervisor
University of Michigan School of Social Work 1080 S. University St., Suite 3765 Box 183 Ann Arbor, MI 48109-1106 Phone: 734-763-7784 E-Mail: brsinco@umich.edu	Community Health And Social Services (CHASS) 5635 W. Fort Street, Detroit, Michigan 48209 Phone: 313-849-3920 E-Mail: manderson@chasscenter.org

www.reachdetroit.org
www.chasscenter.org