REACHING UNDERSERVED ADULTS WITH DIABETES THROUGH INTERACTIVE TECHNOLOGY: MOBILE DIABETES DETECTIVE (MODD)

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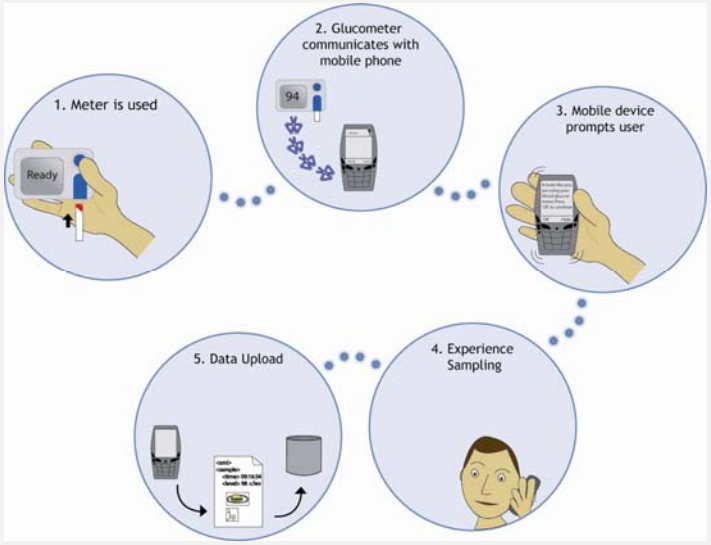
BACKGROUND

- Diabetes self-management education is effective in improving glycemic control
- Medically underserved do not receive DSME
- Delivering DSME using health information technology could improve access
- Medically underserved are adopting technology at increasing rates
- TTM individual progresses through the five Stages of Change
- Change processes includes both cognitive and behavioral activities

MOBILE ACCESS TO HEALTH INFORMATION (MAHI)

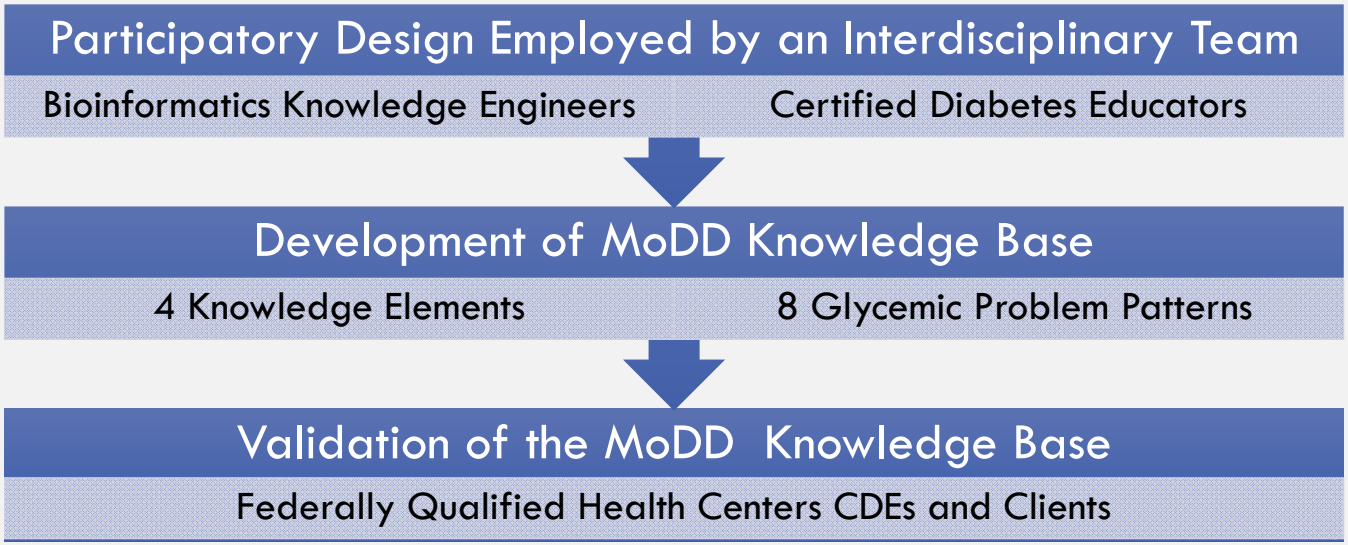
- Interactive technology including a conventional blood glucose meter (LifeScan OneTouch™) enhanced with a Bluetooth adapter and a cell phone (Nokia N80™).
- Data capture includes the user's interaction with the glucose meter, blood glucose values, and media recordings of participants voices and pictures.



STUDY DESIGN

- To develop a theoretically grounded knowledge base for problem solving in diabetes
- To develop an expandable knowledge base related to DSME/S
- To promote diabetes self-management in underserved adult with type 2 diabetes using patient-centric decision support tools (MoDD)

DEVELOPMENT OF THE MOBILE DIABETES DETECTIVE



KNOWLEDGE BASE DEVELOPMENT

- Conducted in collaboration with Clinical Directors Network (CDN)
- Knowledge base was created in a participatory design
- Used knowledge acquisition with academic diabetes educators (ADE) as domain experts
- Recruited CDE's and participants from from Community Health Centers (CHC)
- Validated by scenario-based approach with CDEs and participants from CHC
- Inclusion criteria: Age- 18-65, T2DM, language proficiency English or Spanish

VALIDATION OF THE DATA BASE

Purpose: Evaluate domain accuracy, completeness, and missing items of knowledge base

- **2 focus groups** with 8 diabetes educators at FQHC sites lasting 1.5 hours each
- **5 semi-structured interviews** with participants of MoDD at FQHCs
- Presented with case-scenarios
- Asked how they would problem-solve these patterns
- Discussion of potential causes, recommendations or action to be taken

ABOUT MODD

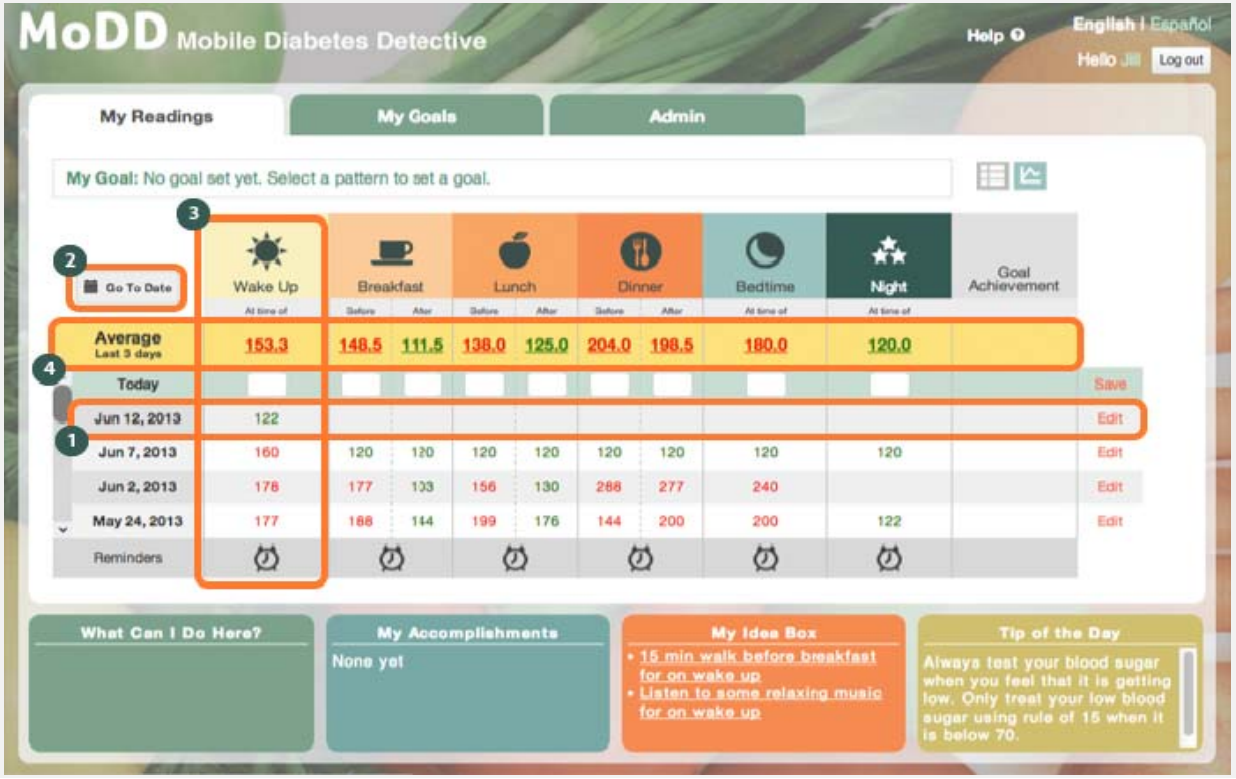
- Web based intervention to promote problem solving in diabetes self-management
- Theoretically grounded in TTM of stages of change and theories of problem-solving in diabetes
- Focus on individual discovery and problem solving
- Structured around 8 glycemic problems and 4 knowledge elements

MoDD PLATFORM

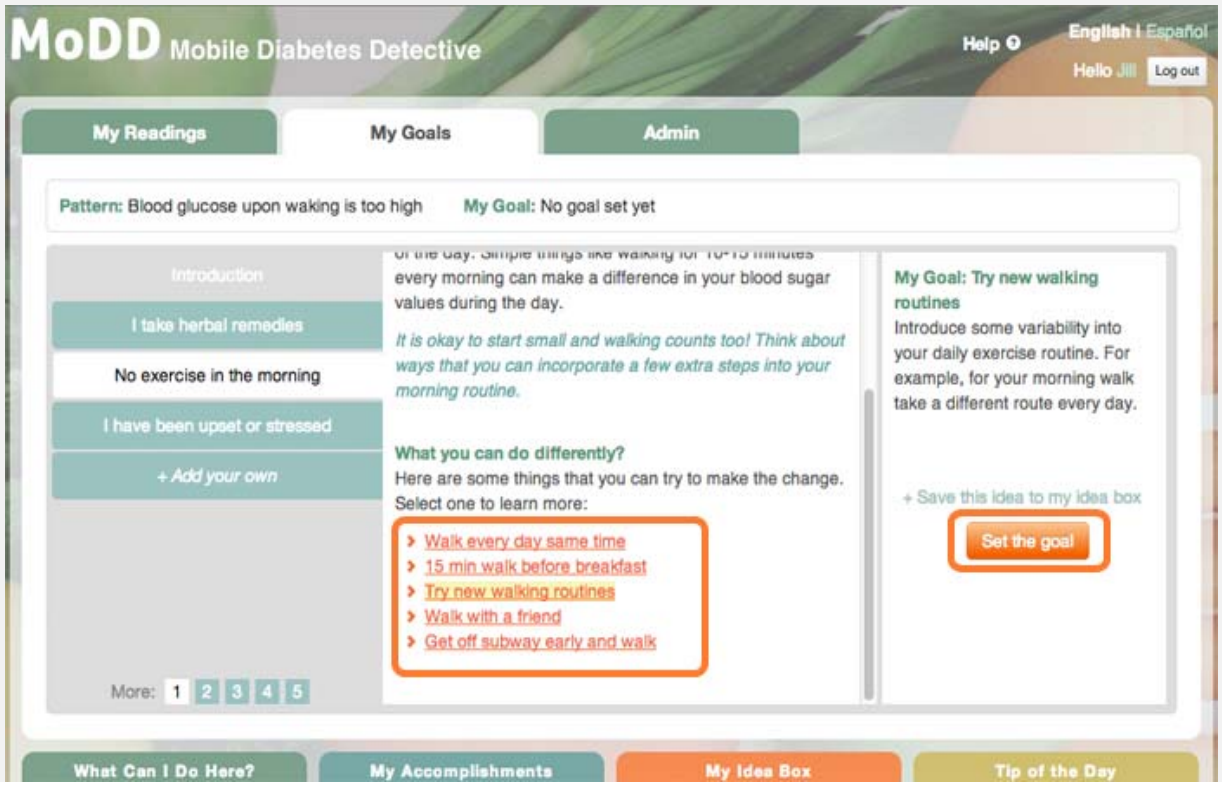
- User enters BG readings into MoDD website, or sends through SMS
- MoDD organizes BG readings and helps user to identify patterns where BG is too high or low
- Engages user in problem solving by:
  1. Identifying Glycemic control pattern (i.e. high upon waking)
  2. Identify potential behavioral trigger (i.e. did not take medication)
  3. Action-oriented goal related to this behavior
  4. Notifications to Implement the change and to monitor it

IDENTIFY A GLYCEMIC PATTERN

IDENTIFY PARTICULAR BEHAVIORAL TRIGGER



ACTION ORIENTED GOAL



NOTIFICATIONS TO MONITOR AND RE-EVALUATE

CONCLUSIONS

- Combination of theory-driven and participatory design approaches led to the knowledge base that is theory-driven and patient-centric tools for Diabetes Self-management
- MoDD is a decision-support tool that helps individuals make daily self-management decisions
- Decision support tool development needs to consider:
  - Cultural sensitivity
  - Low literacy
  - Actionable short term goal setting
  - Access to healthy food, health care and diabetes education
- Similar knowledge base tools can be extended to other chronic diseases