Improving Glycemic Control Among Incarcerated Men

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October 06, 2015
The Problem

- Poorly controlled diabetes
- Complications
- Quality of life degradation
- Fiscal consequences

- HbA1c > 9 predictive of morbidity
- Reliable measure
- Healthy People 2020 Goal D-5. (Healthy People, 2013)

Healthy People, (2013)
Virdi, Daskiran, Nigam, Kozma, & Raja, (2012)
The Problem

- Barriers exist
  - Poor health literacy
  - Safety/security risks
  - Suspicion R/T change
Participants

Characteristics of the Subjects

- **Inclusion Criteria:**
  - Diabetic inmates who:
  - Wished to participate
  - Had ordered finger sticks

- **Exclusion criteria:**
  - Housed in ASU/SHU
  - Declined to participate
  - Gravely disabled
  - Did not have ordered finger sticks
  - Significant risk to security
Research Design: Health Promotion Model

- Integrates:
  - Nursing/behavioral science perspectives
  - Factors influencing health behaviors
- Explores motivating behaviors
- Competence or approach-oriented

Pender, Walker, Sechrist & Frank-Stromborg (1990)
Health Promotion Approach

Prior related behavior
- Perceived benefits
- Perceived barriers
- Activity-related affect
- Perceived self-efficacy
- Interpersonal influences
- Situational influences

Personal factors

Immediate competing demands (low control) preferences (high control)
Commitment to plan of action
Health promoting behavior

Pender, Walker, Sechrist & Frank-Stromborg (1990)
Literature Review:

- **Integrated Management of Type 2 Diabetes and Depression Treatment**
  - Results: correlation between untreated depression, non-compliance with care, and elevated HbA1c levels.

- **Self monitoring Blood Glucose Levels, Medication Adherence & Glycemic Control**
  - Results: subjects who tested their own blood glucose had lower HbA1c.
Intervention/Action Items

- Local operational procedure
  - Custody and MAC buy-in.
- Forms
  - Agreement to participate.
  - Depression screening tool.
  - Blood glucose log.
  - Chrono
Intervention/Action Items

- Nurse care coordinators
  - How to use/care for assigned glucometer/supplies
  - Sick day rules
  - Follow up appointments

- Reality-based exchange
  - Develop exchange measure for canteen foods/standard menu
    - Pruno
    - Alcohol consumption
    - Spam/Top-Ramen
Intervention/Action Items

- Equipment
  - Glucometer - security
    - Provided at no cost to participant
    - Permanently scribed with identifying information
  - Testing supplies 1:1 exchange and drum-type
  - Replacement pen device
Emphasize Common Needs

- Healthcare and custody staff
  - Increased workload
    - Future reduction in workload R/T improved long-term health
    - Less consumption of fiscal resources
- Staff and patient
  - Safe environment
  - Education
  - Support
Evaluation

**Group 1 - Glucometer**

*Paired t test results*

*p-value and statistical significance:*

- The two-tailed *p*-value equals 0.2586

*Confidence interval:*

- The mean of Group One minus Group Two equals 0.387
  - 95% CI (-0.318 to 1.091)

**Group 2 - Glucometer & Education**

*Paired t test results*

*p-value and statistical significance:*

- The two-tailed *p*-value equals 0.0018

*Confidence interval:*

- The mean of Group One minus Group Two equals 0.964
  - 95% CI (0.403 to 1.524)
Evaluation

Repeated measures ANOVA:
Conducted to test for mean differences in HbA1c between Group 1 and Group 2.
Results: Statistically significant effect of time

- All participants experienced a reduction in HbA1c.
  \[ F (1, 35) = 10.42, p < .001. \]
- After controlling for time, the difference between groups approached significance,
  \[ F (1, 35) = 3.23, p = 0.081. \]
- Inspection of mean HbA1c level decrease:
  Group 1: mean difference = 0.40
  Group 2: mean difference = 0.96
The provision of glucometers and testing material alone is not a catalyst for change in self-care behavior.

When coupled with interdisciplinary education and support, a self-carry glucometer program increases autonomy and the likelihood of:

- Compliance
- Action on own behalf
- Changes in behavior
- Improvements in HbA1c
- Reduction in health care costs


