Re-Designing Diabetes Care For Rural African Americans

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Our Burden of Obesity and Diabetes, 2009
NC Diabetes Mortality by Ethnicity*

DM Mortality/100K

- White Male
- Minority Male
- White Female
- Minority Female

4th leading cause in AA; 8th in whites

*2004-2008 data
Regional Disparity - Diabetes Mortality

Unadjusted

Mortality rate per 100,000 population

1999 ENC29 rate is 24% greater than RNC71
2007 ENC29 rate is 39% greater than RNC71

Comparison of Fitted Rates in 1999

ENC29  RNC71  NC
24% GT  4% GT  19% LT

Comparison of Fitted Rates in 2007

ENC29  RNC71  NC
24% GT  6% GT  32% GT

ENC29  RNC71  NC
19% LT  4% LT  5% LT

Increasing regional disparity in burden
Diabetes Hospitalizations

- 7.7 Million Stays for diabetics in 2008
- **Average cost is 25% higher**
- 23% of US hospital costs
- **Average LOS is 1 day longer** (5.3 days)
- More likely to be admitted through ER (61%)
- **Southern US has highest diabetes hosp rt.**
- CV disease & Infections more common reason
- **One of Top 10 Reasons for Hospital Re-Admission**

**PREDICTORS OF 30-DAY HOSPITAL READMISSION AFTER CABG SURGERY**

**Conclusions.** These data show that most of the classic risk factors for postoperative mortality are not necessarily associated with increased readmission. However, female gender and **diabetes** are associated with greater than twice the risk of 30-day readmission following CABG.

Harvard Medical School, Annals of Thoracic Surgery 70:169-74
Community-based Random Sample of 185 Diabetics in Eastern NC: Glucose Control by Race*

*\( p = 0.08 \)
1. 360 African American, Type 2 diabetes, high risk intervention patients seen using an *educator-coaching model of expanded care* at 1 critical access hospital (CAH) & 2 community health center (CHC) (purposefully selected) sites; 360 randomly selected similar control patients receiving usual care, seen at 3 randomly selected similar control clinics in eastern NC. This is the **largest study of rural AA Type 2 diabetes patients in NC**. Major intervention over 1 year; patients were tracked for up to 4 years of care.

2. Outcome Measures: HbA1c, BP, Lipids, at Baseline & long-term follow-up

3. Qualitative interviews: Clinical staff assessment of Chronic Illness Care-what designs and methods worked? What visits, provider type, therapy intensification, self-management goal setting worked?
FIGURE 2—Understanding the origins of health and health care disparities from a health services research perspective: key potential determinants of health disparities within the health care system, including individual, provider, and health care system factors.
Changing Our Approach

Interventions to Improve Diabetes Care

• One on one intervention
• Assessment and re-assessment
• Use of treatment algorithm w/prescribing
• Focus on self-management behaviors
• Providing regular feedback to patient
• Frequent visits/follow-up

Cultural Tailoring

- African American EC provider
- Pictorial, culturally appropriate handouts
- 6th grade reading level
- Patient/family centered approach
- Spiritually sensitive content
The Setting: Rural Primary Care

- Murfreesboro Clinic
- Ahoskie Clinic
- Bertie Memorial Hosp Clinic and Coord Center
- Washington Co Hosp Clinic
- Kinston Community Health Center
- Mt. Olive Community Health Center

- Intervention sites
- Control sites
Keys to Delivery Re-Design

- Education with coaching (E-C) -- primary tool for patient self-management
- Expanded roles for nurse and pharmacist
- Point of care-E-C -- delivered during PCP (primary care provider) visit
- Physician’s and (Educator/Coach) form a care team
- Physician’s leadership critical
- Quality Improvement Context – use of PDCA cycles
Standing orders for E-C & Labs

- E-C with initial Dx of DM
- E-C at minimum q 12 mos., even when HbA1c controlled
- E-C visit asap for HbA1c > 8
- HbA1c q 3 months
- Eye exam q 12 months
- Lipid panel q 12 months
- Shoes off every provider visit for foot exam
Scheduling & Follow Up

- **New diagnosis, 3-4 visits - self-management training**
- Monthly F/U til glucose stable
- **New insulin/medication - follow up within 2 weeks**
- **HbA1c > 8: follow-up <30 days**
- Quarterly reinforcement visits once stable
- Phone reminders/No show tracking
Team consultations

- Hall-way brief case discussion
- PCP supports coaching
- EC reinforces plan of care in exam rooms
- End of visit: “what is the clinical goal & SM goal?”
- Educator-coach empowered to adjust medication-insulin
Content of E-C Visit - meeting Standards of Care

- Short intake questionnaire/chart reviewed
- Identify/prioritize issues & barriers
- Clarify blood glucose goals, basic diabetes knowledge
- Assess and teach meter use
- Establish self-management goal
- Check blood sugars as prescribed, return to next visit with log and meter
- Encourage family/other involvement
- Empower patient to take control over their diabetes
- Final words to patient ALWAYS, “What is your diabetes goal today?”
Baseline Characteristics

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Control</th>
<th>Intervention</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean Age (yr)</td>
<td>59.9 ± 12.3</td>
<td>59.3 ± 12.1</td>
</tr>
<tr>
<td>% Female</td>
<td>63%</td>
<td>66%</td>
</tr>
<tr>
<td>Baseline HbA1c</td>
<td>8.1 ± 2.2</td>
<td>8.2 ± 2.3</td>
</tr>
<tr>
<td>Mean BP (mmHg)</td>
<td>141/82</td>
<td>135/78</td>
</tr>
<tr>
<td>Mean LDL Cholesterol</td>
<td>100 ± 37</td>
<td>101 ± 34</td>
</tr>
</tbody>
</table>
Overall Group Preliminary Results – HbA1c

720 Type 2 Diabetes patients

p < 0.05
Significant decline in subset with HbA1c >7.5

Baseline Final

Control

Intervention

p < 0.05
Avg. Excess HbA1c above 7

Control

Intervention

AvEx>7

p < 0.05
SLOPE OF HbA1c Regression

(p < 0.05)
### Avg. Changes in BP and lipids

<table>
<thead>
<tr>
<th>Parameter</th>
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<th>Intervention</th>
</tr>
</thead>
<tbody>
<tr>
<td>SBP (mmHg)</td>
<td>-0.8</td>
<td>-3.7</td>
</tr>
<tr>
<td>DBP (mmHg)</td>
<td>-2.7</td>
<td>-4.0</td>
</tr>
<tr>
<td>Total Chol (mg/dl)</td>
<td>-5.6</td>
<td>-10.5</td>
</tr>
<tr>
<td>LDL Chol* (mg/dl)</td>
<td>-3.3</td>
<td>-9.7</td>
</tr>
<tr>
<td>HDL Chol* (mg/dl)</td>
<td>-0.9</td>
<td>+0.8</td>
</tr>
</tbody>
</table>

* p < 0.05
Preliminary Summary

- Redesigning care for rural African Americans with T2DM to include intensive office-based care management and f/u is associated with improvements in:
  - Glycemic control
  - BP control
  - Lipid levels
Improved Glycemic Control Prevents Complications

UK Prospective Diabetes Study (UKPDS 35)
Getting HbA1c below or near 7% leads to:

- Decrease in any diabetes-related endpoint: 21%
- Decrease in risk of MI: 14%
- Decrease in risk of stroke: 12%
- Decrease in risk of microvascular disease: 37%

N=3642
Future Directions

Goal: Replicate Model

- Disseminate – prof. meetings & website
- 7 clinics managed by UHS-P
- Evaluate sustainability/business plan
- Build more community health worker models with tailored intervention
- High-risk patients - depression screening
Questions?

Thank you for your time