Assessing Patient-Provider Collaboration in Subjects with Type 2 Diabetes in Jamaica and Effects on Glycemic Control

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## BACKGROUND AND PURPOSE

### BACKGROUND
- Type 2 diabetes mellitus is a growing health problem worldwide.
- Primary pathophysiology of this disease stems from impaired glucose uptake via insulin resistance, which results in symptomology ranging from polydipsia and polyphagia to potentially life-threatening hyperglycemic episodes.
- Major effects on health and healthcare costs are from microvascular complications of diabetic nephropathy, neuropathy, and retinopathy, which can lead to end-stage renal disease, extremity amputation, and blindness, respectively.
- Timely screening and outpatient referrals, as well as good glycemic control, have been shown to slow the progression of complications.
- Recent trend in the United States for management of chronic conditions advocates for increased collaboration between caregivers such as nurses and physicians to produce a management plan that is feasible for the patient.
- In Jamaica, the incidence of type 2 diabetes has been steadily increasing since 1960, with current estimates of a diabetic population exceeding 300,000. Some research suggests poor glycemic control in sample populations and high rates of complications such as retinopathy.
- As a counter measure, organizations such as the Diabetes Association of Jamaica have implemented educational workshops to make the general population more aware of this disease and its complications.
- Beyond the education of the public and management by physicians, it is important to assess the perception of patient-centeredness which advocates for increased collaboration between caregivers such as nurses and physicians with patients to produce a management plan that is feasible for the patient.

### PURPOSE
- To compare Patient Assessment of Care of Chronic Conditions (PACIC) scores to hemoglobin A1c values in subjects with type 2 diabetes and to determine the correlation between patient-physician collaboration and glycemic control.

## METHODS

### STUDY DESIGN AND RECRUITMENT
- A cross-sectional observational study measuring patient-to-provider collaboration in type 2 diabetics in a sample population in Jamaica.
- Participants recruited from the diabetes clinic at the University of the West Indies hospital in Mona, Jamaica on August 15, 2011 and August 22, 2011.
- 40 subjects were screened and 19 were ultimately enrolled after meeting the following inclusion criteria:
  1. Males or females 18 years old and above diagnosed with type 2 diabetes as confirmed by laboratory testing by either one of the following: a fasting glucose > 126 mg/dL (7.0 mmol/L) or a 2-hour post-prandial glucose > 200 mg/dL (11.1 mmol/L), or a HbA1c > 6.5%.
  2. Ability to provide written informed consent
  3. Ability to complete PACIC questionnaire (subjects had to be able to read and comprehend English)
- Subjects were excluded based on the following criteria:
  1. Males and females without a documented history of type 2 diabetes (as described in inclusion criteria)
  2. Pregnant women
  3. Patients without hemoglobin A1c testing within 3 months of participation

### VARIABLES
- The Patient Assessment of Care of Chronic Conditions (PACIC) questionnaire was our measure of patient-to-physician collaboration. The PACIC is a validated instrument that was used to assess the level of collaboration patients with chronic disease feel they have with their healthcare providers.
- The PACIC measures five subjective categories: 1) Patient activation; 2) Delivery system design and decision support; 3) Goal setting; 4) Problem solving/contextual counseling; and 5) Follow-up/coordination. The overall PACIC score measures patient-to-physician collaboration with a range from a low of 1.0 to a high of 5.0.
- Hemoglobin A1c (HbA1c), which measures the amount of glycosylated hemoglobin (as a percentage) for the past 3 months, was our measure of glycemic control.
- Additional study data for both characterization of the study population and data analysis were collected for the following variables:
  - Patient Age
  - Gender
  - Years since diagnosis
  - Diagnosis
  - Current Therapy
  - HbA1c values

### STUDY PROCEDURES
- Subjects were consented, assigned a study number, and self-administered the PACIC in a private exam room.
- The investigator (PD) collected additional study data as described above.

## RESULTS

### STUDY POPULATION AND DATA
- Study population was predominantly female (78.9%), 15 women/4 men, had an age range of 33-78 years (mean 55), years diagnosed with diabetes 0.03 – 32 years (mean 14), Hemoglobin A1c values from 5.40% – 15.5% (mean 10.8%), and with a majority (42.1%; 8 participants) receiving a combination of insulin and an oral hypoglycemic agent as a treatment modality. (See Figure 1)

### DATA ANALYSIS
- Overall, PACIC scores ranged from 1.85 – 4.00 (mean 3.15).
- Main variables of PACIC scores and HbA1c were subject to analysis via the Pearson correlation, but no statistically significant correlation was found (r=.184).
- Additionally, HbA1c did not correlate significantly with the other variables of patient age (-.244), and years diagnosed with diabetes (-.244).

### CONCLUSIONS
- Implementation, data collection and administration of the questionnaire was straightforward and did not interfere or prolong patient appointments. Thus, testing patient-to-provider collaboration could potentially be a component of visits for patients with chronic illness. However, further studies are needed to evaluate efficiency and cost-effectiveness.
- Recruitment was suboptimal with the limiting factor being that most subjects could not afford Hemoglobin a1c testing as part of their diabetic management.
- No statistically significant associations between our main variables of patient and provider collaboration (PACIC scores) and glycosylated hemoglobin (HbA1c) were found. Analysis of potential confounders also failed to illicit any correlations.
- The major limitation in our study stems from our small sample size. An important next step would be to repeat this study with a larger sample and currently, the process of gathering additional subjects is underway.
- In summary, it is unclear what impact patient-physician collaboration will have on glycemic control in type 2 diabetics. However, if results are favorable, as suggested by past research, and demonstrate a clinical benefit, the PACIC could potentially be an additional tool for physicians treating type 2 diabetes in this controlling and limiting complications.

## ACKNOWLEDGEMENTS

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Dr. Rosemarie Wright-Pascoe and Professor Michael Lee of the University of the West Indies Faculty of Medicine

## REFERENCES

[1] Paul E. Daniel Jr. MSIV, Michael Godkin PhD, Judith Savageau MPH. University of Massachusetts Medical School, Worcester MA
Rosemarie Wright-Pascoe MMBS, Michael Lee MMBS, DM. University of the West Indies, Faculty of Medicine, Mona Jamaica

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