Rationale and Implementation of the SLICK Project

Screening for Limb, 1-Eye, Cardiovascular and Kidney (SLICK) Complications in Individuals with Type 2 Diabetes in Alberta’s First Nations Communities

Shainoorn Virani, MD, FRCPC1
David Strong, MD, FRCPC2
Matthew Tennant, MD, FRCPC3
Mark Greve, MD, FRCPC3
Heather Young, BSc, MSn4
Sandra Shade, BN4
Meb Kanji, PhD5
Ellen Toth, MD, FRCPC6

and the Implementation Committee of the Aboriginal Diabetes Initiative

ABSTRACT

Objective: Identifying diabetes complications through screening using portable laboratory equipment in Aboriginal communities, and providing education and client empowerment for improved follow-up care and self-care.

Participants: First Nations people with known diabetes.

Setting: Screening was carried out in temporary clinics and laboratories set up at the local health centre in each of Alberta’s 44 First Nations.

Intervention: Two mobile units (“SLICK vans”), equipped with professionally trained staff, portable lab instruments and a retinal camera, travelled to all 44 Alberta First Nations communities to facilitate implementation of the Canadian Diabetes Association Clinical Practice Guidelines (CPGs). The project provided relevant education and counselling in conjunction with screening activities.

Outcomes: SLICK screened 1,151 clients between December 2001 and July 2003, and the project remains ongoing. A preliminary evaluation of the project’s 19-month implementation period showed screening activities and satisfaction with diabetes services were low prior to SLICK. There were modest improvements in some program outcomes at 6-12 months follow-up.

Conclusion: The SLICK project is designed to address the impact of diabetes by utilizing evidence-based CPGs with respect to screening for complications at the community level. It had a successful implementation period facilitated by community acceptance.

MeSH terms: Aboriginal, North American; type 2 diabetes mellitus; diabetes-related complications; screening; mobile health units; rural communities

La traduction du résumé se trouve à la fin de l’article.

1. Alberta Health and Wellness, Edmonton, AB (Previously Department of Community Medicine, University of Calgary)
2. Alberta Health and Wellness (Previously First Nations and Inuit Health Branch (FNIHB), Health Canada)
3. Department of Ophthalmology, University of Alberta, Edmonton, AB
4. First Nations and Inuit Health Branch (FNIHB)
5. Concordia University, Montreal, QC
6. Department of Medicine, University of Alberta

Correspondence and reprint requests: Dr. Ellen L. Toth, Professor, Division of Endocrinology & Metabolism, Department of Medicine, 362 Heritage Medical Research Centre, University of Alberta, Edmonton, AB T6G 2Z2, Tel: 780-407-6223, Fax: 780-407-6702, E-mail: ellen.toth@ualberta.ca

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In 2003, over 1.2 million Canadians reported having diabetes, and an estimated one third of all diabetes cases remained undiagnosed. Given current prevalence trends, it is projected that 2.4 million people in Canada’s general population will have diabetes by 2016.

Rare in Aboriginal populations before the 1950s, national estimates from the First Nations and Inuit Regional Health Survey revealed age-standardized prevalence rates of type 2 diabetes among First Nations men and women to be 3.6 and 5.3 times, respectively – higher than other Canadians. Crude prevalence was 13% for women and 8% for men; though this is likely an under-representation.

In the remote Aboriginal community of Sandy Lake, Ontario, 41% of all diabetes cases were detected only through systematic screening. Age-adjusted prevalence was 26.1%, and continuous diabetes surveillance saw prevalence increase 45% over ten years. Similarly, prevalence among First Nations adults on Saskatchewan reserves doubled from 1980-1990. Finally, type 2 diabetes is increasing in Aboriginal youth.

Within First Nations communities, diabetes is believed to result from consumption of “white man’s junk food”. Studies of Pima Indians suggest the risk of developing diabetes is reduced by maintaining a traditional diet and lifestyle. Prevalence varies with language group, culture area, geography, degree of isolation, age, gender, degree of Aboriginal ancestry, level of obesity, and parental diabetes status.

Barriers that First Nations people in remote communities experience in accessing health care services amplify the burden of diabetes.

A recent study projected total health care costs for diabetes (including costs associated with complications, lost productivity and mortality) will rise from $4.66 billion (Canadian dollars) in 2000 to $8.14 billion by 2016, a 75% increase. The study projected co-morbid cardiovascular disease will account for 27.0% of total health care costs for people with diabetes by 2016; nephropathy and dialysis for 6.8%; ophthalmic diseases for 2.5%; and 64% attributable to other reasons, including amputations.
Approximately 40% of Canadians with diabetes develop microvascular (retinopathy, neuropathy, nephropathy) and macrovascular (coronary artery, peripheral vascular, cerebrovascular disease) complications. In a national survey of First Nations, 50% of respondents with diabetes reported hypertension, 26% reported heart disease – 3.3 and 3.9 times, respectively, more than respondents without diabetes. A study of Mohawks in Kahnawake, Quebec, showed over 60% of patients with diabetes had at least one major complication. Women on reserves are five times more likely than other Canadians to die from diabetes. Risk of complications increases with duration of hyperglycemia, and will likely increase as the age of onset of diabetes decreases. Among the James Bay Cree of Quebec, factors associated with retinal or renal complications include duration of diabetes greater than five years, poor glycemic control and hypertriglyceridemia.

Intensive treatment of diabetes prevents or delays progression of complications, and improved glycemic control reduces long-term economic costs, suggesting substantial benefits from early screening for complications.

Therefore, Canada’s Clinical Practice Guidelines (CPGs) state diabetes care: "should be organized around a multi- and interdisciplinary diabetes healthcare (DHC) team that can establish and sustain a communication network between the person with diabetes and the necessary healthcare and community systems. Where possible, diabetes programs and services should be culturally appropriate, community based and respectful of age, gender and socioeconomic condition." The CPGs then recommend evidence-based practices for screening for and treating complications of diabetes.

The SLICK project (Screening for Limb, Eye, Cardiovascular and Kidney complications of type 2 diabetes) is an ongoing Alberta First Nations – Health Canada (FNIHB) – University of Alberta initiative to facilitate implementation of the CPGs. The project’s primary tool is community-based screening. Essential components of a screening program include: 1) the condition under study is an important health problem; 2) the screening test is simple, safe, and validated; and 3) effective treatment is available for those identified through early detection. SLICK’s rationale is consistent with these principles.

The project received approval from the Health Research Ethics Board at the University of Alberta.

METHODS

Two “SLICK vans” transport point-of-care laboratory equipment and a retinal camera to all 44 Alberta First Nations. A community health nurse (CHN) and retinal photographer staff the vans; staff are either First Nations (Cree speakers, where possible), or individuals with Aboriginal-specific training. A local CHN, community health representative (CHR), home-care nurse or personal care attendant (PCA) within each First Nation Health Centre facilitates van visits. Figure 1 depicts a single van visit.

Clients enroll through self-referral in response to advertising, or referral by community health care workers. Upon each client’s initial visit, informed consent and research permission is sought for aggregate analysis and dissemination (reporting to stakeholders, publication, etc.).

A 53-item survey is administered to clients at baseline, and re-administered at 6-12 months follow-up. Questions include those developed by the investigators, plus selected questions modified from the SF-12 physical and mental health survey, and from the Michigan Diabetes Research and Training Center (MDRTC) Diabetes History questionnaire and Brief Diabetes Knowledge Test. Questions target health services utilization and clinical history (based on self-report with a one-year recall); satisfaction with diabetes care and services (Table I); perceived health status (based on a four-week recall); and knowledge of diabetes, prior to SLICK implementation. A community health care worker administers the surveys verbally in English, with translation provided when necessary. The results of these surveys are to be reported elsewhere; an evaluation framework is noted in the Appendix. Here, we describe the program and its initial evaluation.

SLICK encompasses three key activities: screening for diabetes complications; education; and community-based care.

Screening for diabetes complications
SLICK staff and community health care workers collect anthropometric data through standard physical exams. Body Mass Index (BMI; weight in kg/height in m²) – a useful indicator for assessing weight-related health risks – is mea-
sured. Abdominal obesity — a risk factor for coronary artery disease, stroke, high blood pressure and diabetes — is assessed measuring waist circumference. World Health Organization (WHO) Guidelines are applied for risk related to BMI and waist circumference. Physical exams also include blood pressure readings.

Glycated hemoglobin (A1c) reflects glucose control over the preceding 2-4 months, and is a good indicator of metabolic control. Leakage of small proteins (microalbumin) in urine is the earliest clinically detectable sign of progressive nephropathy. Urine dipsticks are used to detect large proteins and white blood cells (WBC). If white cells >25 are present, infection is sought and microalbumin is not measured. A1c and microalbumin are measured using the Bayer DCA2000®, and glucose and lipids using the Cholestech L.D.X™ portable analyzers.

For retinal screening, eye drops are administered for pupil dilation. Digital, three-dimensional retinal images are then captured with the Zeiss 450 Fundus Camera and Kodak Professional DCS 760 Digital Camera. These images are delivered to retinal specialists at the Tele-Ophthalmology Unit, Royal Alexandra Hospital in Edmonton for assessment.

Feet assessments use microfilament wire to detect peripheral neuropathy. WHO foot grades, from 0 to 3, are applied: 0 = no abnormality; 1 = sensory loss (low risk); 2 = sensory loss and presence/history of deformity (moderate risk); 3 = presence/history of plantar ulcer (high risk). Clinical results and socio-demographic information (gender, age, Band, etc.) are entered into a clinical database at the time of the client’s initial visit.

Education
The CPGs recommend: “People with diabetes should be offered initial and ongoing needs-based diabetes education in a timely manner to enhance self-care practices and behaviours”. Clients receive a copy of their results at the time of service delivery; these same results are sent to primary care providers. Education is at a “teachable moment”, considering test results are being discussed. SLICK also educates local care providers about appropriate screening tests for complications, management strategies and lifestyle challenges.

Community-based Care
A central CPG recommendation is that diabetes care be “organized around the person with diabetes using a multi-and inter-disciplinary DHC team approach”. SLICK promotes integration, coordination, and collaboration of community services among family physicians, CHNs, CHRs, home-care nurses, PCAs, diabetes educators, nutritionists, lab services and medical consultant services.

Responsibility for arranging follow-up lies with the client, facilitated by community health care workers. The Tele-Ophthalmology Unit in Edmonton coordinates follow-up eye care.

This model of shared-care entailing ongoing communication among all members of the DHC team is known to increase commitment and self-care of the patient, and achieves one intermediate outcome of the SLICK project: client empowerment.

A preliminary cost-minimization analysis compared SLICK services versus the same services delivered conventionally via the health care system, considering only those costs that can be directly compared (i.e., materials; personnel; travel associated with SLICK vs. travel for clients associated with the conventional system).

RESULTS
Detailed baseline and follow-up data are presented in the SLICK Evaluation Report. Outcomes were evaluated in eight areas (see Appendix).

In total, 1,151 clients (741 female, 410 male) with known diabetes enrolled, having their initial visit between December 2001 and July 2003 (SLICK’s implementation period). This represents 14% of the estimated total of known diabetes cases in Alberta’s First Nations population. SLICK clients ranged in age from 13 to 92 years, the mean being 54 years.

Of the 1,151 SLICK clients, 732 (64%) completed a baseline survey. We found (data not shown): A1c had never been tested in 22% of survey respondents; only 32% were tested within the prior six months. Thirty-eight percent had no urine analysis done within the previous year; of those who did, 16% had been told there was “protein leakage/kidney damage”. Fifty percent had previously been told they had high blood pressure, however only 39% of males and 42% of females were taking pills for hypertension. Only 35% underwent a dilated eye examination in the previous year; of those who did, 23% were aware of previous “eye damage or retinopathy”. Fifty-nine percent had never had a foot assessment; of those who did, 30% of males and 16% of females (p<0.005) had previously had a “foot or leg ulcer or sore that would not heal for more than one month”. Twenty-six percent had never undergone cholesterol assessments.

Of those who had an initial assessment, 298 (26%) SLICK clients returned for a follow-up visit between April 2002 and July 2003. Clinical outcomes did not change appreciably, except for a significant (p=0.0065) increase in retinopathy and a trend towards a drop in blood pressure (Table IIa). A significant reduction in body weight was observed (mean BMI 33.89 kg/m² at baseline versus 33.31 kg/m² at follow-up) with a non-significant reduction in waist circumference.

Only 63 (21% of 298) return clients completed the survey a second time, at follow-up. Rates of health services utilization did not change significantly, except for a drop in the number of emergency room visits that was significant (Table IIb). There was no significant impact on clients’ subjective assessments of diabetes-related health status or services in the short term. However, knowledge (self-assessment) improved significantly in this small sample of second survey respondents.
The preliminary cost-minimization analysis revealed a SLICK service costs $356.55 (Canadian dollars) compared to $504.89 for the same service delivered through conventional means (transportation to a town or city, standard lab services, traditional visit with general practitioner or diabetes educator, etc.).

DISCUSSION

In this paper, we show that we have been able to implement a large-scale clinical and educational remote diabetes complications screening program. Baseline and follow-up clinical and process-related outcomes support the need for diabetes control programs in Alberta’s First Nations communities, and provide evidence for the short-term effectiveness of the SLICK project. An important success was that, primarily, First Nations health professionals ran this technologically innovative, community-based program.

Limitations

Clients were volunteer participants, and project protocol did not include chart reviews, precluding SLICK from being a population-based study. Because the SLICK project did not undertake a chart review, it is impossible to determine whether self-reported information was accurate, therefore comparison of survey results with SLICK measurements is speculative.

Next steps

While the vast majority of clients underwent all assessments, only 596 (52%) received retinal screening. Possible reasons for this included: screening was not indicated; clients had no one to drive them home after vision was blurred from eye drops; consent was not given; or technical difficulties (the latter constituting less than 5%). The interval between baseline and follow-up visits was very short for assessing many of the project’s anticipated outcomes. The small sample size at follow-up limits the ability to detect significant changes in outcomes across time.

The expanded cost-minimization analysis revealed a SLICK service costs $356.55 (Canadian dollars) compared to $504.89 for the same service delivered through conventional means (transportation to a town or city, standard lab services, traditional visit with general practitioner or diabetes educator, etc.).

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Next steps

Despite these limitations, positive trends emerged over SLICK’s 19-month imple-

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**TABLE IIa**

Clinical Outcomes Across Time: Diabetes Control and Complications

<table>
<thead>
<tr>
<th></th>
<th>At Baseline</th>
<th>At Follow-up (6-12 months)</th>
<th>t-value (p)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Diabetes Control</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>HbA1c (n=285)</td>
<td>8.12%</td>
<td>8.01%</td>
<td>1.358 (0.176)</td>
</tr>
<tr>
<td><strong>Cardiovascular Risk Factors</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Average Body Mass Index (BMI) (n=285)</td>
<td>33.89</td>
<td>33.31</td>
<td>2.014 (0.045)</td>
</tr>
<tr>
<td>Average Waist Circumference (n=49)</td>
<td>111.55 cm</td>
<td>109.20 cm</td>
<td>1.393 (0.170)</td>
</tr>
<tr>
<td>Average Blood Pressure (n=298) (0=normal; 2=high)</td>
<td>0.95</td>
<td>0.84</td>
<td>1.855 (0.063)</td>
</tr>
<tr>
<td><strong>Kidney Complications</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Urine Microalbumin/Creatinine*</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Males (n=66)</td>
<td>3.41</td>
<td>4.13</td>
<td>1.337 (0.129)</td>
</tr>
<tr>
<td>Females (n=96)</td>
<td>3.97</td>
<td>2.96</td>
<td>1.141 (0.257)</td>
</tr>
<tr>
<td><strong>Limith Complications</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Average Foot Risk Category (n=274)</td>
<td>0.54</td>
<td>0.50</td>
<td>0.809 (0.419)</td>
</tr>
<tr>
<td>(0=no abnormality; 3=high risk)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Eye Complications</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Retinopathy (n=62)</td>
<td>25.8%</td>
<td>29%</td>
<td>Chi-square = 35.780; p=0.000</td>
</tr>
</tbody>
</table>

*When urine protein and WBC negative

**TABLE IIb**

Clinical Outcomes Across Time: Health Care Utilization, Self-rated Health, Satisfaction with Services, Diabetes Knowledge

<table>
<thead>
<tr>
<th></th>
<th>At Baseline</th>
<th>At Follow-up (6-12 months)</th>
<th>t-value (p)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Health Services Utilization</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of visits to a doctor in past year (n=57) (1=never; 4=more than 5 times)</td>
<td>3.37</td>
<td>3.42</td>
<td>0.501 (0.616)</td>
</tr>
<tr>
<td>Number of hospitalizations in past year (n=55) (1=never; 5=more than 5 times)</td>
<td>1.49</td>
<td>1.40</td>
<td>1.043 (0.301)</td>
</tr>
<tr>
<td>Number of ER visits in past year (n=56) (1=never; 5=more than 5 times)</td>
<td>1.89</td>
<td>1.57</td>
<td>2.813 (0.007)</td>
</tr>
<tr>
<td><strong>Self-rated Health</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Overall Health (n=56) (1=very poor; 5=excellent)</td>
<td>3.07</td>
<td>3.05</td>
<td>0.145 (0.886)</td>
</tr>
<tr>
<td>Diabetes-related Health (n=55)</td>
<td>3.02</td>
<td>3.00</td>
<td>0.139 (0.890)</td>
</tr>
<tr>
<td><strong>Satisfaction with Diabetes Services</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Feeling of “Team” Approach (n=50) (% saying yes)</td>
<td>66%</td>
<td>74%</td>
<td>0.082 (0.775)</td>
</tr>
<tr>
<td>Information Received: State of Disease (n=51) (1=very poor; 5=excellent)</td>
<td>2.92</td>
<td>2.98</td>
<td>0.319 (0.751)</td>
</tr>
<tr>
<td>Information Received: Next Step (n=49)</td>
<td>2.65</td>
<td>2.71</td>
<td>0.831 (0.410)</td>
</tr>
<tr>
<td>Health Care Providers Are Up to Date (n=49)</td>
<td>2.59</td>
<td>2.73</td>
<td>0.816 (0.418)</td>
</tr>
<tr>
<td>Communication Between Health Care Providers (n=47)</td>
<td>2.83</td>
<td>2.91</td>
<td>0.400 (0.691)</td>
</tr>
<tr>
<td><strong>Knowledge of Diabetes and Diabetes Services</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Knowledge: Self-Assessment (n=55) (1=very poor; 5=excellent)</td>
<td>2.80</td>
<td>3.24</td>
<td>2.736 (0.008)</td>
</tr>
<tr>
<td>Knowledge: Complications (n=29)</td>
<td>4.34</td>
<td>4.48</td>
<td>0.550 (0.586)</td>
</tr>
<tr>
<td>Knowledge: Screening (n=32)</td>
<td>1.72</td>
<td>1.84</td>
<td>0.466 (0.645)</td>
</tr>
</tbody>
</table>
mentation period, supporting the effectiveness of the project’s design.

Acceptance by First Nations communities has been key to the implementation of the SLICK project. The collaboration with the University of Alberta allows for aggregate data collection and analysis, in partnership with FNHB and the Alberta First Nations. The current aim is to bring screening services to the majority of the target population at recommended intervals. Long-term project goals are decreased mortality and morbidity related to diabetes, and improved quality of life for First Nations people with diabetes (see Appendix). Achievement of these goals is anticipated through consistent follow-up (both clinical assessments and education) and continued capacity-building within First Nations communities.

REFERENCES

21. Lee ET, Howard BV, Savage PJ, Cowan LD, Schatz AL,ियाँकी, दाहिंदा, शामिल हैं।

RÉSUMÉ

Objectif: Cerner les complications du diabète dans les communautés autochtones en procédant à un dépistage dans des laboratoires mobiles, sensibiliser la clientèle, et renforcer son autonomie afin d’améliorer le suivi et les auto-soins.

Participants : Les membres des Premières nations ayant reçu un diagnostic de diabète.

Lieu : Le dépistage s’est effectué dans des cliniques et des laboratoires temporaires mis sur pied dans le centre sanitaire local de chacune des 44 Premières nations de l’Alberta.

Intervention : Deux unités mobiles (les “ minibus SLICK”) dotées d’un personnel qualifié, d’appareils de laboratoire portatifs et d’un retinographe, se sont rendues dans les 44 communautés des Premières nations de l’Alberta pour faciliter la mise en œuvre des lignes directrices de pratique clinique (LDPC) de l’Association canadienne du diabète. On a aussi offert des activités de sensibilisation et de counselling pour accompagner les activités de dépistage.

Résultats : Le projet SLICK a administré des tests de dépistage à 1 151 personnes entre décembre 2001 et juillet 2003, et ces activités se poursuivent. Une évaluation préliminaire des 19 premiers mois de mise en œuvre a montré que les activités de dépistage et la sensibilisation de la population aux services offerts aux diabétiques étaient faibles avant le projet. Lors du suivi entre 6 et 12 mois, on a constaté de légères améliorations de certains résultats.

Conclusion : Le projet SLICK vise à atténuer l’impact du diabète en utilisant des LDPC fondées sur la recherche pour dépister les complications à l’échelle communautaire. La mise en œuvre réussie du projet a été facilitée par son acceptation dans les communautés.
### APPENDIX

#### Outcomes Evaluated in Eight Areas

<table>
<thead>
<tr>
<th>PURPOSE OF EVALUATION:</th>
<th>To determine if the SLICK Program addresses its goals and expected outcomes.</th>
</tr>
</thead>
<tbody>
<tr>
<td>OUTCOMES (GOALS) ADDRESSED:</td>
<td>Increase Identification of Complications</td>
</tr>
<tr>
<td>DATA FROM WHOM:</td>
<td>- Clients - Nurse - Lab</td>
</tr>
<tr>
<td>WHEN COLLECTED:</td>
<td>- Baseline - Throughout - End - Long-term</td>
</tr>
<tr>
<td>HOW COLLECTED:</td>
<td>SLICK Survey – Part 2 (Self-report)</td>
</tr>
<tr>
<td>METHODS OF ANALYSIS:</td>
<td>Quantitative: - descriptive - inferential</td>
</tr>
<tr>
<td>INDICATORS</td>
<td>A) Health Beliefs</td>
</tr>
</tbody>
</table>

#### Indicators

**SLICK Survey – Part 1 (Self-report)**
- Satisfaction/lessons learned/suggestions, complaints about:
  - A) program/services
  - B) quality of care
  - C) quantity of care
  - D) accessibility
  - E) privacy issues
  - F) technology
  - G) procedures

**SLICK Survey – Part 2 (Self-report)**
- Client Feedback box
  - Provider – incident-report
  - Log sheets
  - Focus groups (all to be developed)

**SLICK Survey – Part 3 (Self-report)**
- Focus groups

**SLICK Clinical Database**
- Correspondence with SLICK team

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**The SLICK Project**

**Indicators Evaluated in Eight Areas**

1. **Clinical Outcomes (Complications)**
   - Increase Identification of Complications
   - Improve Services (Increase accessibility, Provide quality care, Appropriate quantity of care, Identify Lessons Learned, Technology meets needs, Privacy maintained)

2. **Satisfaction with Diabetes Services**
   - Improve Services (Increase accessibility, Provide quality care, Appropriate quantity of care, Identify Lessons Learned, Technology meets needs, Privacy maintained)

3. **Knowledge about Diabetes/Services**
   - Increase Awareness
   - Client Empowerment (Provide quality care, Foster integration, coordination, collaboration of health services)

4. **Attitudes about Diabetes/Services**
   - Increase Awareness
   - Client Empowerment (Provide quality care, Foster integration, coordination, collaboration of health services)

5. **Behaviours related to Diabetes Care**
   - Increase Awareness
   - Client Empowerment (Provide quality care, Foster integration, coordination, collaboration of health services)

6. **Quality of Life**
   - Improve Client Health
   - Decrease Morbidity and Mortality from Diabetes
   - Decrease Social Cost of Diabetes

7. **Cost of Diabetes Care**
   - Decrease Socio-economic Cost of Diabetes
   - Improve Services and SLICK program (Increase accessibility, Appropriate quantity of care, Technology meets needs, Privacy maintained)

8. **Administrative Outcomes**
   - Decrease Socio-economic Cost of Diabetes
   - Improve Services and SLICK program (Increase accessibility, Appropriate quantity of care, Technology meets needs, Privacy maintained)

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**Data Collection Methods**

- **Quantitative:**
  - Descriptive
  - Inferential
  - Qualitative

- **Qualitative:**
  - Descriptive
  - Inferential
  - Qualitative

- **Cost Benefit Analysis**

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**Methodology**

- **Data Collection:**
  - Baseline - Throughout - End - Long-term
  - Client Feedback box
  - Log sheets
  - Focus groups (all)

- **Data Analysis:**
  - Appropriate Technology
  - Increase accessibility
  - Appropriate quantity of care
  - Identify Lessons Learned
  - Technology meets needs
  - Privacy maintained

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**Evaluation Framework**

- **Outcomes Evaluated in Eight Areas**
  - A) Health Beliefs
  - B) Attitudes
  - C) Self-efficacy
  - A) General physical health/ independent living
  - A) Clinical Costs/Benefits
  - B) Social Costs/Benefits
  - A) Socio-demographics
  - B) Program Documentation
  - C) Administrative Successes/ Failures

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