The Community Diabetes Education Program of Ottawa

Educator's Guide for Insulin Initiation for Clients with Type 2 Diabetes 2011

(with correction July 2013)

The Community Diabetes Education Program of Ottawa. Sponsored by Centretown Community Health Centre on behalf of The Coalition of Community Health and Resource Centres of Ottawa. Funded by The Ontario Ministry of Health and Long-term Care.

Addendum: The correction made on July 2013 includes the information missing in the box on page 15.

PREAMBLE

This Educator's Guide was developed to assist the Diabetes Educators of The Community Diabetes Education Program of Ottawa with the task of safely initiating clients to insulin therapy. Primarily based on the Registered Nurses Association of Ontario (RNAO) *Best Practice Guideline for the Subcutaneous Administration of Insulin in Adults with Type 2 Diabetes* and on the *Canadian Diabetes Association 2008 Clinical Practice Guidelines for the Prevention and Management of Diabetes in Canada*, this Guide takes the user through each step in the process of insulin initiation. It is a document in progress and, as new teaching tools, new education strategies, and new documentation forms become available, this document will need to be updated. We thank partner diabetes education programs for allowing us to use or adapt their forms, as identified in this Guide**.**

Please note, this document is not meant to replace the advice of a consultant, but to complement it when needed.

Permission to Reproduce

The Community Diabetes Education Program of Ottawa

Educator's Guide for Insulin Initiation for Clients with Type 2 Diabetes 2011

The Community Diabetes Education Program of Ottawa

Educator's Guide for Insulin Initiation for Clients with Type 2 Diabetes 2011

INTRODUCTION

Diabetes is a common chronic disease and Type 2 Diabetes accounts for the vast majority of cases. Demographic trends that contribute to an increasing prevalence of diabetes in Canada include an aging population, increasing immigration from high risk populations, increasing rates of obesity among children, and growth in the aboriginal population; all of which will dramatically affect health service requirements. Primary care providers will have to care for increasing numbers of clients with diabetes who will live longer and with more advanced stages of the disease. Recent research estimates that up to 50% of people with Type 2 Diabetes will require insulin therapy to maintain optimal glycemic control. Recent guidelines also recommend earlier introduction of insulin therapy to help preserve pancreatic function and delay or prevent complications.

Purpose of this Guide

The Educator's Guide for Insulin Initiation is a working document designed to assist the Diabetes Nurse Educator and the Diabetes Dietitian Educator in counseling clients who need to start on insulin therapy. It is meant to be used as a tool and, as such, it is not an exhaustive document.

Prerequisites to Using this Guide

It is understood that the users of this tool already:

1. Have a very good knowledge base of diabetes and its treatment options, as well as of its significance for everyone who is affected by this progressive, yet manageable disease
2. Have a good understanding of the principles of Adult Education
3. Have practiced in diabetes education for a minimum of 800 hours
4. Understand they have a professional responsibility to communicate with the CDEPO Clinical Manager and/or with the referring physician when in doubt about how to proceed with the insulin start

Criteria for Achieving Competency in Insulin Initiation

Diabetes Nurse and Dietitian Educators employed by the Community Diabetes Education Program of Ottawa who have demonstrated competencies related to insulin initiation will advise clients regarding insulin use and titration according to CDEPO Policy and Procedure #5.1 and *as per this guide.*

Competency to initiate clients to insulin safely will be obtained by having the Educator in training:

- Possess the following **Key Competencies** (Key competencies required to start clients on insulin according to physician's orders include, but are not limited to, the following knowledge, skill and judgment criteria.)

Knowledge of*:

- Usual OAA (oral antihyperglycemic agent) and insulin action profiles
- Usual regimens involving insulin initiation
- Factors impacting glycemic response to insulin therapy, including impact of injection technique, environmental factors, lifestyle, physiological changes to some complications
- The impact of carbohydrate intake on glycemia
- The impact of other food choices on glycemic control
- The potential impact of stress and illness on glycemic control
- The relationship of physical activity to glycemic control
- The signs, symptoms, causes and treatment of hyperglycemia and hypoglycemia
- Educational and counseling techniques supporting client learning and self-care
- The College of Nurses Guidelines for giving telephone advice or the College of Dietitians of Ontario Resume, Winter 2004. *Telepractice Telehealth.*
- The RNAO *Best Practice Guideline for the Subcutaneous Administration of Insulin in Adults with Type 2 Diabetes.*
- The College of Dietitians of Ontario Resume, Fall 2002 *Insulin Adjustments*
- The *Canadian Diabetes Association 2008 Clinical Practice Guidelines for the Prevention and Management of Diabetes in Canada.*
- The Jurisprudence Handbook for Dietitians in Ontario

Skill and Judgment to*:

- Assess factors influencing current glycemic control
- Assess client learning needs, readiness and ability to learn
- Identify appropriate insulin adjustments based on assessment information
- Determine appropriateness of insulin orders
- Plan and implement appropriate and timely education interventions
- Clearly communicate plan to the appropriate co-Educator, CDEPO Clinical Manager and referring physician, as appropriate

- Observe **at least 1 Set of Insulin Initiation Sessions** (from telephone intake to the 3 month follow-up of one client) facilitated by a Mentor (a Certified RN or RD in Insulin Initiation) who is in the process of initiating a client to insulin.

- Observed by a Mentor during **at least 1 set of Insulin Initiation Sessions**.

- Attend a **Recommended Education Workshop** on OAA and Insulin Initiation offered through CDEPO and other relevant workshops in the community.

❖ Complete **Required Readings**

- *Best Practice Guideline for the Subcutaneous Administration of Insulin in Adults with Type 2 Diabetes.* Registered Nurses' Association of Ontario.
- *Building Competency in Diabetes Education: The Essentials*. Canadian Diabetes Association
- *Building Competency in Diabetes Education: Advancing Practice.* Canadian Diabetes Association- relevant sections
- *CDA 2008 Clinical Practice Guidelines for the Prevention and Management of Diabetes in Canada*, Canadian Journal of Diabetes 2008;suppl. 1.
- *Fit Forum for Injection Technique Canada: Recommendations for Best Practice in Injection Technique*
- Frid. A., et al. (2010). New injection recommendations for patients with diabetes*. Diabetes and Metabolism,36,S3-S18.*
- Misnikova, I.V., Dreval, A.V., Gubkina, V.A., & Rusanova, E.V. (2011). The risks of repeated use of insulin pen needles in patients with diabetes mellitus*. Journal of Diebetology, 1(1), 1-5.*

❖ Complete the **Insulin Initiation Competency Skills Checklist** (Appendix 1).

The Insulin Initiation Competency Skills Checklist is a Record of Basic Competencies that are required of any Educator who performs insulin initiation independently. While working with a client, the Educator in training first observes those competencies from her Mentor and in subsequent client interactions, the Educator in training demonstrates the same competencies. The outcome is considered satisfactory when 12 out of the listed 15 competencies have been demonstrated and when the Educator in training is able to successfully demonstrate how s/he would remedy the challenging competencies.

When the outcome is considered unsatisfactory, the Educator in training needs to repeat another set of observation and demonstration sessions and complete the record a second time.

It is the Educator in training's responsibility to return the completed tool to the Clinical Manager.

❖ Complete the **Insulin Initiation Written Evaluation**

A written evaluation is administered by the Clinical Manager after the Insulin Initiation Competency Skills Checklist is satisfactorily completed, **and** before the Educator in training sees her first client independently. Pass status is achieved when 80% of responses are correct. Incorrect answers are reviewed. A Fail grade implies the Educator in training will develop a learning plan that will augment the necessary knowledge required for insulin initiation. The learning plan will be approved by the Clinical Manager. A version of the same test may be administered at the discretion of the Clinical Manager when the Educator in training feels ready to test his/her knowledge again.

❖ Obtain a **Certificate of Competence** (Appendix 2). signed by the Clinical Manager

A question-guided narrative entitled **Reflective Self-Assessment in the Application of Key Competencies** (Appendix 3) can be used by the Educator in training at any point in his/her training. This tool is designed to assist the learning process, especially in the presence of particularly difficult/challenging situations.

The Educator in training will be engaged in self-directed learning at all times.

The mechanisms for **maintaining one's competency** include, but are not limited to, the following:

- Regular reflective self-assessment in the application of key competencies
- Regular attendance at workshops/conferences on competencies
- Regular self-directed learning (i.e. reading, case discussions and presentations)

**"Knowledge" and "Skills" sections used with permission from the Ottawa Hospital Endocrine & Diabetes Program*

Learning Objectives*

Once the criteria for certification in Insulin Initiation of clients with Type 2 Diabetes have been met, the diabetes Educator will be able to do the following:

1. Complete a thorough assessment of factors influencing glycemic control
2. Discuss OAA and insulin profiles, regimens and important considerations
3. Determine if prescribed regimen is best suited for client's lifestyle and needs
4. Consult with Clinical Manager and present case in a clear and comprehensive manner
5. Communicate with prescribing physician in a clear and efficient manner

*For a list of more specific learning objectives, refer to the *Insulin Initiation Competency Skills Checklist* (Appendix 1).

The Educator's Guide is divided into several sections which correspond to the chronological order of the many contacts that will be made with the client who needs to start on insulin therapy. In some situations, the order of the contacts with the client may vary. Each section identifies the purpose of the contact, lists the steps involved, suggests teaching tools to use and refers the user of this guide to the many handouts and documentation forms that are needed to complete the process. Some of the latter have been gathered under the Appendices.

Finally, a bibliography has been compiled for the user's perusal.

REFERRAL REVIEW PROCESS

EDUCATOR: **Diabetes Nurse or Dietitian**

LENGTH: **10 – 15 minutes**

PURPOSE: The Educator assigned to triaging referrals will assess each referral (Appendix 4) for appropriateness to the program as per criteria in the CDEPO Policy and Procedure # 5.1 and to ensure the safety of the medical orders according to the insulin initiation options for people with Type 2 Diabetes suggested in the *Canadian Diabetes Association 2008 Clinical Practice Guidelines for the Prevention and Management of Diabetes in Canada*.

STEPS:

1. Review criteria for admission to program:
    a. Adult (≥18 yrs) with Type 2 Diabetes
    b. Insulin therapy consists of a daytime or bedtime injection of basal insulin once or twice daily; premixed insulin injection once or twice daily
    c. In urgent situations, client requiring insulin to achieve preoperative glucose control
2. Review referral for appropriateness and safety.
3. Review client history and medications in use provided on referral form.
4. Assign referral to Educator after prior agreement.
5. Communicate any concerns about medical orders/client (i.e. off-label use of medication) to Educator who has accepted the referral.

Example:

From the referral form, the following data was collected:

**client's weight: 102.0 kg.*
**current oral hypoglycemic medications: Gluconorm 4 mg TID, Metformin 850 mg BID and Actos 45 mg OD*
**insulin start order: NPH 10 units QHS, no titration orders provided*

Once per day insulin regime (0.1 – 0.2 u/kg):

- Total daily insulin dose (weight x units/kg) 102.0 kg X (0.1 – 0.2 u/kg)= 10 – 12 units

Client is taking an insulin secretagogue with each meal which means that there is an increased risk for hypoglycemia during the day.

An insulin sensitizer is also noted in client's medication regime; if possible, ascertain whether liver enzymes (ALT, AST) are within normal range.

Insulin sensitizers/ TZD's (pioglitazone, rosiglitazone) may increase the risk of edema or congestive heart failure.

Off-label orders: THE ORDERING PHYSICIAN NEEDS TO BE CONTACTED TO VERIFY ORDER unless specified on referral form and the discussion that ensues NEEDS TO BE DOCUMENTED.

The combination of insulin and a TZD is currently not an approved indication in Canada, but may be used in practice.

When the referral has been deemed appropriate, the designated Educator responsible for central triaging (Triage Educator) will assign it to a Diabetes Educator after prior agreement with the latter. The referral will be faxed and a confirmation of the faxed referral will be kept in the *Insulin Start Binder*. The original referral form will be placed in the client's chart. The Educator will then contact client by phone to book an initial assessment. .

It is up to the Educator who has accepted the referral to contact the physician about any needed clarification* (Note: It is recommended that this be done after the educator has done an initial assessment with the client).

If the referral is deemed inappropriate by the Triage Educator (i.e. client is on dialysis), the Triage Educator will contact the physician to discuss. The ensuing conversation will be documented as a progress note which will be stapled to the referral form. Both will be kept in a binder entitled *Inappropriate Referrals.*

INITIAL ASSESSMENT

EDUCATOR: **Diabetes Nurse or Dietitian**

LENGTH: **30 minutes**

PURPOSE: Assess client for preferred learning style, readiness to learn and learning needs. Negotiate learning plan with client.

RESOURCES NEEDED:

- General consent on the Sharing of Personal Health Information (Appendix 5)
- Diabetes History and Health Assessment (Appendix 6)
- Insulin Initiation Learning Needs Assessment (Appendix 7)
- Insulin Initiation Teaching Record (Appendix 8)
- Clinical Flowsheet (Appendix 9)

STEPS:

1. During the first visit the Educator will start to complete the above forms. This contact can take place over the phone or in person according to the client's needs and abilities.(Note: it is preferred to complete the Diabetes History and Health Assessment in person).

2. As much as possible *use assessment strategies that include open-ended questions.*

   - If client is not monitoring capillary blood glucose or meter is more than 2 years old, arrange to meet with client to demonstrate use of a new meter. This can be done either in conjunction with or prior to the insulin start appointment, as per client's needs.

   - If client is self-monitoring, encourage monitoring at least once daily at varied times and ask client to bring logged results to next appointment.

   - Dietitian should see client either before, in combination with, or immediately following insulin initiation. Arrange a one-hour appointment with the Diabetes Dietitian Educator.

   - Book client for individual or group follow-up 3-4 months after the insulin start process has been completed.

4. Client should bring the following to the first in-clinic appointment: meter with supplies, logged CBG readings, a completed two-day food diary, and all medications.

5. Report findings to co-Educator (if co-educator is not present during initial assessment).

6. ***Inform referring physician that his/her client is in the process of being seen***.

NUTRITION ASSESSMENT

EDUCATOR: **Diabetes Dietitian**

LENGTH: **1 hour**

PURPOSE: To assess and provide individualized nutrition education to promote glycemic control.

OBJECTIVES: The client will be able to identify carbohydrate availability in his/her food choices. S/he will be able to make carbohydrate choices taking physical activity, oral hypoglycemic agents and insulin action into consideration.

RESOURCES NEEDED:

- Diabetes History and Assessment (Appendix 6)
- Insulin Initiation Teaching Record (Appendix 7)
- Nutrition Assessment (Appendix 11)
- Just the Basics (CDA)
- The Diabetes Food Guide to Healthy Eating (CDEP-O)
- Beyond the Basics (CDA)
- Plate Method: Breakfast (Appendix 12)
- Plate Method: Lunch & Dinner (Appendix 13)
- Low Blood Glucose (Hypoglycemia) (Appendix 14)
- Reading Food Labels (Appendix 15)
- Resource List (Appendix 16)
- Cookbook List (Appendix 17)
- Summary of Visit (Appendix 18)
- Insulin Initiation Physician Report (Appendix 25)

TEACHING TOOLS:

- Plate
- Food models
- Sugar packets
- Cell model
- Food labels

STEP 1

1.1 Review Diabetes History and Health Assessment and Care Plan. Focus on diabetes and medical history, alcohol intake, diabetes management and self-care, client challenges, and stage of readiness for change for the recommended management strategies.

1.2 Review Insulin Initiation Learning Needs Assessment and Insulin Initiation Teaching Record.

1.3 Start to complete Nutrition Assessment and Plan with client.

1.4 Refer to completed food records and/or obtain a food recall/diet history.

1.5 Discuss the importance of meal spacing and regular meal times.

1.6 Review food groups containing carbohydrates (using the Diabetes Food Guide, food models and sugar packets) and encourage consistency of carbohydrate intake. Introduce client to sources of nutrient information, particularly carbohydrate, such as food labels, and nutrient composition tables in book form from restaurants and fast food places, websites, etc.

1.7 Assess need for snacks. If indicated, provide suggestions for healthy snacks containing 15-20g of carbohydrates (add 1 protein or fat if necessary).

1.8 Discuss healthy eating principles (meal balance) at this appointment or at follow-up appointment depending on how receptive the client is at this point to further information.

If client is still receptive to your teaching, steps 2 and 3 could be addressed at this visit or deferred to the following visit, if best for client.

STEP 2
Review of capillary blood glucose results

2.1 Review optimal pre and post-prandial targets.

2.2 Explore patterns in CBG readings and possible causes of out-of-target CBG readings (i.e. CHO intake, activity, medications, and stress).

2.3 Discuss, using examples, changes to client's carbohydrate intake which may improve his/her capillary blood glucose readings.

STEP 3
Hypoglycemia (See Chapter on Insulin Initiation)

Review prevention and treatment of hypoglycemia using the hypoglycemia handout when client starts insulin injections.

STEP 4
Client's Summary of Visit Form

4.1 Review nutrition care plan with client. Determine which goal(s) could be worked on until the next appointment.

4.2 Start completing the Client's Instruction Sheet. When completed by both RN and RD, make a photocopy for client's chart and provide client with original.

STEP 5
Physician Report

Start completing the Insulin Initiation Physician Report.

STEP 6
Insulin Initiation Learning Needs Assessment and Teaching Record

Continue to complete and initial client's level of response for each topic covered.

REPORT TO RN AFTER ASSESSMENT IS COMPLETED.

INSULIN INITIATION

EDUCATOR: **Diabetes Nurse**

LENGTH: **1 hour**

PURPOSE: Provide appropriate teaching regarding insulin preparation and administration.

RESOURCES:

- Guide to Starting Insulin (Appendix 10)
- Low Blood Glucose –Hypoglycemia (Appendix 14)
- Activity Tips (Appendix 19)
- Company information on prescribed insulin
- Summary of Visit (Appendix 18)
- CDEP-O's Outlines of Sessions 1,2 and 3 (pertinent handouts only to be used)
- Sick Day Tips (Appendix 20)
- Sick Day Kit (Appendix 21)
- Ready, Set, Go! Tips for Travel (Appendix 22)
- Travel by Car/Air (Appendix 23)
- Travel Letter (Appendix 24)

TEACHING TOOLS:

- Client's Glucose Monitoring Kit
- Control Solution
- Sample Glucose or Dextrose Tablets
- Pen Device Kit, needle tips
- 1 insulin cartridge
- Sharps container
- Tissue,
- Resource binder
- Cell and sugar packets
- Injection cushion
- Sick day kit
- Graph depicting insulin action
- Hand sanitizer

STEP 1
Complete assessment as needed

1.1 Ensure that the assessment forms (Appendices 6, 7, 9, 11) are completed.

1.2 Complete plan of care with client and adjust as necessary.

STEP 2
Check client's meter and SMBG technique

2.1 Check components of the meter with client to ensure that meter and strips are providing accurate results and that client knows how to check meter.

2.2 Check that meter has the correct date and time and that it is coded properly (if applicable).

2.3 Check that strips have not expired and that they have been stored in their original packaging, tightly closed.

2.4 Check when bottle was opened. Most strips can be used until their expiry day (check with manufacturer for details).

2.5 Using control solution provided by the respective meter company, run a quality control test to ensure the result is within the acceptable range. (Range is indicated on bottle of strips.) Check shelf life of control solution once opened.

2.6 If strips are outdated, stored improperly, and/or the meter reading is not within acceptable range, replace strips and perform another quality assurance test. If meter reading remains in an unacceptable range, consider replacing the meter.

Assess client's bloodletting technique, coding, and application of blood sample to test strip.

2.7 Remind client to wash hands before bloodletting. If a sink is not available, use waterless hand sanitizer or alcohol swab. If using alcohol, remind client to let fingertip dry before lancing. Alcohol can interfere with accuracy of some test strips.

2.8 Cue client to massage finger and let gravity work by dangling the hand before lancing.

2.9 Cue client to lance sides of fingers rather than tips as this is less painful, to rotate sites on same finger, and to use different fingers.

2.10 Obtain a CBG reading and record result.

2.11 Perform an A1C test and record result

2.12 Reinforce with client to use a new lancet with each test and to dispose of lancet in a hard plastic container. Remind client to dispose of sharps according to City of Ottawa policy.

Lancets are covered by some extended health insurance plans.
Clients receiving Ontario Works and Disability can/may be reimbursed for lancets and needle tips.
CDA's Ontario Monitoring for Health, and MOH's Assistive Devices Program (Insulin Syringes for Seniors), may also provide additional reimbursement.

If the client and/or family are not capable of SMBG, the nurse needs to inform the referring physician. It becomes the physician's decision to start client on insulin despite a client's lack of regular monitoring.

STEP 3
Review logged capillary blood glucose (CBG) readings

During the telephone assessment, client is asked to monitor CBG a minimum of once per day at varied times and log results. A minimum of two days of logged results are optimum to proceed with insulin initiation. If client does not monitor regularly, emphasize the importance of doing so and inform client of the potential hazards of not monitoring when using insulin. If client chooses to not monitor despite your recommendations, discuss with physician before proceeding with insulin initiation.

3.1 If client did not bring in results, try to retrieve them from the meter.

3.2 Reinforce with client the importance of logging capillary blood glucose results to facilitate client's understanding of results. Results that are logged in a book can be easier to use, understand, and interpret than those recorded exclusively on the meter's memory.

3.3 Discuss with client the key times to monitor CBG, which will help determine the impact of medication/ insulin/food/activity.
3.4 Discuss the optimal pre and post-prandial targets.

Assess patterns or trends in capillary blood glucose readings to determine if prescribed timing of insulin administration (in combination with client's current regime of oral antihyperglycemic agents) is safe.

3.5 If the Educator judges that the prescribed insulin is unlikely to target the problematic blood glucose readings, the referring physician should be consulted.
Ex: AM readings are in target but suboptimal the rest of the day, yet the order is for Novolin NPH at HS.

3.6 Explore patterns in CBG readings and possible causes of out-of-target CBG readings (i.e. CHO intake, activity, stress, etc.). Address hypoglycemia, if present (see Step 4) and provide client with sample glucose or dextrose tablets.

STEP 4
Hypoglycemia: Discuss causes, signs & symptoms, treatment and prevention. If previously discussed, review again with client.

Take every opportunity to review the client's understanding of **hypoglycemia**.

4.1 Explore client's history of documented and undocumented hypoglycemia (symptoms, CBG readings, management including treatment, outcomes, frequency).

4.2 Review possible causes of hypoglycemia with client: Oral Antihyperglycemic Agents (OAA) (especially secretagogues), insulin, skipping or delaying meals, activity, and alcohol consumption.

4.3 Discuss hypoglycemia unawareness and, if present, reinforce the importance of regular CBG monitoring and avoiding hypoglycemia.

4.4 Emphasize the importance of treating a low blood glucose with the right amount and type of CHO.

4.5 Insist on having client call you (if client is in the process of being started on insulin) or to call referring physician if hypoglycemia occurs.

4.6 Upon assessing CBG readings, if targeted blood glucose results are not met once insulin is started, enquire whether insulin is being used as prescribed, or is being used at all. When the prescribed insulin targets the FBG of the morning and the results remain high or are higher then they were before insulin was started, enquire about nocturnal hypoglycemia as a possible cause of rebound hyperglycemia. If unsure, ask client to monitor blood glucose around 3 am.

STEP 5
Provide teaching regarding insulin preparation and administration

The specific topics to be discussed are detailed in *Insulin Initiation Learning Needs Assessment, Insulin Initiation Teaching Record*, and in the *Guide to Starting Insulin (Appendices 7, 8, 10)*.

5.1 **What diabetes is, including signs and symptoms of hyperglycemia and treatment**

It is important to remind client of the basics of diabetes including physiology and reasons why insulin is now needed. Expressions such as "pooped out pancreas" and "hormone replacement therapy" can be used to illustrate more clearly what is happening in the body. This aids in the discussion of hyperglycemia, causes, signs and symptoms, as well as treatment.

5.2 **How insulin works**

Use cell with sugar packets to demonstrate the "key" concept of the action of insulin.

5.3 **Name, action, dose, timing and storage of insulin**

Use graphs/ charts of insulin action to explain how insulin rises and falls over 24 hours in relation to client's meals and activity level. This also helps to determine when hypoglycemia may occur. Use every opportunity to discuss causes, signs and symptoms as well as treatment of hypoglycemia. Review the action of the client's OAA's and how they can potentiate the action of insulin.

5.4 **How to use an insulin pen**

Demonstrate how to use an insulin pen following the manufacturer's guide. Each manufacturer has its own pen and its own insulin cartridges. With most pens, doses can be dialed back. Check before using pen to avoid damage to the pen.

Emphasize the importance of an air shot before *each* insulin injection. This ensures that the client is administering an accurate and complete dose of insulin each time.

With cloudy insulin, always gently mix the insulin cartridge while in the pen. The pen should be gently rolled 10 times, then tipped 10 times. Visually check that the cloudy insulin is consistently and uniformly milky white.

5.5 **How to inject**

For maximum efficacy, insulin must be injected into subcutaneous (SC) tissue. It should not be injected via the intradermal, intramuscular (IM) or intravenous (IV) route. It is absorbed from different parts of the body (different SC injection sites) at different rates and absorption can be affected by the amount of physical activity and by the ambient temperature. Initially and for consistency of absorption, encourage client to use only the abdomen. (Other indicated areas for injections can be discussed at a later time).

Insulin should be injected in the fatty part of the abdomen (1-2 inches away from the umbilicus) and injection sites on the abdomen should be rotated with each injection to avoid lipohypertrophy.

New research indicates that a 4mm needle length is appropriate for almost everyone.

Splitting of a larger dose (above 50 units) into two separate but consecutive injections may enhance absorption.

The needle should be left in the tissue for a full 10 second count after the dial returns to zero to ensure insulin has been absorbed (for higher doses, counting past 10 seconds may be necessary)

It is not unusual to see a drip of insulin and/or blood when the needle is withdrawn. Demonstrate to client how to load the insulin cartridge, how to mix it, how to do an air shot, how to dial up a dose and, using a special cushion, how to inject the dialed dose. Demonstrate how to dial back if dose was over dialed, or how to save or waste the dose if device does not allow for dialing back.

Have client provide a return demonstration of this technique and actually self-inject a very small amount of insulin (1-2 units).

Reinforce the importance of SMBG while on insulin.

Client may need considerable coaching the first time. Most clients are successful and often remark on how simple and painless the experience was.

Congratulate client on accomplishment and reinforce any areas that may need strengthening.

5.6 **Sharps Disposal**

Once client has successfully completed a return demonstration of the necessary injection skills, discuss disposal options for used needles as per local Public Health Policy.

5.7 **Titration and Follow-up**

Instruct client on how to titrate the insulin dose (according to titration orders from referring physician) until targeted blood glucose results are within the recommended range. Make sure client understands what his/her recommended glycemic targets are.

There are times when a physician would prefer to have the client returned to his/her care for titration. In that case, the education process will stop here until the three month follow-up visit.

Call client within two days of starting insulin and record CBG readings. Assess patterns and instruct client to titrate dose if indicated.

Continue to follow-up over the phone as necessary until the next scheduled appointment to assess client's CBG response to insulin.

5.8 **Special Situation: Concomitant use of Insulin and TZD**

Ensure that client is aware that this regime is off-label. If ordering physician has not indicated on the referral form to continue or discontinue TZD along with his insulin orders, the Educator needs to discuss with physician. In the event when the physician decides to proceed with both, the Educator will teach client how to recognize signs and symptoms of CHF and the importance of reporting these to the referring physician and/or to report immediately to the nearest hospital in the event of sudden shortness of breath.

A FEW WORDS ABOUT PENS…

- ***Lilly makes the HumaPen Luxura , the Luxura Memoir, and the HumaPen Luxura HD (for half doses) for Humulin N, Humulin R, Humulin 30/70, Humalog, Humalog Mix25, Humalog Mix 50.***
- ***Lilly also makes a prefilled disposable pen by the name of KwikPen which can be used for Humalog insulins.***
- ***Novo Nordisk makes Novolin-Pens 3 and 4 and the NovoPen Echo (for half doses with a memory) for Levemir, Novolin NPH, Novolin Toronto, for a variety of Novolin pre-mixes, & for Novo Rapid.***
- ***Sanofi Aventis makes the ClikStar pen and the prefilled disposable Solostar pen which can be used for Glargine and Apidra.***
- ***Owen Mumford makes the Autopen for Glargine (not widely available)***
- ***All the pens accept all makes of needles, except for the NovoTwist needles which can only be used on Novo Nordisk pens.***
- ***Insulin cartridges are not interchangeable between companies.***

If client is still receptive to your teaching, the following three topics could be addressed at this visit or deferred to the following visit.

STEP 6
Sick Day Management

Illness such as cold, flu, or gastroenteritis can destabilize blood glucose levels by two main pathways: The stress from the illness will trigger some hormones to stimulate the liver to increase secretion of stored glucose, and these same hormones will increase insulin resistance thereby hindering the glucose from entering the cells.

6.1 Explain how illness affects BG levels in the body.

6.2 State the importance of continuing to take diabetes medication and insulin.

6.3 Identify for client when it is appropriate not to take OAA's or insulin and clearly outline what should be done.

6.4 Discuss the recommended frequency of SMBG when ill (at least 4 x/day or q 2hours if CBG readings are elevated).

6.5 Discuss fluid and energy needs when sick. Provide client handout.

6.6 Discuss the importance of a "Sick Day Kit" and show client a sample.

6.7 Discuss how to recognize when medical attention is required and identify whom to call.

STEP 7
Tips for Travel

Traveling, whether for a day, a weekend, or for an extended period of time, can represent a considerable change from the normal routine. This can affect blood glucose levels, especially if eating out more often and if physical activity level is altered. People with diabetes need to pay closer attention to these changes in order to control their blood glucose levels.

7.1 Three P's need emphasis: Plan, Prepare, and Prevent.

7.2 When traveling by car, always bring enough food for one meal and carry a form of fast-acting carbohydrate. Stopping every 2 hours to stretch is a good idea. People with diabetes who drive and take OAA and/or insulin must check their CBG every 4 hours and must maintain it above 4.0. Under no circumstances should they start to drive if their CBG readings are below 5.0. It is imperative they pull over at the first indication of hypoglycemia, to monitor, treat if necessary, and retest 15 minutes later. Driving should not be resumed for 45-60 minutes after effective treatment of hypoglycemia.

7.3 Travel insurance and immunizations may be necessary.

7.4 It is very important for the client to have diabetes ID (wallet card or bracelet).

7.5 If flying, the client needs to understand that time zone changes can affect the timing of OAA and/or insulin, and the dose of insulin. Refer client to a CDEP-O Educator who is certified in glycemia management for further education.

7.6 When traveling by air, the client should ensure that the following is in the carry-on bag: OAA and/or insulin, meter, and necessary supplies as well as enough food for 2 meals. Provide some tips about what foods travel well. Stretching regularly when possible is also a good idea.

7.7 A physician's letter explaining need for an SMBG kit, medication, and/or insulin should be available to avoid security problems while flying. Carry all medications in their original packaging/bottles on which the prescribing physician's name is legible.

7.8 Carrying extra insulin and one extra pen or syringes may be wise depending on the destination. Some countries sell insulin in different concentrations and syringes may be labeled differently. Thus, extra precaution is required when purchasing insulin and supplies abroad.

7.9 Storing insulin while in transit requires careful consideration. An insulated container is useful to maintain the cold chain while preventing freezing.

STEP 8
Physical Activity

The benefits of physical activity can be enjoyed by everyone including people with diabetes who use insulin. 150 minutes of moderately intense aerobic activity weekly and at least 3 times per week of resistance activity on non-consecutive days can actually decrease insulin requirements.

8.1 As always, advise client to see her/his physician before embarking on any fitness program more intense than brisk walking or new activity regime to ensure an awareness of possible limitations or risks. Exercise is contraindicated when blood glucose is not well controlled, is below 4mmol/l or is above 14 mmol/l with ketones in urine or is above 17 mmol/l without ketones. The main risks are either hypoglycemia or hyperosmolar hyperglycemic non-ketotic syndrome.

8.2 Precautions to follow when beginning a physical activity program include checking blood glucose regularly (and ideally several times per day) to have a good understanding of personal daily fluctuations.

8.3 CBG should be checked before the start of the activity, during and after.

8.4 Drinking water throughout will help to avoid dehydration.

8.5 The condition of both feet should be assessed before and after.

8.6 It is always best to exercise with a buddy.

8.7 Carrying a source of fast acting CHO (15 grams) is advised.

Inform client that hypoglycemia can occur several hours after exercising. Reinforce the importance of regular monitoring

STEP 9
Complete the Summary of Visit sheet and the Guide to Starting Insulin

Review care plan with client. Determine with client which goal(s) should be pursued until the next visit. Complete the Client's Instruction Sheet, make a copy for the chart and give the original copy to the client.

STEP 10
Complete Physician's Report and the Insulin Initiation Teaching Record.

REPORT TO RD AFTER SESSION IS COMPLETED

SUBSEQUENT VISITS

EDUCATOR: **Diabetes Nurse and/or Diabetes Dietitian**

LENGTH: **Each subsequent visit: 1 hour per Educator**

PURPOSE: To review client's understanding of all topics discussed since first contact and/or to introduce a discussion about sick day management, tips for travel, and activity if not discussed at previous visit. The number of visits needed to attain a certain level of confidence and self-management ability will vary with each client.

RESOURCES:

- Refer to all previous resources
- Physician's report (Appendix 25)

STEPS:

1. The Educator may complete the Insulin Initiation Learning Needs Assessment and the Insulin Initiation Teaching Record (Appendices 7 & 8) to guide process of subsequent visits.

2. If the client demonstrates that (s)/he is not able to self-manage his/her care, review and demonstrate any skill that needs reinforcing. Encourage client to provide a return demonstration. If the client lacks understanding of any topic discussed previously, provide the information again and re-assess.

3. If the Educator is still not confident that the client is ready for self-management, schedule another visit over the phone or in person depending on the client's ability and availability.

4. Complete care plan and Client's Instruction Sheet and discuss with the client.

5. Complete and forward the Insulin Initiation Physician Report to the referring physician and send a copy to client's family physician (if different from the referring physician).

6. Call referring physician if any concern remains.

7. Book an individual or group follow-up appointment 3 months from the first contact.

THREE-MONTH FOLLOW UP

The client will be offered a three-month individual or small group follow-up after starting on an insulin regimen

EDUCATOR: **Diabetes Nurse and Diabetes Dietitian**

LENGTH: **Individual F/U: 1 hour per Educator. Group F/U: 2.5 hours**

PURPOSE: To explore clients' successes and challenges since insulin therapy was started and to review topics that need regular attention.

- ✓ Assess meter accuracy
- ✓ Injection technique and injection sites
- ✓ Hypoglycemia and indications for the use of glucagon
- ✓ Sick day management
- ✓ Travel
- ✓ Exercise
- ✓ Nutrition
- ✓ Blood Glucose Pattern Assessment and Basic Pattern Management (see section 3.2)

RESOURCES/TEACHING TOOLS:

- Insulin Initiation Teaching Record (Appendix 8)
- Physician's final communication letter if necessary
- Client's Questionnaire for 3 month group follow-up (under review at the present)

STEPS:

1. Assess client's additional learning needs and teach or review as needed.
2. Use the Insulin Initiation Teaching Record to ensure that all topics have been covered (if appropriate).
3. Assess BG readings. Perform an **A1C test.**
4. If client's glycemic control is inadequate and/or worse than 3 months ago, do an initial Blood Glucose Pattern Assessment and assess all other factors that might be contributing to poor glycemic control. **Consult with Clinical Manager (unless the Educator is certified in glycemia management).**
5. Report findings to physician and discuss plan of action.
6. Send final written communication letter to physician if necessary.

BIBLIOGRAPHY

1. Canadian Diabetes Association (CDA). Canadian Diabetes Association 2008 Clinical Practice Guidelines for the Prevention and Management of Diabetes in Canada. *Canadian Journal of Diabetes*, September 2008; 32(1)

2. Canadian Diabetes Association (CDA). Canadian Diabetes Association 2003 Clinical Practice Guidelines for the Prevention and Management of Diabetes in Canada. *Canadian Journal of Diabetes*, December 2003; 27(2)

3. Registered Nurses Association of Ontario. *Best Practice Guidelines for Administration of Subcutaneous Insulin in Adults with Type 2 Diabetes*. June 2004.

4. Canadian Diabetes Association Clinical Practice Guidelines for Diabetes and Private and Commercial Driving. 2003. *Canadian Journal of Diabetes*. June 2003; 27(2) 128-140.

5. Canadian Diabetes Association (CDA). 2001 Canadian Diabetes Association Clinical Practice Guidelines for the Prevention and Management of Hypoglycemia in Diabetes. *Canadian Journal of Diabetes*. 2001: 26:1, 22-35.

6. Halton Diabetes Program Protocol for Insulin/Oral Antihyperglycemic Agent Dose Adjustments for Diabetes Nurse Educators: 2010.

7. Saskatchewan Insulin Adjustment Module: 2009.
Diabetes Care Program of Nova Scotia Insulin Dose Adjustment Policies & Guidelines Manual: 2005.

8. Fit Forum for Injection Technique Canada: Recommendations for Best Practice in Injection Technique

9. Frid. A. et al. (2010). New injection recommendations for patients with diabetes. *Diabetes and Metabolism*,36,S3-S18..

APPENDICES

APPENDIX 1: Insulin Initiation: Competency Skills Checklist (2 pages)

Insulin Initiation
Competency Skills Checklist

Diabetes Nurse/Dietitian Educator in training:_____

Mentor: _____

Competency	Date observed by Educator	Date of observed practice and Mentor's initials	Comments
Assessment of learning needs and ability to participate in self-adjustment			
Assessment of factors affecting glycemic control			
Knowledge of specific insulin actions and rationale for use			
Ability to identify patterns of glycemic control			
Ability to assist client with problem-solving			
Knowledge of hypoglycemia prevention, identification and treatment			
Knowledge of hyperglycemia prevention, identification and treatment			
Ability to offer basic nutrition counseling			
Ability to do basic carbohydrate counting			
Ability to evaluate patient learning and to co-develop an appropriate plan of action			
Ability to accurately document client information and to clearly communicate it to all parties involved			
Ability to prioritize client's needs			
Ability to adapt one's teaching strategies to specific client's needs and priorities			

*** Both RN's and RD's are expected to be able to demonstrate the above listed competencies.**

Competency	Date observed by Educator	Date of observed practice and Mentor's initials	Comments
Ability to complete a comprehensive Nutrition Assessment (RD)			
Ability to develop an individual nutrition plan based on the Nutrition Assessment (RD)			

OUTCOME: □ Satisfactory
□ Unsatisfactory

Signature: _____(Mentor)

Signature: _____ (Educator in Training)

When outcome is satisfactory, the educator is ready to complete the exam.

Additional Comments:
_____
_____
_____
_____
_____
_____

PLEASE RETURN TO CLINICAL MANAGER WHEN COMPLETED

***Adapted from the Evaluation Policy Insulin Dose Adjustment: Competency Achievement record with permission from the Ottawa Hospital Endocrine and Diabetes Program**.

Revised January 2011

(2 of 2)

APPENDIX 2: Certificate of Competence in Insulin Initiation

The Community Diabetes Education Program of Ottawa

CERTIFICATE OF COMPETENCE
In
Insulin Initiation

This certifies that_____

has successfully completed the criteria for certification in insulin initiation according to the CDEP-O policy # 5.1.

_____ _____

CDEP-O Clinical Manager Date

APPENDIX 3: Reflective Self-Assessment in the Application of Key Competencies

Reflective Self-Assessment in the Application of Key Competencies

The following is a tool that anyone can use when reflecting on a situation. It is adapted from a reflective cycle that both Kolb (1984) and Gibbs (1988) have written about extensively. Use it if you feel it will help you formulate ideas and action plans.

REFLECTIVE FRAMEWORK

CE (concrete experience)
-What happened?
-Who was involved?
-How did you react? How did the others react?
-Where and When?
-What was your role? What was the role of others?
-What preceded this event?
-What significant factors of this experience warrant your attention?

RO (reflective observation)
-What were you thinking when this was happening?
-How were you feeling when this was happening?
-How were the others involved feeling?
-How did you know how they were feeling?
-Which internal factors influenced the way you acted?
-What was your initial intent in this experience?
-Why did you react the way you did?
-Were your actions appropriate? Were the actions of the others appropriate?
-Were your actions congruent with your beliefs?
-Which factors made you act in an incongruent manner?
-What were the consequences of your actions for you? For the others?
-What are the positive elements of this experience?
-What are the negative elements of this experience?
-How could you have improved this situation for yourself? For the others?
-Were you expecting something different to happen? What? Why?
-How is this experience related to other experiences?
-Has this experience changed your way of thinking?
-What have you learned about yourself?
-How are you feeling now with respect to this past experience?

AC (abstract conceptualization)
-Which theoretical knowledge can you apply to this experience/situation?
-What hypotheses could you formulate with respect to this past experience?
-What social, political or moral consequences follow this situation?
-What are the implications of these reflections in your life?

AE (active experimentation)
-What would you change if a similar situation were to re-occur? Why?
- How would you go about making this change?

Gibbs, G. (1988). *Learning by doing. A guide to teaching and learning methods*. Oxford. Oxford. Polytechnic, Further education Unit.
Kolb, D.A. (1984). *Experiential learning: experience as the source of learning and development*. Englewood Cliffs:Prentice Hall.

APPENDIX 4: Community Diabetes Education Program of Ottawa Referral

The Community Diabetes Education Program of Ottawa (CDEP-O) Referral Form

www.diabeteseducation.ca

Client Name:	**Health care provider:**
Address:	**Address:**
Daytime Phone:	**Phone:**
Evening Phone:	**Fax:**
DOB:	

Diagnosis: □Prediabetes □Type 2 (If on insulin: for how long? _____)

□ Cultural Interpretation required Language? _____

Please attach the following documents with the referral:
Laboratory results including: A1C, lipid profile, Ualb/creat, brief medical history, reason for referral and list of medications.

Please ✓ Requested Services:

1. □ **Prediabetes** group education with individualized F/U
2. □ **Diabetes** group education with individualized and/or group F/U
3. □**"Refresher"** group (for those who had previous education)
4. □ **Living with Insulin** group education with individualized F/U
5. □ **GLP-1 Analogue** instruction with individualized F/U prn. Please i**ndicate starting dose and titration orders:**_____

6. □ **Insulin initiation** with individualized and/or group F/U. Attach Insulin prescription
   Click on link for: OCFP Insulin Prescription Form

   ➔ **Discontinue TZD? □ Yes When? _____ □ No □ N/A**

7. □ **Glycemia management** by individual appointment
8. □ **Chiropody Services:** ○ urgent (ulcer) ○ non-urgent

Physician signature: _____

Fax form to: 613-233-6713

APPENDIX 5: General Consent on the Sharing of Personal Health Information

Chart #:_____

Community Diabetes Education Program of Ottawa
Consent Form

Note to client: We want your informed consent for the services we provide. This means that we want you to understand the services we hope to provide to you and what we do with the personal information we obtain from you. If you have any questions on any of this, please ask.

I understand and accept the following:

The Community Diabetes Education Program of Ottawa (CDEP-O) is a program of Centretown Community Health Centre (CCHC). My personal health information will be kept private by all who work at CCHC.

The CDEP-O staff work as an interdisciplinary team to give me the most comprehensive services possible. This means that sometimes my personal health information will be shared with other health care providers who work at CCHC. They may also have access to my file. All will treat my information as private.

Information about my involvement in the CDEP-O will be sent to the Ontario Ministry of Health and Long-term Care. This is to keep statistics and show the need for funds. **None** of this information will identify me.

CDEP-O supports research and evaluation. **Non-identifying** information may be collected for study purposes.

To give me the best services possible, my personal health information may be shared with my primary health care provider(s)/Doctor (s) or his/her designate. CDEP-O may also receive information from this source.

The CCHC's Privacy Policy is available to me if I have questions.

I give my consent to the following. If I change my mind, I agree to tell or write to CDEP-O/CCHC.

I consent to information being exchanged with my primary health care provider(s)/Doctor(s) _____ while I am actively receiving services from the CDEP-O. This information may be transmitted by mail, fax or email.

_____ _____
(Name of Client) (Signature of Witness)

_____ _____
(Signature of Client) (Day/Month/Year)

***Emergency exception**:*
To protect life, health or safety, or if required by law, essential information may be shared without my consent.

When the client gives VERBAL consent only

This confirms that I have read the consent form to _____and he/she has given verbal consent to the above.

_____ _____ _____
(Signature of Practitioner) (Print Name) (Day/Month/Year)

APPENDIX 6: Diabetes History and Assessment (4 pages)

DIABETES HISTORY AND HEALTH ASSESSMENT

Date of completion : **Name :**	**Chart # :**
Referring physician:	**Family physician:**
Language ☐ English ☐ French ☐ Other ☐ Does not read well in English or French	**Preferred language of instructions** ☐ English ☐ French ☐ Other Interpreter needed ☐ Yes ☐ No

Diabetes history

Time since diagnosis:

☐ < 6 months ☐ 6-12 months ☐ 1-4 years ☐ 5-10 years

☐ 10-15 years ☐ >15 years ☐ unsure

Family history of diabetes: _____

Describe your experience living with diabetes :

History of severe hyperglycemia:_____

History of severe hypoglycemia: _____

Height: cm **Weight:** kg **BMI:** **Waist:** cm

Allergies:

Medical History

☐ Hypertension

☐ Heart disease / PVD

☐ Nephropathy

☐ Neuropathy

☐ Digestive Disorders

☐ Disordered Eating

☐ Thyroid disease

☐ Dyslipidemia

☐ Sexual health

☐ Oral health

☐ Eyes

Date of last appointment with specialist:

(1 of 4)

☐ Feet

Regular foot care by specialist?

☐ Mental health issues

☐ Screened for Depression (see PHQ9)

☐ Sleep Apnea/OSD

☐ Other (chronic pain, asthma, arthritis etc…)

Recent illness/hospitalization:

Smoking: ☐ Never smoked ☐ Quit_____yrs-mos ☐ Current smoker (qut.)_____
Alcohol: ☐ No ☐ Yes: _____
Social drugs : ☐ No ☐ Yes: _____

Number of meals and snacks per day:

Dietary Concerns:

Physical Activity and Limitations:

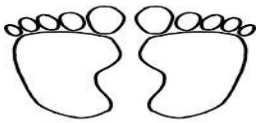
Medication

NAME	DOSE	TIME

Foot assessment

☐ Previous foot care assessment (date): _____ ☐ Previous foot care education(date): _____

Current foot ulcer: ☐ Yes ☐ No



High risk for foot complications ☐

Low risk for foot complications ☐

Last visit with Foot Care Specialist: _____

SMBG : Meter type: _____ Frequency:_____ Age of meter: _____

Personal BG targets: _____Date/result of last A1c: _____

Medical alert: ☐ Yes ☐ No

If on Insulin

☐ Pen: Type _____ ☐ Site rotation ☐ Needle length_____

Preparation of insulin injections: ☐ Self ☐ Other

Injection of insulin: ☐ Self ☐ Other

Self- adjusts insulin dose: ☐ Yes ☐ No

Support Network

☐ Limited ☐ Available

Marital Status: _____ Occupation: _____ ☐ Drug Plan ☐ Financial concerns

Shift work: ☐ Yes _____ ☐ No Travelling required: ☐ Yes ☐ No

☐ Assistance with personal care: _____

Health professional-identified opportunities for learning

Management strategy	Barriers	Stage of readiness					
		Precont.	Cont.	Prep.	Action	Maint.	Unsure
Diet							
Activity							
Oral Medications							
Insulin							
Monitoring BG							
Smoking Cessation							
Foot care							
Treatment of hypoglycemia							

(3 of 4)

Client Concerns

Additional notes

Plan

External Referral: ☐ Yes ☐ No Specialty/Name: _____

Completed by:	***UPDATE YEARLY**

***Adapted from TOH Diabetes and Health Assessment Form with permission from the Ottawa Hospital Endocrine and Diabetes program**

APPENDIX 7: Insulin Initiation Learning Needs Assessment

Insulin Initiation Learning Needs Assessment

Client's Name_____ **Chart #**_____

Date:_____

1. How do you feel about starting on insulin?

_____

2. Can you think of anything that will make self-injection easy/ hard for you to do?

_____

3. What benefits do you think you might get from taking insulin?

_____

4. Have you ever had to inject insulin or any other medication before? □ Yes □ No

If yes: Why? _____ When?_____

5. How confident do you feel about your ability to learn to self- inject insulin?

Not Confident at All Somewhat Confident Very Confident

6. Is there anyone whom you would like to have with you, when you learn to self-inject?

□ Yes □ No Name:_____

7. Have you ever attended a diabetes group education program? □ Yes □ No

When?_____ Where? _____ **Please arrange with client as needed**.

8. Has a dietitian recommended a meal plan? □ Yes □ No When?_____

9. What is your favourite way of learning? (select more than one if appropriate)

Reading Demonstration and Practice Videos Group Discussion Other

10. Are there cognitive or physical limitations to your self-care? □ Yes □ No

Cognitive _____ Visual impairment_____

Manual dexterity_____ Other_____

_____

Diabetes Educator Name / Signature

***Used with permission from the Ottawa Hospital Endocrine and Diabetes Program**

June 2007

APPENDIX 8: Insulin Initiation Teaching Record (2 pages)

Insulin Initiation Teaching Record

Client's Name _____ Chart #_____

Results Key: *(please indicate client's level of response in appropriate box below)*
R: # 1. Client /Family able to verbalize or demonstrate understanding of content
R: # 2. Client needs reinforcement – formulate plan in Progress Notes/Plan.
R: # 3. Poor understanding – repeat all.
R: # 4. Unable to teach. Client expresses lack of confidence in own ability.Describe in Progress Notes/Plan.

Topic	Date/ Initials	R #	Date/ Initials	R #	Date/ Initials	R #	Date/ Initials	R #
What diabetes is, S/S								
How insulin works								
Name of prescribed insulin								
Action of prescribed insulin								
Dose/ Timing of insulin								
Drawing up of insulin								
How to inject insulin with insulin pen								
Rotating sites								
Storing insulin								
Sharps disposal								
Name/Action of oral agents								
Dose/Timing of oral agents								
Side effects of oral agents								
Hyperglycemia/Causes								
Hyperglycemia/ S/S								
Hyperglycemia/ Treatment of								
Hypoglycemia/ Causes								
Hypoglycemia/ S/S								
Hypoglycemia/ Treatment of								

June 2007

(1 of 2)

Insulin Initiation Teaching Record

Client's Name _____ Chart # _____

***Results Key**: (please indicate client's level of response in appropriate box below)*
R: # 1. Client /Family able to verbalize or demonstrate understanding of content
R: # 2. Client needs reinforcement – formulate plan in Progress Notes/Plan.
R: # 3. Poor understanding – repeat all.
R: # 4. Unable to teach. Client expresses lack of confidence in own ability. Describe in Progress Notes/Plan.

Topic	Date/ Initials	R #	Date/ Initials	R #	Date/ Initials	R #	Date/ Initials	R #
Benefits of glucose monitoring								
Times/Recording of CBG readings								
How to perform CBG monitoring and do QC								
Sick day management								
Exercise: benefits and risks								
Travelling/Driving								
Medic Alert I.D.								
Glucagon administration								
Financial Assistance/Insurance								
Purchasing supplies								
Community resources								
Need for medical F/U								
Insulin pen back up, Syringe use								
Basic Nutrition								
CHO content of food choices								
Relationship between insulin action, CHO & glycemic control								
Recommended CHO intake quantity and timing (individualized)								

Signature	Initials	Signature	Initials

***Adapted with permission from the Ottawa Hospital Endocrine and Diabetes Program**

(2 of 2)

APPENDIX 9: Clinical Flowsheet

Clinical Flowsheet

Name:_____ **Chart #:**_____

☐ **T1D** ☐ **T2D** ☐ **Other**_____ **Date of Diagnosis:** _____

Date of visit:					
Ht : Wt (kg):					
BMI :					
WC(cm):					
BP:					
OAAs					
Injectable AAs					
Insulin					
Lipid Medications					
Anti-hypertensives					
Other Meds/Supplements					
Labs					
A1C POC					
A1C Lab					
FBG					
Creatinine					
eGFR Lab					
eGFR C-G					
ACR					
TC/HDL –C					
LDL-C					
TG					

APPENDIX 10: Guide to Starting Insulin (2 pages)

Name: _____ Chart #: _____

Date: _____

GUIDE TO STARTING INSULIN

(Once-a-day)

Getting Started:

Your insulin is called: _____
Your starting dose is _____ units.
Your insulin injection time is _____ each day, or within 1 hour of this time
When starting insulin, stop taking the following medication(s):

1. _____ 2._____

Monitor and record your blood glucose level as follows:

	Breakfast	Lunch	Dinner	Bedtime
Before	☐	☐	☐	☐
2 hrs after	☐	☐	☐	

Adjustments: DD / MM / YY

Increase by ___ unit(s) every _____ until your blood glucose before _____ is less than _____mmol/L.
Do not increase your insulin when your fasting blood glucose is less than _____ mmol/L.

Targets:

Fasting blood glucose or 4 hrs after meals is: _____ mmol/L.
2 hrs after meals is: _____ mmol/L.

If you have more than 2 low blood glucose readings (<4mmol/L) per week, call your diabetes educator or doctor.

Name:_____ Chart #: _____

Date: _____ (2 of 2)

PRACTICAL INSULIN INJECTION TIPS

- Attach pen needle to pen cartridge.
- If using cloudy insulin (ie. NPH, 30/70, Mix 25), gently roll your insulin 10 times, tip 10 times, and finally visually check to ensure the insulin is well mixed and has a consistently white appearance.*
- Do an air shot with 2 units of insulin or until a drop of insulin appears at the tip of the needle.
- Dial the number of units of insulin needed.
- Inject in the abdomen only and rotate sites staying 2 inches away from the belly button and away from any scar tissue.
- Inject in the abdomen at a 90 degree angle looking down at the insulin unit display.
- Once insulin is injected and display shows "0", slowly count to 10 before removing the needle from the abdomen.
- Remove the needle and discard in a sharps container.
- Recap the pen.

Storage

- Keep the pen and its' opened cartridge of insulin at room temperature for up to 28 days; discard after 28 days (42 days for Levemir).
- Store unopened insulin in the refrigerator and keep until expiry date.
- Do not use insulin past its' expiry date or if it has frozen.

* Adapted from: FIT Forum for Injection Technique Canada, Recommendations for Best Practice in Injection Technique: page 19.

APPENDIX 11: Nutrition Assessment (3 pages)

(1 of 3)

Date: _____ **Community Diabetes Education Program of Ottawa** Chart # _____

Nutrition Assessment

Name: _____ DOB: _____ M / F
Physician: Referring / Family _____

Reason for consult: _____ Accompanied by: _____
Nutrition Issues/ Questions: _____

Ht:	Current BW:	BMI:	Wt Change / Hx:	Goal Wt:	WC:
Previous Diets/ Nutrition Counseling: Y / N If Y (Reason / When):					
PMHx:					
AHA/ Insulin (type, dose, frequency):					
Current Medications/ Supplements/ OTC:					
Recent Labs (Dates): FBG: LDL: HDL:		2hr OGTT: TC/ HDL ratio: TG:		Hgb A1C: TC: Others:	
SMBG: Y/ N Frequency:		Usual Results (Ac / 2h PC): □ CBG Diary			
Physical Activity/ Limitations (types, frequency, time):					
Occupation:					
Food Intolerances/ Allergies:		Dietary Preferences:			
Recent Changes (Eating Habits/ Lifestyle), Why? □ Eats 3 Meals per day □ ↑ Fruits / Vegetables □ ↓ Portion Sizes □ Others: _____		□ Restrict Fruit/ Starch □ ↓ Added Sugars □ ↑ Physical Activity		□ ↓ Fat □ ↓ Sodium	
Food Prepared By:		Cooking Methods:			
Grocery By:		Eating Out (How often/ Where):			

Name: _____ Chart # :_____

(2 of 3)

Food Frequency:

Vegetables (fresh, frozen, canned): Grains & Starches: Fruits (fresh, frozen, canned, dried): Milk & Alt. (%M.F): Meat & Alt.: Deli Meats: Fats & Oils (types): Fried Foods:	Baked Goods/ Sweets/ Jams/Jellies/ Syrup: Sweeteners: Salt (cooking/ table/ substitute): Canned Foods: Frozen Meals: Snacks (chips, popcorn): <u>Fluids</u> Water: Soft (regular/ diet): Juice (sweetened/ unsweetened): Caffeine: Alcohol: Miscellaneous:

Weekend eating habits:

Food recall/ Diet hx (24hr recall, usual intake, food record): Client's food record attached: Y/ N

Name: _____ Chart #: _____

(3 of 3)

Assessment:

Meal spacing
- Irregular meal times
- Unnecessary snacks
- Poor meal balance
- High fat
- High simple sugar
- High carbohydrates
- Variable carbohydrate intake
- Excessive/inadequate calories
- Low fibre

Nutritionally inadequate food groups:
- Grains and starches:
- Vegetables:
- Fruits:
- Milk and alternatives:
- Meat and alternatives:

Insufficient $ for food

Use of food banks

Other (indicate) _____

Education:

Basic principles	↑ Fibre / ↓ Sodium	AHA
DFG	Using Food labels	Physical activity
CHO counting	Dining out	Stress & Coping
Plate method	Glycemic index	Sick day management
Meal plan (BTB)	Artificial sweeteners	Travelling/ Driving
How to keep food records	Alcohol	Other (indicate) _____
Heart healthy eating	Hypoglycemia	_____

Nutrition Plan/ Client's Goals:

Understanding			Motivation			Ability to Follow Plan		
Good	Fair	Poor	Good	Fair	Poor	Good	Fair	Poor

Comments: _____

_____

Follow-up/ Referral to other services: _____

_____ _____

Diabetes Dietitian Name/ Signature **Date**

Nov2009

***Adapted with permission from the Ottawa Hospital Endocrine and Diabetes Program**

APPENDIX 12: Plate Method: Breakfast

The plate method
- Breakfast -

Milk & Alternatives

_____

_____

_____

Fruit

_____

_____

_____

Grains & Starches

_____

_____

_____

_____

Meat & Alternatives
(optional)

_____

_____

Fat
1-3 servings

APPENDIX 13: Plate Method: Lunch/Dinner

The plate method
- Lunch/Dinner -

Milk & Alternatives

_____
_____
_____

Fruit

_____
_____
_____

Vegetables

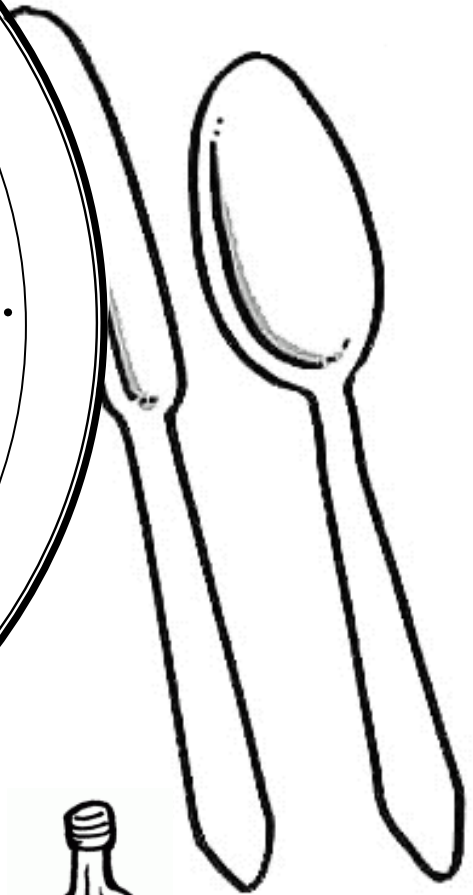
_____
_____
_____
_____

Grains&Starches

_____
_____
_____

Meat & Alternatives

_____
_____
_____



Fat
1-3 servings

Low Blood Glucose (Hypoglycemia)

A blood glucose level ***less than*** **4.0 mmol/L**
Treat quickly!

You may:

- Feel shaky, dizzy, sweaty, weak, hungry or irritable
- Have a headache, slurred speech or be confused
- Become aggressive, have seizures or "pass out"

What to do:

1. **Stop** and **check** blood glucose. If **below 4.0 mmol/L**, then **treat**. If you can't check, treat.

2. **Treat** with **one** choice (15 grams of fast acting carbohydrate):
   (a) ¾ cup fruit juice or regular pop
   (b) 3 tsp. sugar dissolved in water
   (c) 6 lifesavers
   (d) glucose or dextrose tablets (check label for amount equal to 15 grams of carbohydrate)
   ***** *If you take the medication Glucobay, treat with glucose or dextrose tablets, 1 Tbsp. honey or 1 cup milk*

3. **Wait 15 minutes and check** blood glucose. If under 4.0 mmol/L, repeat step 2.

4. Once your blood glucose is **over 4.0 mmol/L**, and if next **meal** is more than **1 hour away**, have a **snack** (15 grams of carbohydrate and some protein).
   - 1 medium fruit with 1-2 Tbsp. nuts
   - 7 crackers with 1 oz cheese or 2 Tbsp. peanut butter
   - ½ sandwich

Causes:

- Skipping or delaying meals
- Being more active than usual
- Taking too much insulin or diabetes pills by mistake
- Drinking alcohol without eating

Call your physician if you have low blood glucose more than 2 times in a week. Wear some I.D. that lets others know you have diabetes (Medical Alert bracelet, wallet card).

March 2009

***Adapted with permission from the Ottawa Hospital Endocrine and Diabetes Program**

Reading Food Labels

Ingredient List

- Must be on every packaged food
- What you see first on the list is what you get most of
- Watch for **partially hydrogenated** or **hydrogenated** oils, and vegetable oil **shortening**

Nutrition Facts

- Found on all packaged foods
- First thing to look at is the **serving size**
- Look at grams of carbohydrates; **5g = 1 tsp sugar**
- Look at grams of fat; **5g = 1 tsp fat**
- Aim for no more than **2g of trans fat** per day

Nutrition Claims

- Claims are big bold statements about the food
- Claims must be backed up with facts and follow regulations
- Read the claims carefully, they can be misleading; **read the fine print**

Nutrition Facts
Per 125 mL (87 g)

Amount		% Daily Value
Calories 80		
Fat 0.5 g		**1** %
Saturated 0 g + Trans 0 g		**0** %
Cholesterol 0 mg		
Sodium 0 mg		**0** %
Carbohydrate 18 g		**6** %
Fibre 2 g		**8** %
Sugars 2 g		
Protein 3 g		
Vitamin A	2 %	Vitamin C 10 %
Calcium	0 %	Iron 2 %

For more information, talk to a Registered Dietitian

***Adapted from Healthy Eating is in Store for You Educational Resources**

March 2009

APPENDIX 16: Resource List

RESOURCE LIST

On the Internet	
American Diabetes Association	www.diabetes.org
Canadian Diabetes Association	www.diabetes.ca
Canadian Health Network	www.canadian-health-network.ca
Canadian Nutrient File and Nutrient Value of Some Common Foods	www.healthcanada.gc.ca/cnfonline
Diabetes Exercise and Sports Association	www.diabetes-exercise.org
Dietitians of Canada	www.dietitians.ca
Food Labelling in Canada	www.healthcanada.ca/nutritionlabelling
Health Canada	www.healthcanada.ca
Nutrient Profile of Brand Name Food Products	www.calorieking.com
Nutrition Labelling Education Centre	www.healthyeatingisinstore.ca

Recommended Readings
Blumer Ian, Rubin Alan L**. Diabetes for Canadians for Dummies**. Mississauga: John Wiley & Sons Canada, Ltd; 2005.
Diabetes Day-Care Unit, CHUM- Hôtel Dieu. **Understand your Diabetes…and Live a Healthy Life**, 3rd ed. Montreal: Rogers Media; 2005.
Polonsky, William H. **Diabetes Burnout: What to do when you can't take it anymore**. Washington: American Diabetes Association; 1999.
Rosenthal, Sara M. **The Canadian Type 2 Diabetes Sourcebook**, 2nd ed. Mississauga: John Wiley & Sons, Ltd; 2005.

Telephone Numbers	
Canadian Diabetes Association	613-521-1902
Consulting Dietitians of Canada	1-888-901-7776
Ottawa Public Health	613-580-6744
City of Ottawa Recreation	613-580-2400

February 2008

Cookbooks

American Heart Association. **American Heart Association Meals in Minutes Cookbook: Over 200 All-New Quick and Easy Low-Fat Recipes**. Clarkson Potter; 2002. $23.95

Bowing, Stella. **The EveryDay Diabetes Cookbook** (revised). Key Porter Books Ltd in cooperation with the Canadian Diabetes Association; 2005. $27.95

Finlayson, Judith. **Canadian Diabetes Slow Cooker Recipes**. Robert Rose; 2007. $27.95

Geil, Patti B; Ross, Tami A. **Diabetes Meals on $7 a Day or Less.** McGraw-Hill; 2007. $17.95

Hollands, Marjorie; Howard, Margaret. **Choice Menus**. Harper Collins Canada, 2007. $26.95

Melina, Vesanto; Davis, Brenda. **The New Becoming Vegetarian: The Essential Guide to a Healthy Vegetarian Diet**. Ingram Book Co.; 2003. $21.95.

Podleski, Janet; Podleski, Greta. **Crazy Plates: Low-Fat Food So Good, You'll Swear It's Bad For You!** Waterloo: Granet Publishing Inc.;1999. $24.95

Podleski, Janet; Podleski, Greta. **Eat, Shrink and be Merry.** Waterloo: Granet Publishing Inc.; 2005. $29.95

Price, Frances**. Healthy Cooking for Two (or Just You)**. Rodale Books; 1997. $19.95

Resiman, Rose. **Weekday Wonders**. Penguin Group Canada; 2004. $29.00

Roblin, Lynn; Callaghan, Bev. **Suppertime Survival**. Toronto: Suppertime Survival; 2005. $24.95

Stanley, K; Crawley, Connie C. **Quick and Easy Diabetic Recipes for One**. Virginia: American Diabetes Association; 1997. $20.95

Stern, Bonnie. **HeartSmart: The Best for Heartsmart Cooking**. Random House Canada; 2006. $34.95

Younker, Katherine E. **Complete Canadian Diabetes Cookbook**. Robert Rose; 2005. $27.95
July 2009

APPENDIX 18: Client's Instructions Sheet

Name: _____ Chart #: _____
Date: _____

Summary of Visit

Topics discussed today:

☐What is Diabetes ☐Hyperglycemia ☐Hypoglycemia

☐Diabetes Food Guide ☐Physical Activity ☐Driving

☐Healthy Eating Tips ☐Sick Days ☐Travel

☐Self Monitoring Blood Glucose (SMBG) ☐Medication

☐Label Reading ☐Carbohydrate Counting

☐Recommended Carbohydrate Intake: _____

☐Stress ☐ Other: _____

Plan until next visit:

_____

_____

_____

_____

_____

_____

_____

_____

_____
Diabetes Educator Name & Signature

_____
Diabetes Educator Name & Signature

Next Appointment(s): 1. _____

2. _____

APPENDIX 19: Activity Tips

Activity Tips

Activity may cause your blood glucose levels to drop. There is an increased risk of hypoglycemia during or several hours after exercise. **If you are on insulin or medication that causes hypoglycemia, you may need to take extra carbohydrate before, during and/or after the activity.**

- Monitor blood glucose before, during and after exercise to identify effects on blood glucose and document hypoglycemia
- Carry 15 grams of rapid-acting carbohydrate such as glucose tablets, ¾ cup of juice or 6 lifesavers
- Ensure that your exercise partner knows the signs, symptoms and treatment of hypoglycemia
- Wear diabetes identification such as a Medic Alert I.D. or carry a wallet card
- Include a warm up and adequate cool down period
- Ensure adequate hydration
- Wear appropriate shoes
- Inspect feet for blisters and calluses

Special Consideration for People on Insulin:

You may also decrease your insulin in anticipation of increased activity. The insulin that is having the greatest effect at the time of the activity is decreased. Please consult your physician prior to making any adjustments.

For example:

If you are taking intermediate acting insulin in the morning it would need to be decreased for an afternoon golf game.

The insulin is decreased by:	10%	for light activity
	20%	for moderate activity
	30-40%	for vigorous activity

June 2007

APPENDIX 20: Sick Day Tips for People with Diabetes

Sick Day Tips for People with Diabetes

How does illness affect diabetes?

The flu, diarrhea, infections or even a bad cold can be serious if you have diabetes, especially if you can't eat or drink as usual. When you are ill, even if you are not eating, your blood sugars can be higher.

What should I do if I get sick?

Medication/ Insulin:

- Always take your diabetes medication at your usual times, even if you are nauseated and vomiting
- Insulin doses may need to be increased during illness; call your doctor for adjustments

Monitoring:

- Test your blood glucose level 3-4 times daily when sick (before meals and bedtime)
- Take your temperature every 4-6 hours if you feel feverish and/or have an infection

Activity:

- Rest and avoid strenuous exercise during periods of illness

Nutrition:

- If you can't eat solid foods, switch to liquids; stay hydrated
- Drink 4-8 ounces of water or fluids every hour if you can
- If you feel sick to your stomach, take small sips of fluids every 10 minutes
- Replace 15g carbohydrate from solid foods with 15g carbohydrate from liquids* (usually over an hour) every 1-2 hours

  *Please refer to "Sick Day Kit" for suggestions

Call your doctor when:

- Your blood glucose is higher than 15 mmol/L; this can indicate an infection requiring antibiotics
- You vomit often or experience severe diarrhea and are unable to eat or drink anything for more than 4 hours
- You have a fever that lasts more than 24 hours
- You are sick for 2 days and not getting better
- You have symptoms of high blood glucose
- You become dehydrated – dry mouth, cracked lips, sunken eyes, confusion or disorientation, no urination for more than 8 hours
- You do not know what to do to take care of yourself

Call 911 if you have chest pain or difficulty breathing.

***Adapted with permission from the Ottawa Hospital Endocrine and Diabetes Program**

Sick Day Kit

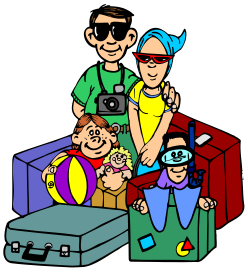
Be prepared! Have the following items set aside for yourself in a designated spot, just in case you become ill.

- Doctor's telephone number:_____
- Blood glucose logbook
- Extra blood glucose test strips and battery for meter
- Thermometer
- Pen and paper to record your temperature and how often you vomit/have diarrhea
- Medication for nausea and vomiting
- Medication for diarrhea
- Medication for fever/aches and pains
- Regular pop, juice or jello
- Crackers or plain cookies

Sick Day Foods for an Upset Stomach

Starch (15g Carb)	Dairy Products (15g carb)	Fruits (15g Carb)	Sugar (15g Carb)
6 soda crackers	1 cup milk	1 small banana	¾ cup regular soft drink
1 slice toast	¾ cup yogurt	¾ cup juice	
5 graham crackers		½ cup unsweetened apple sauce	
2 digestive cookies			
½ cup cooked oats			

APPENDIX 22: Ready, Set, Go! Tips for Travel



Ready, Set, Go! Tips for Travel

- Travel insurance is a must. Check with the Canadian Diabetes Association
- Obtain travel letter from doctor identifying your medical condition for security reasons. This letter must address the need for your medications, your meter and supplies to test and for a glucose source to treat hypoglycemia
- Get required immunizations at least one month before travelling abroad
- Wear diabetes identification such as a Medic Alert I.D. or carry a wallet card

Things to pack in your "carry-on" luggage:

- Blood glucose meter, blood letting device and lancets, extra blood glucose test strips and batteries
- Extra diabetes medication in their "original" bottles
- Medication to treat fever and aches/pains
- Medication for nausea, vomiting and diarrhea
- Snack foods in case of unplanned delays
- Glucose source for hypoglycemia, such as glucose tablets, juice box, candy

Suggested healthy snack foods:

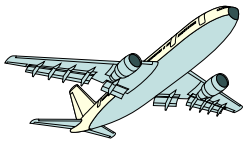
- Sandwiches
- Fruit, fruit leather, dried fruit
- Packaged cheese/peanut butter With crackers
- Diet pop, bottled water
- Nuts and seeds
- Granola bars

APPENDIX 23: Travelling by Car/Air

Travelling by Car

- **If you are taking insulin or oral agents that can cause hypoglycemia, test your blood glucose before driving**
- **If your blood glucose is less than 5.0 mmol/L, treat with 15g of carbohydrate before driving**
- **When driving long distances, check your blood glucose level every 4 hours to ensure it remains above 5.0 mmol/L**
- **At the first sign of hypoglycemia, pullover and treat with 15 g of fast acting carbohydrate such as glucose tablets, juice box, candy and follow with a combination of a longer acting carbohydrate source and a protein. Retest your blood glucose**
- **Always bring enough food for a meal**
- **Stop and stretch or go for a short walk every 2 hours**

Travelling by Air



- **Bring a travel letter for airport security**
- **Always bring enough food for a couple of meals including 15g rapid acting carbohydrate for hypoglycemia**
- **Ensure your medications and blood glucose meter kit are in your "carry-on" bag**
- **Get up and stretch every hour and drink lots of water**
- **Check your blood glucose level every 3-4 hours**
- **If you are on medication that lowers blood glucose or you take insulin, discuss with doctor a plan to adjust your medication across time zones**

Bon Voyage!

APPENDIX 24: Travel Letter

_____

_____

_____

To whom it may concern:

_____ has diabetes and, for medical reasons, (s)/he must bring the following supplies in her/his **carry-on luggage**:

- □ glucose meter and strips
- □ lancing device and lancets
- □ insulin pen/or syringe
- □ insulin cartridges or vials
- □ pen needles or syringe needles
- □ cold pack (ice or gel pack) to keep insulin cool
- □ Insulin pump and supplies
- □ diabetes medications
- □ glucose or dextrose tablets to treat hypoglycemia
- □ snacks/food approved by the airline

Sincerely,

_____

☐ Physician ☐ Diabetes Educator Signature

APPENDIX 20: Insulin Initiation Physician Report

Community Diabetes Education Program

Insulin Initiation Physician Report

Dear Dr: _____

Client: _____ DOB:: _____ Chart #_____

Initial Assessment and Plan Date: _____ .	Psychosocial and physiological factors explored, to identify those that may affect individual's ability to start insulin. Plan of care developed, to ensure accurate CBG monitoring and necessary appointments for insulin initiation arranged.
Initial Assessment and Plan (cont'd). Teaching started. Date: _____ A1c _____from our centre's DCA 2000+analyser	CBG readings reviewed. Current dietary regime explored and dietary recommendations provided. Education on diabetes and related topics provided. Hypoglycemia, exercise and sick day management introduced.
Insulin Initiation Date: _____	CBG readings reviewed. Dietary recommendations and CBG testing reinforced. Insulin types and action discussed. Insulin administration & preparation demonstrated. Hypoglycemia reviewed. Client registered in our insulin classes: Yes □ No □
F/U contacts dates: Tel.: _____ _____ On-site visits: _____ _____	CBG readings reviewed since insulin initiation. Problem-solving encouraged. Insulin administration & preparation, hypoglycemia reviewed. Sick day management & exercise reviewed as needed. Any area of concerns discussed.
3 month individual F/U Scheduled for: _____	Reviewed topics from individual sessions or group. Discussion on future considerations in insulin management. Client discharged from program.

Date: _____ SMBG frequency: _____ Current insulin use: _____

Last __ days'CBG readings: _____

_____

Comments from Dietitian/Nurse:_____

_____

_____

_____

_____

_____

_____

_____/_____**@ 613-** _____ x _____

Diabetes Educator Name/Signature