New Hampshire Guidelines for Diabetes Care

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February 2010

Dear Colleague:

The New Hampshire Diabetes Coalition Guidelines Committee, in collaboration with the NH Diabetes Education Program in the Department of Health and Human Services, Division of Public Health Services, has revised the widely distributed *New Hampshire Guidelines for Diabetes Care*.

The first edition of this packet was published in the spring of 1998. This 6th edition of the *Guidelines* is based on the American Diabetes Association Clinical Practice Recommendations 2010. (American Diabetes Association. Standards of medical care in diabetes – 2010. *Diabetes Care*. 2010;33(suppl 1);11-61.) It summarizes current information and recent changes to ADA recommendations for effective diabetes management and prevention in the primary care setting, but is not intended to replace the clinical judgment of health care practioners.

Materials in this packet were adapted from the ADA Guidelines by an advisory group of the NH Diabetes Coalition and reviewed by physicians in private practice. We hope you will find them useful, and please feel free to adapt them specifically for your practice.

We welcome your feedback on these *Guidelines*. Your comments will help us improve future editions of this packet.

Sincerely,

The NH Diabetes Coalition Guidelines Committee

NH Department of Health & Human Services • Division of Public Health Services • Diabetes Education Program
29 Hazen Drive • Concord, New Hampshire 03301 • 1-800-852-3345 ext. 5123 or (603) 271-5172

Guidelines Subcommittee

Member List

Special thanks are offered to the following members of the New Hampshire Diabetes Advisory Coalition Guidelines Subcommittee for their dedicated efforts. These individuals have generously contributed their knowledge, time and expertise toward the development of the *New Hampshire Guidelines for Diabetes Care.*

Ludmila Anderson, MD, MPH
Epidemiologist
NH Department of Health and Human Services

Kathy Berman, MPH
Program Manager
NH Diabetes Education Program
NH Department of Health and Human Services

Richard J. Comi, MD
Section Chief, Endocrinology, Diabetes & Metabolism
Dartmouth-Hitchcock Medical Center
Lebanon, NH

Kris Ferullo, RN, BSN, CDE
Wentworth-Douglass Hospital
Dover, NH

Della Flanagan RD, CDE, MEd, BC-ADM
Diabetes Coordinator and Outpatient Nutrition Manager
CRHC Diabetes Self-Management Program
Concord, NH

Tiffany Fuller, MS
Program Planner
Breast & Cervical Cancer Program
NH Department of Health and Human Services

Marisa Lara, MPH
Health Promotion Advisor
NH Diabetes Education Program
NH Department of Health and Human Services

Carole Lines, MBA, RD, LD, CDE
Director of Occupational Health, Clinical Nutrition and Endocrine Services
Lakes Region General Hospital
Laconia, NH

Sandra Sheeran, RN, CDE
Elliot Hospital
Manchester, NH

Shawn Sutton, MD
Concord Family Medicine
Concord, NH

New Hampshire Bureau of Drug & Alcohol Services
New Hampshire Immunization Program
New Hampshire Oral Health Program
New Hampshire Tobacco Prevention and Control Program

NHDEP MATERIALS ORDER FORM

Provider Materials	Quantity	Patient Materials	Quantity
NH Guidelines for Diabetes Care Packet		Resources for People with Diabetes	
Guidelines for Diabetes Care Laminated Card		Pre-diabetes Brochure	
Flow Sheet for Diabetes Care		Diabetes Care Card (patient wallet card)	
Insulin Pump Therapy		Blood Glucose Log	
		Patient Packet (for newly diagnosed patients)	

There is no charge for materials. Please allow 2-3 weeks for delivery.

Please mail the items to:

Name: _____

Affiliation: _____

Address: _____

Phone: _____ Fax: _____

To order materials please fax this form to:
(603) 271-5199
OR
Mail to: NH Dept of Health & Human Services
Division of Public Health Services
Diabetes Education Program
29 Hazen Drive
Concord, NH 03301

Questions? Please Call 1-800-852-3345 ext. 5172 or (603) 271-5172

Diagnosis, Screening, and Classification of Diabetes Mellitus

	Tests			
	Hemoglobin A1c[1]	**Fasting Plasma Glucose (FPG)[2]**	**Casual Plasma Glucose[3]**	**Oral Glucose Tolerance Test (OGCT)[4]**
Non-diabetic	< 5.7 %	FPG < 100 mg/dL (<5.6 mmol/l)	----	2hPG (two-hour plasma glucose) < 140 mg/dL (7.8 mmol/l)
"Pre-Diabetes"	5.7% to 6.4%	Impaired Fasting Glucose (IFG)= FPG ≥ 100 and < 125 mg/dL (5.6-6.9 mmol/l)	----	Impaired Glucose Tolerance (IGT) = 2hPG ≥ 140 and < 200 mg/dL (7.8-11.1 mmol/l)
Diabetes	≥ 6.5%	FPG ≥ 126 mg/dL (≥7.0 mmol/l)	Casual plasma glucose ≥ 200 mg/dL (11.1 mmol/l) plus symptoms[5]	2hPG ≥ 200 mg/dL (11.1 mmol/l)

[1] Hemoglobin A1c test is now recommended for the diagnosis of diabetes.
American Diabetes Association. Standards of medical care in diabetes – 2010. *Diabetes Care*. 2010;33(suppl 1);11-61. Nathan DM, Balkau B, Bonora E, et al. International expert committee report on the role of the A1C assay in the diagnosis of diabetes. *Diabetes Care*. 2009;32(7),1-8

[2]Fasting is defined as no caloric intake for at least 8 hours. The diagnosis should be confirmed by repeating one of these tests on a subsequent day, in the absence of severe hyperglycemia with acute metabolic decompensation.

[3]Casual is defined as any time of day without regard to time since last meal.

[4]OGTT should be performed using a glucose load containing the equivalent of 75g anhydrous glucose dissolved in water. The OGTT is not recommended for routine clinical use.

[5]Symptoms include polyuria, polydipsia, and unexplained weight loss. These criteria are for diagnosis and are not treatment criteria or goals.

Screening Recommendations

In asymptomatic, undiagnosed individuals, testing for diabetes should be considered in all individuals at age 45 years and above (particularly in those with a BMI ≥25 kg/m^2) and, if normal, it should be repeated at least every three years.

Testing should be considered at a younger age, or be carried out more frequently, in individuals who are overweight (BMI ≥25 kg/m^2)* and have one or more additional risk factors as follows:

- Are physically inactive
- Have a first degree relative with diabetes
- Are members of a high-risk ethnic population (African American, Latino, Native American, Asian American, Pacific Islander)
- Have delivered a baby weighing > 9 lb. or were diagnosed with GDM
- Are hypertensive (≥ 140/90), have a history of vascular disease, or are being treated for hypertension
- Have an HDL cholesterol level < 35 mg/dL and/or a triglycerides level > 250 mg/dL
- Have other clinical conditions associated with insulin resistance (PCOS, acanthosis nigricans)
- On previous testing, had IGT or IFG
- History of cardiovascular disease

*Individuals from some ethnic groups may be at risk with a BMI lower than 25 kg/m^2

Reference:

American Diabetes Association. Standards of medical care in diabetes – 2010. *Diabetes Care*. 2010;33(suppl 1);11-61.

Classification

The terms “insulin-dependent diabetes mellitus” (IDDM) and “non-insulin-dependent diabetes mellitus” (NIDDM) have been eliminated.

The terms “type 1” and “type 2” have been kept but use Arabic rather than Roman numerals.

Type 1 diabetes is characterized by beta cell destruction, usually leading to absolute insulin deficiency. It has two forms: Immune-Mediated Diabetes Mellitus and Idiopathic Diabetes Mellitus. Immune-Mediated Diabetes Mellitus results from a cellular mediated autoimmune destruction of the beta cells of the pancreas. Idiopathic Diabetes Mellitus refers to forms of the disease that have no known etiology.

Type 2 diabetes is characterized by insulin resistance and by relative (rather than absolute) insulin deficiency. People with type 2 diabetes can range from being predominantly insulin resistant with relative insulin deficiency to being predominantly deficient in insulin secretion with insulin resistance.

A state of impaired glucose homeostasis called “impaired fasting glucose” (IFG) has been defined as a fasting plasma glucose of ≥ 100 mg/dL but < 126 mg/dL. **The stage called “impaired glucose tolerance” (IGT)** is retained and is defined as an oral glucose tolerance test value of ≥ 140 mg/dL but < 200 mg/dL. Both IFG and IGT refer to metabolic stages of impaired glucose homeostasis that are intermediate between normal glucose homeostasis and diabetes. IFG and IGT are both also referred to as pre-diabetes (in the absence of pregnancy).

Gestational Diabetes Mellitus (GDM) has been retained. Low-risk women: are less than 25 years of age, are of normal body weight, have no family history of diabetes mellitus AND are not a member of an ethnic/racial group with a high prevalence of diabetes (Hispanic, African American, Native American, Asian). No change is recommended to the current diagnostic criteria for GDM.

Screening for and Diagnosis of Gestational Diabetes[1]

Carry out GDM risk assessment at the first prenatal visit.
Women at very high risk for GDM should be screened for diabetes as soon as possible after the confirmation of pregnancy. Criteria for high risk are:

- Severe obesity
- Prior history of GDM or delivery of large-for-gestational-age infant
- Presence of glycosuria
- Diagnosis of PCOS
- Strong family history of type 2 diabetes

Screening/diagnosis at this state of pregnancy should use standard diagnostic testing**
All women of greater than low risk of GDM, including those above not found to have diabetes in early pregnancy should undergo GDM testing at 24-28 weeks of gestation.
Low risk status, which does not require GDM screening, is defined as women with ALL of The following characteristics:

- Age<25 years
- Weight normal before pregnancy
- Member of an ethnic group with a low prevalence of diabetes
- No known diabetes in the first-degree relatives
- No history of abnormal glucose tolerance
- No history of poor obstetrical outcome

Two approaches may be followed for GDM screening at 24-28 weeks:

1. Two-step approach:
   A. Perform initial screening by measuring plasma or serum glucose 1 h after a 50-g oral glucose load. A glucose threshold after 50-g load of ≥ 140 mg/dl identifies ~80% of women with GDM, while the sensitivity is further increased to ~90% by a threshold of ≥ 130 mg/dl.
   B. Perform a diagnostic 100-g OGTT on a separate day in women who exceed the chosen threshold on 50-g screening.
2. One-step approach (may be preferred in clinics with high prevalence of GDM): Perform
   a. diagnostic 100-g OGTT in all women to be tested at 24-28 weeks.

The 100-g OGTT should be performed in the morning after an overnight fast of at least 8 h.
To make a diagnosis of GDM, at least two of the following plasma glucose values must be found:

Fasting: ≥ 95 mg/dl
1 h ≥ 180 mg/dl
2 h ≥ 155 mg/dl
3 h ≥ 140 mg/dl

Postpartum Follow-up

Between 35-60% of women with previous GDM will develop type 2 diabetes within 10 years.[2] Therefore, women should be screened for development of diabetes or pre-diabetes within 6-12 weeks postpartum using non-pregnant OGTT criteria. If the patient tests negative for diabetes, screening should be repeated at 3-year intervals.[1]

**See "Diagnosis, Screening, and Classification of Diabetes Mellitus" sheet in this packet

[1]American Diabetes Association. Standards of medical care in diabetes – 2010. *Diabetes Care*. 2010;33(suppl 1);11-61.
[2] Metzger BE, Buchanan TA, Coustan DR et al. Summary and recommendations of the Fifth International Workshop-Conference on Gestational Diabetes Mellitus. *Diabetes Care.* 2007;30 (Suppl. 2):251–260.
For more information: HAPO Study Cooperative Research Group. Hyperglycemia and adverse pregnancy outcomes. *N Engl J Med*. 2008; 358:1991–2002.

International Expert Committee Recommends the use of Hemoglobin A1c for the Diagnosis of Diabetes

The International Expert Committee was assembled by the American Diabetes Association, the European Association for the Study of Diabetes and the International Diabetes Federation. The American Diabetes Association has endorsed the use of A1c to diagnose diabetes.

The committee listed the following as advantages of A1c testing compared with fasting plasma glucose or 2-hour plasma glucose for the diagnosis of diabetes

- Standardized and aligned to the DCCT/UKPDS; measurement of glucose is less well standardized
- Better index of overall glycemic exposure and risk for long-term complications
- Substantially less biologic variability
- Substantially less preanalytic instability
- No need for fasting or timed samples
- Relatively unaffected by acute (e.g., stress or illness related) perturbations in glucose levels
- Currently used to guide management and adjust therapy

Summary of Recommendations

For the diagnosis of diabetes:

- The A1c assay is an accurate, precise measure of chronic glycemic levels and correlates well with the risk of diabetes complications.
- The A1c assay has several advantages over laboratory measures of glucose.
- Diabetes should be diagnosed when A1c is ≥ 6.5%. Diagnosis should be confirmed with a repeat A1c test. Confirmation is not required in symptomatic subjects with plasma glucose levels >200 mg/dl (>11.1 mmol/l).
- If A1c testing is not possible, previously recommended diagnostic methods (e.g., FPG or 2HPG, with confirmation) are acceptable.
- A1c testing is indicated in children in whom diabetes is suspected but the classic symptoms and a casual plasma glucose >200 mg/dl (>11.1 mmol/l) are not found.

For the identification of those at high risk for diabetes:

- The risk for diabetes based on levels of glycemia is a continuum; therefore, there is no lower glycemic threshold at which risk clearly begins.
- The categorical clinical states pre-diabetes, IFG, and IGT fail to capture the continuum of risk and will be phased out of use as A1c measurements replace glucose measurements.
- As for the diagnosis of diabetes, the A1c assay has several advantages over laboratory measures of glucose in identifying individuals at high risk for developing diabetes.
- Those with A1c levels below the threshold for diabetes but >6.0% should receive demonstrably effective preventive interventions. Those with A1c below this range may still be at risk and, depending on the presence of other diabetes risk factors, may also benefit from prevention efforts.
- The A1c level at which population-based prevention services begin should be based on the nature of the intervention, the resources available, and the size of the affected population.

For more information: Nathan DM, Balkau B, Bonora E, et al. International expert committee report on the role of the A1c assay in the diagnosis of diabetes. *Diabetes Care*. 2009;32(7),1-8.

Pre-Diabetes: A Serious Condition

It's no longer a "Touch of Sugar" or "Borderline Diabetes"

Your patients must be warned of the risks of pre-diabetes, a condition affecting nearly 57 million Americans.[1] Pre-diabetes sharply increases one's risk for developing type 2 diabetes, heart disease, stroke and eye disease.[2]

Testing for Pre-Diabetes

Fasting Plasma Glucose Results	*2-h 75g Oral Glucose Tolerance Test*	*Hemoglobin A1c Test*[4]
Non-diabetic < 100mg/dL	Non-diabetic < 140 mg/dL	Non-diabetic < 5.7 %
Pre-diabetes ≥ 100 and < 126 mg/dL	Pre-diabetes ≥ 140 and ≤ 199 mg/dL	Pre-diabetes 5.7% - 6.4%
Diabetes ≥ 126 mg/dL	Diabetes ≥ 200 mg/dL	Diabetes ≥ 6.5%

Monitor for type 2 diabetes annually after a diagnosis of pre-diabetes.

What can be done?

Intervene early for pre-diabetes patients to delay diagnosis or keep from progressing to diabetes.

Allow your patients to "Turn back the clock."

1) Inform your patient that she/he has "pre-diabetes" and refer him or her to a dietitian or diabetes educator for specific behavior change goals including an exercise prescription and nutrition goals to achieve weight loss. (The patient will need to check with their health care plan for specific coverage).
2) The Diabetes Prevention Program showed that a modest 5 to 10% weight loss and physical activity (30 minutes daily) could prevent or delay the onset of type 2 diabetes by up to 58%.[3]
3) Follow-up counseling is important in order for patients to be successful[4]
4) Monitor yearly for development of type 2 diabetes[4]
5) Metformin may be considered for patients with pre-diabetes who are at very high risk for diabetes, are obese and less than 60 years of age. Metformin should be the only drug considered for use in the prevention of diabetes.[4]

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[1]National diabetes fact sheet: general information and national estimates on diabetes in the United States, 2007. Atlanta, GA: U.S. Department of Health and Human Services, Centers for Disease Control and Prevention;2008.
[2]Frequently asked questions – prediabetes, 2008. Centers for Disease Control and Prevention Web Site. http://www.cdc.gov/diabetes/faq/prediabetes.htm. Updated July 8, 2008. Accessed April 10, 2009.
[3]Reduction in the incidence of type 2 diabetes with lifestyle intervention on metformin. Diabetes Prevention Research Program. *New England Jnl of Medicine*.2002; vol 346, no. 6.
[4]American Diabetes Association. Standards of medical care in diabetes – 2010. *Diabetes Care*. 2010;33(suppl 1);11-61.

Goals for Diabetes Management

Glycemic Control for Non-Pregnant Adults

	Non-Diabetic	Goal (ADA)	Goal (AACE**)
Fasting (Before Meals)	<100 mg/dL	70-130 mg/dL	<110
Peak Postprandial (After the start of the meal)	<140 mg/dL	<180 mg/dL (1-2 hours post meal)	<140 mg/dL (2-hours post meal)
Hemoglobin A1c	<6%	<7%*	≤6.5%

*The American Diabetes Association recommends the A1c goal for people in general is <7%. However, the goal for the individual is an A1c as close to normal (<6%) as possible without significant hypoglycemia.
**American Association of Clinical Endocrinologists

Glycemic Control for Women with Gestational Diabetes

	Goal (ADA)	Goal (AACE**)
Fasting (Before Meals)	≤ 95 mg/dL	60-90 mg/dL
1-Hour Peak Postprandial	≤140 mg/dL	<120 mg/dL
2-Hour Peak Postprandial	≤120 mg/dL	---
Hemoglobin A1c	---	<6 %

Glycemic Control for Women with Pre-existing Type 1 or Type 2 Diabetes Who Become Pregnant (ADA):

Premeal, bedtime and overnight glucose: 60-99 mg/dL
Peak postprandial glucose: 100-129 mg/dL
Hemoglobin A1c: <6 %

References:
American Diabetes Association. Standards of medical care in diabetes – 2010. *Diabetes Care*. 2010;33(suppl 1);11-61.
AACE Diabetes Mellitus Clinical Practice Guidelines Task Force. American Association of Clinical Endocrinologists medical guidelines for clinical practice for the management of diabetes mellitus. *Endocrine Practice*. May/June 2007;13(suppl 1).

Correlation of A1c with Average Glucose

A1c %	eAG mg/dL
6	126
6.5	140
7	154
7.5	169
8	183
8.5	197
9	212
9.5	226
10	240

The correlation between A1c and estimated average glucose (eAG) levels is based on the A1c-Derived Average Glucose (ADAG) study that included approximately 2,700 glucose measurements over 3 months per A1c measurement in 507 adults with type 1, type 2 and no diabetes. A1c can now be expressed in the same units that are used in self-monitoring of blood glucose for most patients.

The A1c-Derived Average Glucose (ADAG) study was supported by research grants from the American Diabetes Association (ADA) and European Association for the Study of Diabetes (EASD). The study took place after the introduction of a new method of standardization of the A1c assay that would result in values that are up to 2 percentage points lower than the current standards set by the Glycohemoglobin Standardization Program (NGSP).

The National Glycohemoglobin Standardization Program (NGSP) was formed in 1996 to standardize the A1c test to DCCT values. All manufacturers of A1c test assay methods are encouraged to seek certification on an annual basis. More information on NGSP can be found at: http://www.ngsp.org/.

A conversion tool is available through the American Diabetes Association website: http://professional.diabetes.org/GlucoseCalculator.aspx

eAG = 28.7 x A1c – 46.7

References:
American Diabetes Association. Standards of medical care in diabetes – 2010. *Diabetes Care*. 2010;33(suppl 1);11-61.
Nathan DM, Kuenen J, et. al. Translating the A1C assay into estimated average glucose values. *Diabetes Care*. 2008;31(8), 1-6.

Diabetes Medication Reference: Oral Agents

Class	Drug	Action	Pros	Cons
Alpha-Glucosidase Inhibitors	**Acarbose** (Precose™) **Miglitol** (Glyset™)	Prevents absorption of glucose from GI tract via competitive reversible inhibition of enzymes used to break complex sugars into absorbable sugars.	1. Acts locally, little systemic absorption. 2. Helps control post-prandial hyperglycemia. 3. Administered alone will not cause hypoglycemia.	1. Ineffective if not taken with first bite of meal. 2. May cause abdominal bloating, diarrhea, and flatulence. (typically resolve in 8-12 weeks). 3. Can contribute to hypoglycemia if used in combination with other diabetes medications. If hypoglycemia occurs, treat with glucose or dextrose tablets. Sucrose will not be effective. 4. Can not use in patients with inflammatory bowel disease (UC, Crohn's) or with cancer. 5. Should not be used in patients with creatinine >2 6. Increases liver transaminases with increasing dose.
Biguanides	**Metformin** (Glucophage®, Glucophage®XR Riomet – liquid form of Metformin, Glumetza®)	Decreases hepatic glucose output. Decreases insulin resistance. Increases peripheral glucose use by muscle and adipose tissue.	1. Administered alone will not cause hypoglycemia. 2. Does not cause weight gain. 3. Decreases LDL and triglycerides.	1. Contraindicated with renal dysfunction. Do not use if creatinine ≥ 1.5 in males or ≥ 1.4 in females. 2. Contraindicated in patients with significant liver disease or with excessive alcohol intake. 3. GI side effects (anorexia, bloating, diarrhea) typically resolve in 4-8 weeks. 4. May contribute to hypoglycemia if used in combination with other diabetes medications. 5. Stop before, and hold for 48 hours after, IV contrast. 6. Low but real risk for lactic acidosis. 7. Caution required in patients with CHF or hepatic disease 8. Can begin use in patients ≥ 80 years only if creatinine clearance is normal. 9. May cause resumption of ovulation in anovulatory women
Meglitinides	**Repaglinide** (Prandin™)	Increases insulin secretion.	1. Rapidly absorbed and rapidly eliminated. 2. Helps control post-prandial hyperglycemia. 3. Dosing based on number of meals consumed.	1. Hypoglycemia. 2. Weight gain. 3. Rarely, thrombocytopenia, leukopenia, elevated hepatic enzymes. 4. Cautious use with renal or hepatic dysfunction.

The combination tablets have the actions, pros and cons of both agents.

Class	Drug	Action	Pros	Cons
D-phenylalanine derivatives	**Nateglinide** (Starlix®)	Increases insulin secretion.	1. Stimulates rapid, short-acting insulin secretion. 2. Does not cause late hyperinsulinemia which reduces the risk of hypoglycemia 3. Dosing based on number of meals consumed.	1. Hypoglycemia (Low Risk) 2. Weight gain. 3. Caution required in patients with moderate liver disease.
First Generation Sulfonylureas	**Chlorpropamide** (Diabenese®) **Tolazamide** (Tolinase®) **Tolbutamide** (Orinase™)	Increases insulin secretion.	1. Decreases LDL and triglycerides.	1. Hypoglycemia (may be prolonged or severe with chlorpropamide). 2. Weight gain. 3. Numerous drug interactions. 4. Disulfiram-like reaction with alcohol (chlorpropamide). 5. Hyponatremia (chlorpropamide). 6. Questionable increased cardiovascular mortality.
Second Generation Sulfonylureas	**Glipizide** (Glucotrol®, Glucotrol XL™) **Glyburide** (Micronase®, Diabeta®, Glynase®) **Glimepiride** (Amaryl®)	Increases insulin secretion. Questioned increase in target cell sensitivity to insulin (glimepiride).	1. Decreases LDL and triglycerides.	1. Hypoglycemia 2. Weight gain. 3. Sensitivity to sunlight (glyburide). 4. Questionable increased cardiovascular mortality.
Thiazolidine-diones	**Rosiglitazone** (Avandia®) **Pioglitazone** (Actos™)	Increases target cell response to insulin. Decreases hepatic glucose output. Increases insulin dependent glucose use in skeletal muscle.	1. Decreases exogenous insulin requirements. 2. Increases HDL. 3. Decreases triglycerides with pioglitazone	1. Need to monitor serum transaminase levels according to FDA warnings. (Hepatocellular injury occurred with troglitazone, which was withdrawn in March 2000). 2. Risk of unanticipated pregnancy due to decreased effectiveness of oral contraceptive and resumption of ovulation in anovulatory women. 3. Insulin dose may need to be reduced. 4. May cause weight gain, anemia and edema. 5. Increased LDL with rosiglitazone. 6. Caution indicated in patients with hepatic disease, CHF, or with a history of alcohol abuse. 7. May contribute to hypoglycemia if used in combination with other diabetes medications. 8. Pioglitazone: Increased HDL & decreased Triglycerides.

The combination tablets have the actions, pros and cons of both agents.

Dipeptidyl peptidase-4 (DPP-4) inhibitor	**Januvia**™ (sitagliptin phosphate)	Slows the inactivation of incretin hormones such as GLP-1 and GIP. This results in increased release of insulin and decreased circulating levels of glucagon.	1. Does not cause hypoglycemia 2. Does not cause weight gain 3. Neutral or positive effect on cholesterol levels	1. Dosage adjustment is recommended in patients with moderate, severe, and end stage renal disease. 2. Monitor renal function prior to and periodically after starting Januvia™ . 3. Adverse reactions may include: upper respiratory tract infection, nasopharyngitis, and headache. 4. Should not be used in patients with type 1 diabetes or to treat diabetic ketoacidosis.

The combination tablets have the actions, pros and cons of both agents.

Oral Medications for Type 2 Diabetes

Name	Description	Dosage (mg)	Maximum Daily Dose (mg)	Doses per day
FIRST GENERATION SULFONYLUREAS				
DIABINESE® (chlorpropamide)	blue tablet flat on one side scored	100 250	750	1-2
DYMELOR® (acetohexamide)	white,oblong scored tablet	250 500	1500	1-2
ORINASE™ (tolbutamide)	white, round scored tablet	500	3000	2-3
TOLINASE® (tolazamide)	white, round scored tablet	100 250 500	1000	1-2
SECOND GENERATION SULFONYLUREAS				
MICRONASE® (glyburide)	round, scored tablet: white dark pink blue	1.25 2.5 5.0	20	1-2
DIABETA® (glyburide)	oblong, scored tablet: white blue yellow	1.25 2.5 5.0	20	1-2
GLYNASE® (glyburide)	oblong, scored tablet: white blue yellow	1.5 3.0 6.0	12	1-2
GLUCOTROL® (glipizide)	white, scored diamond-shaped tablet	5 10	40	1-2
GLUCOTROL XL™ (glipizide)	white, unscored round tablet	2.5 5 10	20	1
AMARYL® (glimepiride)	oblong, scored Tablet: pink green blue	1 2 4	8	1

See "Other Injectables" fact sheet for information on Symlin, Victoza, and Byetta.

Name	Description	Dosage (mg)	Maximum Daily Dose (mg)	Doses per day
BIGUANIDE				
GLUCOPHAGE® (metformin)	white, film-coated tablet round, round oval	500 850 1000	2550	2-3
GLUCOPHAGE® XR (metformin)	white, capsule-shaped tablet	500 750	2000	1-2
GLUMETZA® (metformin)	blue or white, film coated, oval shaped	500 1000	2000	1
ALPHA-GLUCOSIDASE INHIBITORS				
PRECOSE™ (acarbose)	round, white unscored tablet	25 50 100	300	3
GLYSET™ (miglitol)	round, white film-coated tablet	25 50 100	300	3
MEGLITINIDE				
PRANDIN™ (repaglinide)	round, unscored tablet: white yellow orange	0.5 1.0 2.0	16	Preprandially; 2, 3, or 4 in response to changes in patient's meal pattern
THIAZOLIDINEDIONES				
AVANDIA® (rosiglitazone)	pentagonal, film-covered tablet: pink orange maroon	2 4 8	8	1-2
ACTOS™ (pioglitazone)	round, white unscored tablet	15 30 45	45	1
D-PHENYLALANINE DERIVIATIVE				
STARLIX® (nateglinide)	tablet: pink, round yellow, oval	60 120	360	3
DIPEPTIDYL PEPTIDASE-4 (DPP-4) INHIBITOR				
JANUVIA™ (sitagliptin phosphate)	tablet: pink, light beige, beige, round, film-coated	25 50 100	100	1

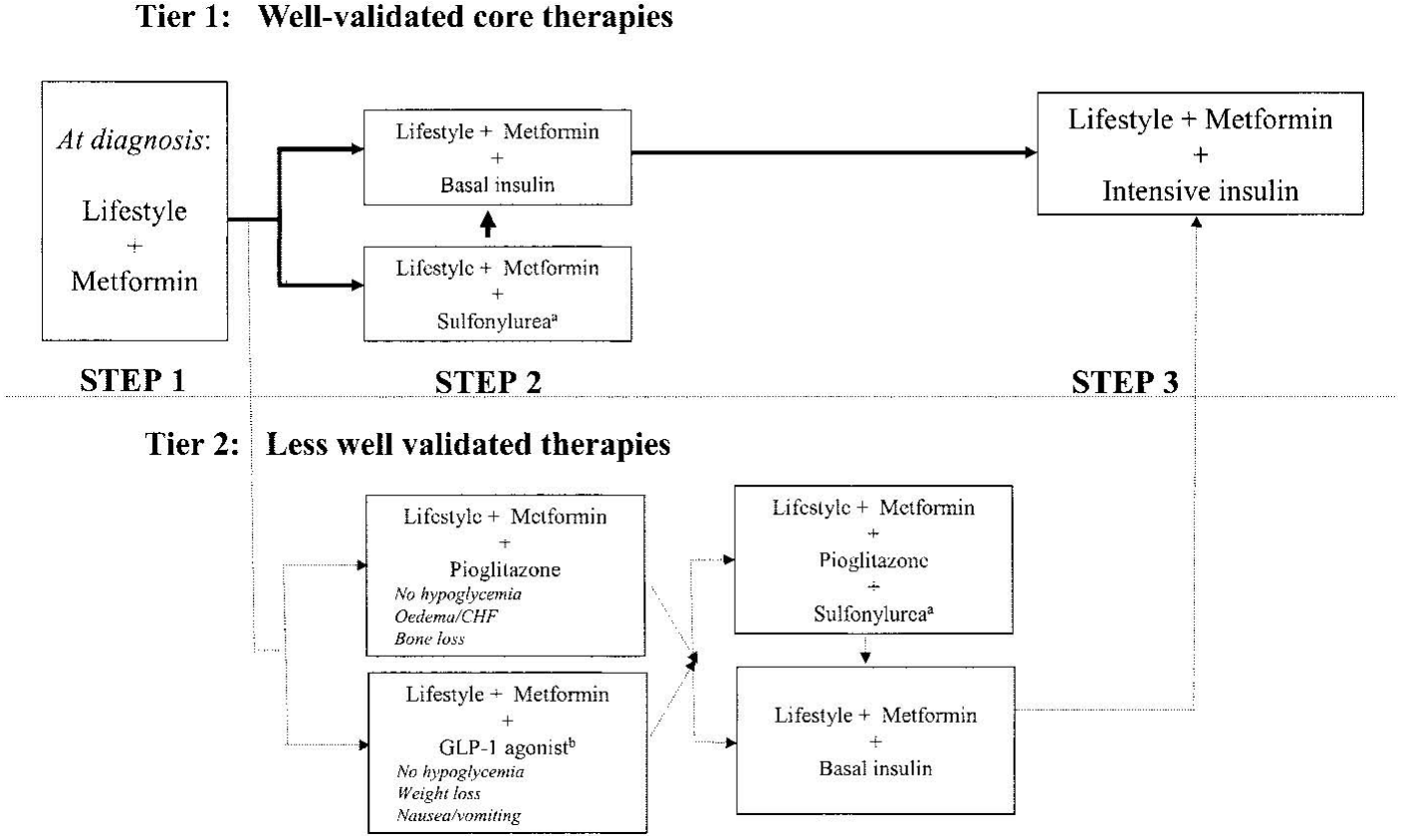
Other Injectables –Byetta, Victoza, and Symlin

Byetta (exenatide)	Victoza (liraglutide)	Symlin (pramlintide)
What is it?		
❑ Injectable medication for adults with type 2 diabetes who **do not** take insulin ❑ Incretin mimetic (synthetic equivalent of GLP-1 which is made in the L-cells in the stomach)	❑ Injectable medication for adults with type 2 diabetes who do not take insulin ❑ Analog of human GLP-1 and acts as a GLP-1receptor agonist with 90% homology to native human GLP-1	❑ Injectable medication for adults with type 1 or type 2 diabetes who take insulin ❑ Synthetic analog of human amylin, the pancreatic hormone co-secreted with insulin that helps to control glucose in the post prandial period. ❑ Taken with meals or snacks that contain at least 250 calories or at least 30 grams of carbohydrate
How does it work?		
Reduces fasting and postprandial glucose: ❑ Stimulates insulin secretion when glucose levels are high ❑ Restores 1st phase insulin response (1st 10 minutes after food is ingested) ❑ Reduces serum glucagon concentrations after meals ❑ Slows gastric emptying which limits rise in blood glucose following a meal ❑ Reduces food intake	Activates the GLP-1 receptor again ❑ Stimulates insulin secretion when glucose levels are high ❑ Decreases glucagon secretion in a glucose-dependent manner ❑ Slows gastric emptying which limits rise in blood glucose following a meal	❑ Slows gastric emptying, so reduces postpranial rise in glucose ❑ Prevents a postprandial rise in plasma glucagons concentrations ❑ Promotes satiety, leading to a decreased calorie intake
Indication		
Used when desired glucose control has not been achieved in patients taking metformin and/or a sulfonylurea	Used as an adjunct to diet and exercise to improve glycemic control in adults with type 2 diabetes mellitus	Used when desired glucose control has not been achieved: Type 1 diabetes - adjunct treatment to mealtime insulin Type 2 – adjunct treatment to mealtime insulin, with or without the use of sulfonylurea and/or metformin

Other Injectables –Byetta, Victoza, and Symlin

Byetta (exenatide)	Victoza (liraglutide)	Symlin (pramlintide)
Contraindications		
❑ Hypersensitivity to Byetta or its components ❑ Type 1 diabetes ❑ Gastroparesis ❑ Renal disease ❑ Pregnancy and breastfeeding ❑ Use with caution in patients with a history of pancreatitis	❑ Patients with a personal or family history of medullary thyroid carcinoma and in patients with multiple endocrine neoplasia syndrome type 2 ❑ Use with caution in patients with a history of pancreatitis ❑ Patients with a personal or family history of medullary thyroid carcinoma ❑ Patients with multiple endocrine neoplasia syndrome type 2 **Limitations of Use:** Not recommended as first-line therapy for patients inadequately controlled on diet and exercise. Has not been studied sufficiently in patients with history of pancreatitis: use caution. Not for treatment of type 1 DM or diabetic ketoacidosis. Has not been studied in combination with insulin.	❑ Hypersensitivity to Symlin or its components ❑ Gastroparesis ❑ Hypoglycemia unawareness ❑ Concomitant use of medications that stimulate gastrointestinal motility ❑ Poor adherence with home blood glucose monitoring ❑ Not approved for use in children
Possible Side Effects		
❑ Hypoglycemia (most episodes were linked to the dose of byetta and sulfonylurea). Hypoglycemia was rare in patients taking Byetta and metformin ❑ Pancreatitis ❑ Nausea, vomiting, diarrhea	❑ Hypoglycemia (most episodes were linked to the dose of victoza and sulfonylurea). ❑ Nausea, vomiting, diarrhea, dyspepsia and constipation	❑ Hypoglycemia – black box warning on the prescribing information regarding this risk. Insulin doses must be reduced ❑ Nausea – transient and dose related
How is it supplied?		
30-day pre-filled pen: (5 mcg per dose, 60 doses 10 mcg dose, 60 doses) (pen needles are not included)	Prefilled multidose pen that delivers 0.6mg, 1.2 mg, or 1.8 mg 2X Victoza pen NDC 0169-4060-12 3X Victoza pen NDC 0169-4060-13	Symlin pen 60 Symlin pen 120
When is it taken?		
Injected up to 60 minutes prior to breakfast and dinner If nausea is an issue, inject closer to the meal	Once daily at any time of day, independent of meals and can be injected in the abdomen, thigh or upper arm.	With meals
For more information		
www.byetta.com (800-868-1190)	**www.victoza.com (877-484-2869)**	**www.symlin.com (800-349-8919)**

Algorithm for the Metabolic Management of Type 2 Diabetes[1]



Algorithm for the metabolic management of type 2 diabetes; Reinforce lifestyle interventions at every visit and check A1C every 3 months until A1C is < 7% and then at least every 6 months.
The interventions should be changed if A1C is ≥7%. [a]Sulfonylureas other than glybenclamide (glyburide) or chlorpropamide. [b]Insufficient clinical use to be confident regarding safety.

Note – The algorithm for the metabolic management of type 2 diabetes AND the algorithm for the initiation and adjustment of insulin are both available in the following article:

[1]Nathan DM, Buse JB, et al. Medical management of hypergylcemia in type 2 diabetes: a consensus algorithm for the initiation and adjustment of therapy. *Diabetes Care*. 2009;32(1);1-11.

Intensive Insulin Therapy
Basal Bolus Therapy

Background
The challenge of insulin therapy is in attempting to mimic physiologic insulin action. In the non-diabetic pancreas the beta cells secrete a constant low rate of insulin, as well as an appropriate amount of insulin in response to a post-prandial rise in blood glucose.

A regimen of long-acting insulin taken once daily with rapid-acting insulin taken just before meals is most like normal physiology. This can be accomplished with multiple daily injections or the basal and bolus delivery of an insulin pump (continuous subcutaneous insulin infusion or CSII).

Targets
Insulin regimens must be adjusted to achieve blood glucose targets (see goals for diabetes management in this packet). The A1c goal for the individual patient is an A1c as close to normal (<6%) as possible without significant hypoglycemia.

Basal insulin doses are adjusted to achieve pre-meal glucose targets
Bolus doses are adjusted, based on anticipated carbohydrate consumption, and planned exercise, to achieve pre and post-meal glucose targets.

- The individual's sensitivity is considered in adjusting doses.
- This proactive approach differs from a traditional sliding scale, which reacts only to the current blood glucose level.

Intensive insulin therapy is complex and often involves a team approach

- A dietitian to teach carbohydrate counting.
- A nurse/dietitian/CDE to teach insulin administration and insulin delivery devices as well as blood glucose monitoring and interpretation of the results.
- A physician to order medications as required.

Intensive insulin therapy may not be appropriate for patients who lack hypoglycemia awareness.

For more information
An algorithm for the initiation and adjustment of insulin regimens is available on page 6 in the following article:

Nathan DM, Buse JB, et al. Medical management of hypergylcemia in type 2 diabetes: a consensus algorithm for the initiation and adjustment of therapy. *Diabetes Care*. 2009;32(1);1-11.

Position Statements from the American Diabetes Association

American Diabetes Association. Continuous Subcutaneous Insulin Infusion. *Diabetes Care*. 2004;31(suppl 1):110.

American Diabetes Association. Insulin Administration. *Diabetes Care*. 2004;27(Suppl. 1):106 –109.

	Insulin	Manufacturer	Onset (approx)	Peak (approx)	Duration (approx)	Room Temperature	Volume # of units	Pens that fit the cartridges
RAPID ACTING	Apidra (insulin glulisine)	Sanofi Aventis	15 min	0.5-2.5 hrs	3-5 hrs	Up to 28 days	10 ml (1000 units)	N/A
	Apidra (insulin glulisine) SoloStar (prefilled) pen	Sanofi Aventis	15 min	0.5-2.5hrs	3-5 hrs	Up to 28 days	3-ml (300 units)	N/A
	Humalog Vial (insulin lispro)	Eli Lilly	15 min	0.5 – 1.5hrs	3-5 hrs	Up to 28 days	10 ml (1000 units) and 3ml (300 units)	N/A
	Humalog Cartridge	Eli Lilly	15 min	0.5-1.5 hrs	3-5 hrs	Up to 28 days	3-ml (300 units)	Autopen Humalog **Luxura*** Humalog Memoir
	Humalog Pen (prefilled) Turbopen	Eli Lilly	15 min	0.5-1.5 hrs	3-5 hrs	Up to 28 days	3-ml (300 units)	N/A
	Humalog Pen (prefilled) Kwikpen	Eli Lilly	15 min	0.5-1.5 hrs	3-5 hrs	Up to 28 days	3 –ml (300 units)	N/A
	NovoLog Vial (insulin aspart)	Novo Nordisk	15 min	40-50mins	3-5 hrs	Up to 28 days	10 ml (1000 units)	N/A
	Novolog PenFill	Novo Nordisk	15 min	40-50mins	3-5 hrs	Up to 28 days	3-ml (300 units)	NovoPen 3, **NovoPen Junior***
	Novolog FlexPen (prefilled)	Novo Nordisk	15 min	40-50mins	3-5 hrs	Up to 28 days	3-ml (300 units)	N/A
	*** available in half unit increments**							

	Insulin	Manufacturer	Onset (approx)	Peak (approx)	Duration (approx)	Room Temperature	Volume # of units	Pens that fit the cartridges
SHORT ACTING	Humulin R (Regular) Vial	Eli Lilly	30-60 min	50-120 mins	5-8 hrs	Up to 28 days	10 ml (1000 units) and 3ml (300 units)	N/A
	Novolin R Vial (Regular human insulin)	Novo Nordisk	30 min	50-120 mins	5-8 hrs	Up to 42 days	10 ml (1000 units)	N/A
INTERMEDIATE-ACTING iNG	Humulin N (NPH) Vial	Eli Lilly	1-3 hrs	2-8 hrs	20 hrs	Up to 28 days	10 ml (1000 units)	N/A
	Humulin N (NPH) Pen (prefilled)	Eli Lilly	1-3 hrs	2-8 hrs	20 hrs	Up to 14 days	3-ml (300 units)	N/A
	Novolin N Vial (NPH human insulin isophane)	Novo Nordisk	1-3 hrs	4-12 hrs	Up to 24 hrs	Up to 42 days	10 ml (1000 units)	N/A
LONG ACTING	Lantus Vial (insulin glargine)	Sanofi Aventis	1 hr	None	24 hrs	Up to 28 days	10 ml (1000 units)	N/A
	Lantus Cartridge	Sanofi Aventis	1 hr	None	24 hrs	Up to 28 days	3-ml (300 units)	Sanofi Aventis OptiClik pen
	Lantus Solostar (prefilled) pen	Sanofi Aventis	1 hour	None	24 hours	Up to 28 days	3 ml	N/A
	Levemir (detemir) vial	Novo Nordisk	0.8-2 hrs	Flat	5.7-24 hrs	Up to 42 days	10 ml (1000 units)	N/A
	Levemir (detemir) FlexPen™	Novo Nordisk	0.8-2 hrs	Flat	5.7-24 hrs	Up to 42days	3-ml (300 units)	N/A

	Insulin	Manufacturer	Onset (approx)	Peak (approx)	Duration (approx)	Room Temperature	Volume # of units	Pens that fit the cartridges
IINTERMEDIATE/RAPID-ACTING	Humalog Mix 75/25 Vial (75% NPL/25% lispro)	Eli Lilly	15-30 mins	0.5-2.5 hrs	Up to 24 hrs	Up to 28 Days	10 ml (1000 units)	N/A
	Humalog Mix 75/25 Kwik Pen (prefilled)	Eli Lilly	15-30 mins	0.5-2.5 hrs	Up to 24 hrs	Up to 10 days	3-ml (300 units)	N/A
	Humalog Mix 50/50 (50%Humalog/50% NPL (vial,3mL cartridge or 3mL Kwik Pen)	Eli Lilly	15-30 mins	0.5 to 24 hrs	Up to 24 hrs	Up to 28 days	3-ml (300 units)	N/A
	Novolog Mix 70/30 Vial (70% insulin aspartprotamine suspension/30% aspart)	Novo Nordisk	10-20 mins	2.4 hrs	Up to 24 hrs	Up to 28 days	10-ml (1000 units)	N/A
	Novolog Mix 70/30 FlexPen	Novo Nordisk	10-20 mins	2.4 hrs	Up to 24 hrs	Up to 14 days	3-ml (300 units)	N/A
INTERMEDIATE/ SHORT ACTING	Humulin 70/30 Vial (70% NPH/30% Reg)	Eli Lilly	30-60 mins	0.5-2.5 hrs	Up to 24 hrs	Up to 28 days	10 ml (1000 units)	N/A
	Humulin 70/30 Pen (prefilled)	Eli Lilly	30-60 mins	2-4 hrs	Up to 24 hrs	Up to 10 days	3-ml (300 units)	N/A
	Novolin 70/30 Vial (70% NPH 30% Regular)	Novo Nordisk	30 mins	2-12 hrs	24 hrs	Up to 42 days	10 ml (1000 units)	N/A
Pens and cartridges come in a box of 5 pens or cartridges								

These guidelines are not intended to replace the clinical judgment of healthcare providers. 12/28/10

Cardiovascular Disease and Diabetes

Diabetes greatly impacts the cardiovascular system. At the time of diagnosis, over 50% of patients may already have coronary artery disease.[1] For individuals with diabetes, cardiovascular disease (CVD) is a major cause of morbidity and mortality and contributes the most to the direct and indirect costs associated with the disease.[2] Adults with diabetes are 2-4 times more likely to die from heart disease than adults without diabetes.[3] CVD is listed as the cause of death in approximately 65% of people with diabetes.[4]

All cardiac risk factors should be evaluated and aggressively treated in patients with diabetes:

Risk Factor	Goal[2]	Comment
Hypertension	BP <130/80	The result of the United Kingdom Prospective Diabetes Study (UKPDS)[5] regarding blood pressure highlights the importance of blood pressure control in reducing diabetes-related mortality, cardiovascular events and microvascular complications. Guidelines recommend adjusting the treatment regimen to achieve a BP <130/80.
Dyslipidemia	LDL <100 mg/dL (<70 mg/dL with overt CVD) HDL > 50 mg/dL for women > 40 mg/dL for men Triglycerides < 150 mg/dL	Treat dyslipidemia aggressively to reduce the risk of coronary heart disease in patients with diabetes. Therapy to reduce LDL levels should be the first priority. Weight loss, exercise, increasing healthy fats, limiting refined grains, modest use of niacin and smoking cessation may be useful to raise HDL.
Cigarette Smoking	Avoidance Cessation	Healthcare providers should advise patients with diabetes not to initiate tobacco use and should counsel those who smoke to quit.
Hyperglycemia	A1c < 7% (ADA) A1c ≤ 6.5% (AACE)[7]	As close to normal (<6%) as possible without significant hypoglycemia.
Obesity = BMI > 30 Overweight = BMI > 25	BMI < 25 < 120% desirable weight	People with diabetes derive an even greater benefit from a healthy diet and exercise than those without diabetes.
Sedentary Lifestyle	Increased activity	Thirty minutes of exercise per day is recommended along with resistance training 3x/week. Aerobic exercise may be performed in 10 minute increments.[6]
Microalbuminaria	None or delayed Progression*	Microalbuminuria is a marker of increased cardiovascular disease risk.[2]

* "ACE inhibitors have been shown to reduce major CVD outcomes (i.e., myocardial infarction, stroke, death) in patients with diabetes, thus further supporting the use of these agents in patients with microalbuminuria…ARBs have also been shown to reduce the rate of progression from micro-to macroalbuminuria as well as ESRD in patients with type 2 diabetes."[2]

This project is funded by a cooperative agreement between the Centers for Disease Control and Prevention, Division of Diabetes Translation and the New Hampshire Department of Health and Human Services, Division of Public Health Services, Diabetes Education Program. For more information, please call 1-800-852-3345 x5173 or 603-271-5173

ACE and ARB Therapy[2]

Both Angiotensin-converting enzyme inhibitors (ACEs) and angiotensin receptor blockers (ARBs) work to prevent cardiac and renal damage in people with diabetes. Based on this knowledge, the ADA recommends as follows:

"Pharmacologic therapy for patients with diabetes and hypertension should be with a regimen that includes either an ACE inhibitor or an ARB. If one class is not tolerated, the other should be substituted. If needed to achieve blood pressure targets, a thiazide diuretic should be added to those with an estimated glomerular filtration rate (GFR) ≥ 30 mL/min per 1.73 m^2 and a loop diuretic for those with an estimated GFR <30 mL/min per 1.73 m2."

"If ACE inhibitors, ARBs or diuretics are used, kidney function and serum potassium levels should be closely monitored."

Aspirin Therapy in Diabetes[2]

- Consider aspirin therapy (75–162 mg/day) in those with type 1 or type 2 diabetes who are at increased risk for CVD. This includes most men >50 years of age or women >60 years of age who have at least one additional major risk factor.

- Aspirin therapy is not recommended for low-risk individuals (men <50 years of age or women <60 years of age) without other major risk factors. For patients in these age groups with multiple other risk factors, clinical judgment is required.

- Use aspirin therapy (75–162 mg/day) for secondary prevention in those with diabetes who have a history of CVD.

- For patients with CVD and documented aspirin allergy, clopidogrel (75 mg/day) should be used.

- Combination therapy with ASA (75– 162 mg/day) and clopidogrel (75 mg/day) is reasonable for up to a year after an acute coronary syndrome.

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[1] Aldasouqi SA, Gossain VV, Little RR. Undiagnosed diabetes equals undiagnosed CVD: a call for more effective diabetes screening. *Review of Endocrinology*. March, 2009:21-23.
[2] American Diabetes Association. Standards of medical care in diabetes – 2010. *Diabetes Care*. 2010;33(suppl 1);13-61.
[3] Centers for Disease Control and Prevention. National diabetes fact sheet: general information and national estimates on diabetes in the United States, 2007. Atlanta, GA: U.S. Department of Health and Human Services, Centers for Disease Control and Prevention;2008.
[4] Grundy SM, Benjamin IJ, et al. Diabetes and Cardiovascular disease: a statement for healthcare professionals from the American Heart Association. *Circulation*. 1999;100,1134-1146.
[5] UK Prospective Diabetes Study Group. Tight blood pressure control and risk of macrovascular and microvascular complications in type 2 diabetes:UKPDS 38. *BMJ* 1998;317:703–13. http://www.dtu.ox.ac.uk/index.php?maindoc=/ukpds/. Accessed April 6, 2009.
[6] US Department of Health and Human Services. 2008 Physical Activity Guidelines for Americans. Washington, DC:2008. www.health.gov/paguidelines. Accessed April 1, 2009.
[7] AACE Diabetes Mellitus Clinical Practice Guidelines Task Force. American Association of Clinical Endocrinologists medical guidelines for clinical practice for the management of diabetes mellitus. *Endocr Pract*. 2007;13(suppl 1):4-68.

This project is funded by a cooperative agreement between the Centers for Disease Control and Prevention, Division of Diabetes Translation and the New Hampshire Department of Health and Human Services, Division of Public Health Services, Diabetes Education Program. For more information, please call 1-800-852-3345 x5173 or 603-271-5173

Foot Inspection and Monofilament Use

There should be a visual foot inspection at every visit. Monofilament and pedal pulse exams should be performed at least annually to screen for diabetic neuropathy and peripheral vascular disease.

The Semmes-Weinstein monofilament exam provides a constant 10 grams of pressure without the risk of perforating the skin.

The foot exam also provides an excellent opportunity to educate your patients about proper daily foot care.

The Exam:

- Have the patient look away or close his or her eyes.
- Randomly test the sites shown on the diagram. Avoid any ulcers, calluses or sores.
- Touch the monofilament to the skin until it bends, then gently remove it.
- Elicit a response from the patient at each site. Lack of sensation at any given site may indicate diabetic neuropathy. DO NOT ASK THE PATIENT "did you feel that?," rather ask the patient where the monofilament is touching the foot.
- The monfilament should be cleaned after each patient exam.

TO ORDER MONOFILAMENTS

The U.S. Dept of Health and Human Resources, Health Resources and Services Administration (HRSA) provides a listing of sources for monofilaments at the following website: http://www.hrsa.gov/leap/default.htm

FOR MORE INFORMATION

American Diabetes Association. Standards of medical care in diabetes – 2010. *Diabetes Care*. 2010;33(suppl 1);11-61.

Boulton AJ, Armstrong DG, Albert SF, Frykberg RG, Hellman R, Kirkman MS, Lavery LA, Lemaster JW, Mills JL Sr, Mueller MJ, heehan P, Wukich DK: Comprehensive foot examination and risk assessment: a report of the task force of the foot care interest group of the American Diabetes Association, with endorsement by the American Association of Clinical Endocrinologists. *Diabetes Care*. 2008;31:1679–1685.

Rith-Najarians S, Reiber GE. Prevention of foot problems in persons with diabetes. *J Fam Prac*. 2000;49(suppl):30-39.

For Feet's Sake!

If you have diabetes, please take off your shoes and socks while you wait for your exam!

New Hampshire Diabetes Education Program
Division of Public Health Services

Healthy New Hampshire

Diabetic Nephropathy

To reduce risk/slow the progression of nephropathy, optimize *blood pressure* and *glucose control*.

Screen for microalbuminuria annually
- In patients with type 1 diabetes with duration greater than or equal to 5 years
- In all patients with type 2 diabetes beginning at the time of diagnosis

Measure serum creatinine annually
- Regardless of urine albumin excretion
- Use to estimate glomerular filtration rate (GFR) and state of chronic kidney disease (CKD)

Definitions and Testing Methods for Urine Albumin Excretion

Category	Spot Collection (µg/mg creatinine)	24-hr Collection (mg/24 hr)	Timed Collection (µg/min)
Normal	< 30	< 30	< 20
Microalbuminuria	30 - 299	30 - 299	20 – 199
Clinical Albuminuria	≥ 300	≥ 300	≥ 200

Reagent tablets or dipsticks for microalbumin may be used for screening. It is recommended that positive results using these methods be confirmed by a more specific method.

Before designating a patient as having microalbuminuria, two out of three tests within a 3-to-6-month period should show elevated levels. If a patient is designated as having microalbuminuria, refer to current American Diabetes Association Clinical Practice Recommendations for treatment recommendations and refer patient to specialist.

Exercise within 24 hours, infection, fever, chronic heart failure, marked hyperglycemia and hypertension may contribute to elevated urinary albumin levels.

For more information:
National Kidney and Urologic Diseases Information Clearing House
http://kidney.niddk.nih.gov/kudiseases/pubs/kdd/index.htm
National Kidney Foundation
http://www.kidney.org/

References:
American Diabetes Association. Nephropathy in Diabetes. *Diabetes Care*. 2004;27(suppl 1);79-83.
American Diabetes Association. Standards of medical care in diabetes – 2010. *Diabetes Care*. 2010;33(suppl 1);11-61.

Annual Urine Protein Screening Recommendation

Screen for Microalbuminuria

Spot collection (1st morning is preferred, but not necessary) with albumin specific dipstick.*

If Positive

Review Treatment Components:

- ✧ Get blood pressure below: 130/80
- ✧ Start on ACE inhibitor or ARB if not currently taking one
- ✧ Get Blood Sugars in Optimal Control
- ✧ Refer to Dietitian for review of dietary protein intake
- ✧ Refer to Diabetes Educator

Test for proteinuria within 3 months
by measuring albumin-creatinine ratio
on an untimed urine sample

If Negative
Recheck Annually

If Positive
Refer to Nephrologist

Urine albumin protein or spot (1st morning) urine microalbumin/creatinine ratio may be positive or elevated in the setting of poor glucose control, UTI, heavy exercise, fever or sepsis.

*Spot urine test predicts protein excretion as accurately as 24h collection.

Glomerular Filtration Rate: Stages of Chronic Kidney Disease

Stage	Description	GFR (ml/min per 1.73 m^2 body surface area)
1	Kidney Damage (with normal or increased GFR)	≥90
2	Kidney Damage (with mildly decreased GFR)	60-89
3	Moderately Decreased GFR	30-59
4	Severely Decreased GFR	15-29
5	Kidney Failure	<15 or dialysis

Diabetic Eye Disease

Background

Diabetes is the leading cause of new blindness among adults aged 20-74. From 12,000 to 24, 000 new cases occur each year in the United States.[1] The most common vision complication for people with diabetes is diabetic retinopathy - damage to the blood vessels of the eye - caused by elevated blood glucose. People with diabetes are also more likely to develop cataracts and glaucoma. Some may experience blurred vision, but they may have no symptoms at all.[2]

Thus it is essential for people with diabetes to receive routine eye care. Annual dilated retinal examinations (DRE) are recommended to prevent or identify vision problems. A dilated eye exam may also identify undiagnosed diabetes. Severe vision loss can be reduced by up to 60% through early detection and treatment with laser therapy.[1] Optimization of glycemic and blood pressure control can reduce the risk or slow the progression of retinopathy.[3]

ADA Screening Recommenations[3]

Initial dilated and comprehensive examinations are recommended for:

- Adults and children over the age of 10 with type one diabetes within 5 years after the onset of diabetes
- Patients with type 2 diabetes should be seen shortly after the diagnosis

Annual examinations by an optometrist or ophthalmologist are recommended thereafter for all patients with diabetes.

Women who are pregnant or are planning a pregnancy and have preexisting diabetes:

- Should have an eye exam in the first trimester
- Receive close follow-up throughout pregnancy
- Receive follow-up one year postpartum

Stages of Diabetic Retinopathy[2]

Stage	Description
1) Mild Nonproliferative Retinopathy	Microaneurysms occur Small areas of "balloon-like" swelling in blood vessels of the retina
2) Moderate Nonproliferative Retinopathy	Some blockage of blood vessels
3) Severe Nonproliferative Retinopathy	Many blood vessels are blocked Signal to grow new vessels
4) Proliferative Retinopathy	Growth of new vessels that may leak blood, causing vision loss

ADA Treatment Recommendations[2]

- Refer patients with any level of macular edema, severe NPDR or any PDR to an ophthalmologist who has knowledge and experience in dealing with diabetic retinopathy.
- In patients with advanced disease, laser photocoagulation therapy is indicated to reduce vision loss.
- Aspirin therapy is not contraindicated in patients with retinopathy who are on aspirin therapy for cardioprotection.

References:

[1]National diabetes fact sheet: general information and national estimates on diabetes in the United States, 2007. Atlanta, GA: U.S. Department of Health and Human Services, Centers for Disease Control and Prevention;2008.

[2]Diabetic retinopathy. National Eye Institute website. http://www.nei.nih.gov/health/diabetic/retinopathy.asp. Updated April 2006. Accessed June 11, 2009.

[3] American Diabetes Association. Standards of medical care in diabetes – 2010. *Diabetes Care*. 2010;33(suppl 1);11-61.

For more information:

American Diabetes Association: Retinopathy in diabetes. *Diabetes Care.* 2004;27(Suppl. 1):84 –87.

Ciulla TA, Amador AG, Zinman B: Diabetic retinopathy and diabetic macular edema: pathophysiology, screening, and novel therapies. *Diabetes Care*. 2003;26:2653–2664.

The Oral Health-Diabetes Connection

Background

Diabetes is associated with a number of oral disorders including gingivitis, periodontitis, salivary dysfunction, taste disorders, and oral mucosal diseases such as candidiasis and lichen planus.[1] People with diabetes are more than twice as likely to develop periodontal disease than people without diabetes.[1,2,3] Periodontal disease may be the first clinical manifestation of diabetes and has been cited as the "sixth complication."[1,3,4,5] People with diabetes will often experience earlier onset of periodontal disease that is more severe and accompanied by more tooth loss than people without diabetes.[1,2,6]

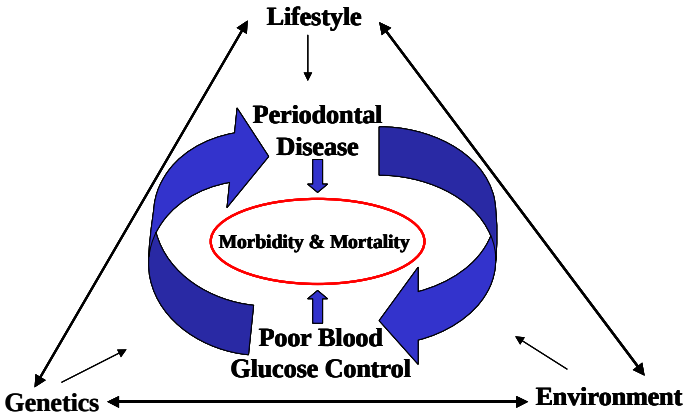
There is evidence that people with diabetes do not perceive a need to visit the dentist.[7] However, the American Diabetes Association recommends that people with diabetes have a dental exam at least once every six months. They should be seen more often if they have advanced periodontal disease or their diabetes is uncontrolled. There may be significant medical cost savings for patients with diabetes who receive routine, non-surgical periodontal treatment as these treatments have important anti-inflammatory effects.[8]

Morbidity and Mortality Associated with Periodontal Disease

Inflammation is the primary mechanism linking periodontal disease with diabetes[1,2,3] and other conditions such as heart disease, stroke, and complications of pregnancy.[9] Baseline periodontal disease may be an independent predictor of incident type 2 diabetes mellitus.[10] In patients with diabetes, periodontal disease has been linked to mortality from ischemic heart disease and diabetic nephropathy[11] as well as end-stage renal disease.[12] There is a bi-directional relationship between periodontal disease and diabetes. Periodontal disease may lead to poor glycemic control primarily through insulin resistance, and poor glycemic control may predispose a patient to periodontal disease by way of delayed wound healing.[2,3,4,13] Thus, treating one condition may have a favorable impact on the other.[1,2,6]

Signs of periodontal disease[2]

- Pain or mouth sores
- Bleeding during brushing, flossing, or eating
- Red, swollen, or tender gums
- Gums that seem to have pulled away from teeth
- Loose or separated teeth
- Pus around the teeth
- Persistent bad breath
- A change in the way the teeth fit together



M. Lara, 2009

Considerations for Primary Care Providers (Adapted from Southerland, 2005)

Primary care providers have a unique opportunity to educate their patients on the importance of good oral health as a part of overall diabetes management.

1) Ask patients about their oral health. Do they have bleeding gums, bad breath, mobile teeth, etc?
2) Perform an oral risk assessment that includes an evaluation of the patient's diet, smoking status, glycemic control, visible periodontal disease, and frequency of dental visits.
3) Assist the patient in finding a dental home, if needed. See the attached list of dental providers with sliding fee scales. Tell the dentist about the state of the patient's oral health including visible signs of periodontal disease.

This project is funded by a cooperative agreement between the Centers for Disease Control and Prevention, Division of Diabetes Translation and the New Hampshire Department of Health and Human Services, Division of Public Health Services, Diabetes Education Program. For more information, please call 1-800-852-3345 x5172 or 603-271-5172.

*****This information is not intended to replace the clinical judgment of healthcare providers.*****

[1] Lamster IB, Lalla E, Borgnakke WS, Taylor GW. The relationship between oral health and diabetes mellitus. *J Am Dent Assoc*. 2008;139 (suppl 4):19-24.
[2] Jahn, CA. Good oral health contributes to good total health; the role of the diabetes educator. *Diabetes Educ*. 2004;20:754-760.
[3]Hampton, T. Studies probe oral health-diabetes link. JAMA. 2008;300(21):2471-2473.
[4] Kunzel C, Lalla E, Lamster I. Dentists' management of the diabetic patient: contrasting generalists and specialists. *Am J Public Health*. 2007;97:725-730.
[5]Kidambi S and Patel SB. Diabetes mellitus, considerations for dentistry. *J Am Dent Assoc*. 2008;139(suppl 10): 8S-18S.
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[9] Oral and whole body health. *Sci Am*. 2006.
[10] Demmer RT, Jacobs DR, Desvarieux M. Periodontal disease and incident type 2 diabetes. *Diabetes Care*. 2008;31:1373-1379.
[11] Saremi A, Nelson RG, Tulloch-Reid M et. al. Periodontal disease and mortality in type 2 diabetes. *Diabetes Care*. 2005;28:27-32.
[12] Shultis WA, Weil EJ, Looker HC et. al. Effect of periodontitis on overt nephropathy and end-state renal disease in type 2 diabetes. *Diabetes Care*. 2007;30:306-311.
[13] Southerland JH, Taylor GW, Offenbacher S. Diabetes and periodontal infection. *Clinical Diabetes*. 2005;23(4):171-178.

This project is funded by a cooperative agreement between the Centers for Disease Control and Prevention, Division of Diabetes Translation and the New Hampshire Department of Health and Human Services, Division of Public Health Services, Diabetes Education Program. For more information, please call 1-800-852-3345 x5172 or 603-271-5172.

*****This information is not intended to replace the clinical judgment of healthcare providers.*****

Revised 2/2010

New Hampshire Dental Centers with Sliding Fee Scales

Geographic Region	Dental Center	Address	Eligibility Requirements	Telephone
Concord	Concord Hospital Family Health Center	250 Pleasant St. Concord, NH 03301	Adults enrolled as medical patients at the hospital health center	228-7200
Conway	White Mountain Community Health Center	298 White Mountain Hwy Conway, NH 03818	Adults and children enrolled as medical patients at the health center	447-8900
Coos and North Grafton County	Molar Express North Country Health Consortium	7 Main St. Whitefield, NH 03598	Adults and children, insured and uninsured and with Medicaid	837-2643 ext. 604
Dover	Avis Goodwin Community Health Center	19 Rollinsford Rd. Dover, NH 03820	Any child enrolled in Healthy Kids Gold and Silver and adults who are medical patients of the health center.	749-2346
Dover	Wentworth Douglass Community Dental center	668 Central Avenue Dover, NH 03820	Children enrolled in Healthy Kids Gold and Silver and financially eligible adults living in the hospital service area	749-3013
Exeter	Exeter Hospital Core Pediatric Dentistry	5 Hampton Rd. Exeter, NH 03833	Medicaid enrolled and uninsured children living in hospital service area	773-4900
Exeter	Exeter Hospital Core General Dentistry	23 Hampton Rd. Exeter, NH 03833	Low-income adults living in hospital service area.	580-7334
Keene	Dental Health Works	69 Island St. # V Keene, NH 03431	Adults and children living in Cheshire County	358-6624
Laconia	Lakes Region Hospital, Dental Resource Center	80 Highland St. Laconia, NH 03246	Adults and children enrolled in Health Link	527-7112
Manchester	Poisson Dental Center at Catholic Medical Center	100 McGregor St. Manchester, NH 03102	Medicaid enrolled and uninsured children under 21 years and adults referred from 8 associated agencies	663-6226
Nashua	Greater Nashua Dental Connection	31 Cross St. Nashua, NH 03064	Medicaid enrolled and uninsured adults and children living in Nashua and surrounding towns.	879-9314
Portsmouth	Families First of the Greater Seacoast	100 Campus Drive Portsmouth, NH 03801	Children and adults enrolled as medical patients at the health center	422-8208
Rochester	Avis Goodwin Community Health Center	22 South Main St. Rochester, NH 03867	Any child enrolled in Health Kids Gold and Silver and adults who are medical patients of the health center.	332-4249
Sullivan County	Community Dental Care of Claremont	1 Tremont St. Claremont, NH 03743	Adults and children living in Sullivan County	287-1300
Statewide	Easter Seals Dental Center	555 Auburn St. Manchester, NH 03103	Medicaid enrolled children living in NH	621-3482
Statewide	Tamworth Dental Center	448B White Mountain Highway Tamworth, NH 03886	Medicaid enrolled, uninsured & insured children and adults living in NH	323-7645
Whitefield	Weeks Medical Center, Mountain View Dental	8 Clover Lane Whitefield, NH 03598	Adults and children enrolled as medical patients at Weeks Medical Center	Fax: 788-5286

This project is funded by a cooperative agreement between the Centers for Disease Control and Prevention, Division of Diabetes Translation and the New Hampshire Department of Health and Human Services, Division of Public Health Services, Diabetes Education Program. For more information, please call 1-800-852-3345 x5172 or 603-271-5172.

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Healthy New Hampshire

For a Web based BMI calculator, visit:
http://www.cdc.gov/healthyweight/assessing/bmi/index.html

New Hampshire Diabetes Education Program
Division of Public Health Services

Body Mass Index Table

	Normal						Overweight					Obese										Extreme Obesity																				
BMI	**19**	**20**	**21**	**22**	**23**	**24**	**25**	**26**	**27**	**28**	**29**	**30**	**31**	**32**	**33**	**34**	**35**	**36**	**37**	**38**	**39**	**40**	**41**	**42**	**43**	**44**	**45**	**46**	**47**	**48**	**49**	**50**	**51**	**52**	**53**	**54**
Height (inches)	**Body Weight (pounds)**																																							
58	91	96	100	105	110	115	119	124	129	134	138	143	148	153	158	162	167	172	177	181	186	191	196	201	205	210	215	220	224	229	234	239	244	248	253	258
59	94	99	104	109	114	119	124	128	133	138	143	148	153	158	163	168	173	178	183	188	193	198	203	208	212	217	222	227	232	237	242	247	252	257	262	267
60	97	102	107	112	118	123	128	133	138	143	148	153	158	163	168	174	179	184	189	194	199	204	209	215	220	225	230	235	240	245	250	255	261	266	271	276
61	100	106	111	116	122	127	132	137	143	148	153	158	164	169	174	180	185	190	195	201	206	211	217	222	227	232	238	243	248	254	259	264	269	275	280	285
62	104	109	115	120	126	131	136	142	147	153	158	164	169	175	180	186	191	196	202	207	213	218	224	229	235	240	246	251	256	262	267	273	278	284	289	295
63	107	113	118	124	130	135	141	146	152	158	163	169	175	180	186	191	197	203	208	214	220	225	231	237	242	248	254	259	265	270	278	282	287	293	299	304
64	110	116	122	128	134	140	145	151	157	163	169	174	180	186	192	197	204	209	215	221	227	232	238	244	250	256	262	267	273	279	285	291	296	302	308	314
65	114	120	126	132	138	144	150	156	162	168	174	180	186	192	198	204	210	216	222	228	234	240	246	252	258	264	270	276	282	288	294	300	306	312	318	324
66	118	124	130	136	142	148	155	161	167	173	179	186	192	198	204	210	216	223	229	235	241	247	253	260	266	272	278	284	291	297	303	309	315	322	328	334
67	121	127	134	140	146	153	159	166	172	178	185	191	198	204	211	217	223	230	236	242	249	255	261	268	274	280	287	293	299	306	312	319	325	331	338	344
68	125	131	138	144	151	158	164	171	177	184	190	197	203	210	216	223	230	236	243	249	256	262	269	276	282	289	295	302	308	315	322	328	335	341	348	354
69	128	135	142	149	155	162	169	176	182	189	196	203	209	216	223	230	236	243	250	257	263	270	277	284	291	297	304	311	318	324	331	338	345	351	358	365
70	132	139	146	153	160	167	174	181	188	195	202	209	216	222	229	236	243	250	257	264	271	278	285	292	299	306	313	320	327	334	341	348	355	362	369	376
71	136	143	150	157	165	172	179	186	193	200	208	215	222	229	236	243	250	257	265	272	279	286	293	301	308	315	322	329	338	343	351	358	365	372	379	386
72	140	147	154	162	169	177	184	191	199	206	213	221	228	235	242	250	258	265	272	279	287	294	302	309	316	324	331	338	346	353	361	368	375	383	390	397
73	144	151	159	166	174	182	189	197	204	212	219	227	235	242	250	257	265	272	280	288	295	302	310	318	325	333	340	348	355	363	371	378	386	393	401	408
74	148	155	163	171	179	186	194	202	210	218	225	233	241	249	256	264	272	280	287	295	303	311	319	326	334	342	350	358	365	373	381	389	396	404	412	420
75	152	160	168	176	184	192	200	208	216	224	232	240	248	256	264	272	279	287	295	303	311	319	327	335	343	351	359	367	375	383	391	399	407	415	423	431
76	156	164	172	180	189	197	205	213	221	230	238	246	254	263	271	279	287	295	304	312	320	328	336	344	353	361	369	377	385	394	402	410	418	426	435	443

Source: Adapted from *Clinical Guidelines on the Identification, Evaluation, and Treatment of Overweight and Obesity in Adults: The Evidence Report.*

NH DHHS, Division of Public Health Services, Diabetes Education Program, Revised 2006

Influenza Immunization for Persons with Diabetes

Why get vaccinated?

- Influenza (flu) can be a serious disease.
- People with diabetes are at increased risk for complications from influenza. Immunization is the best defense.

What are the two types of flu vaccine?

- The "flu shot" – an inactivated vaccine (containing killed virus) that is given with a needle, usually in the arm.
- The nasal-spray flu vaccine – a vaccine made with live, weakened flu viruses that do not cause the severe symptoms generally associated with the influenza virus. This is only approved for healthy people, age 2 to 49 years of age, and is not recommended for people with diabetes.

What are the side effects from the flu shot?

- The influenza vaccine "flu shot" is very safe. The viruses in the vaccine are killed so you cannot get influenza from the vaccine.
- Mild problems may include soreness, redness or swelling where the shot was given, fever or aches. If these problems occur, they usually begin soon after the shot and last 1-2 days. Severe allergic reaction has been reported very rarely.

Who should get vaccinated?

- Anyone with diabetes over 6 months of age. The vaccine is also recommended for individuals living or working closely with people with diabetes.

When to get vaccinated?

- Every year. Because the virus responsible for the flu changes frequently, a new vaccine is manufacturered every fall. October or November are the best times to get vaccinated. People may be vaccinated throughout the flu season (October to May).

What is the cost?

- Medicare and many other insurance plans cover the cost of influenza vaccination. Speak with your doctor or insurance company, or look for a flu vaccine clinic in your area.

For More Information:

http://www.cdc.gov/vaccines/

American Diabetes Association. Standards of medical care in diabetes – 2010. *Diabetes Care*. 2010;33(suppl 1);11-61.

Pneumococcal Immunization for Persons with Diabetes

Why get vaccinated?

- Pneumococcal disease can result in serious infections involving the lungs, blood, and brain.
- People with diabetes are at increased risk from pneumococcal disease. Immunization is the best defense.

Who should get vaccinated?

- Pneumococcal polysaccharide vaccine (PPSV) is recommended for anyone with diabetes aged 2 and older. This is not to be confused with pneumococcal conjugate vaccine (PCV7) that children under 2 years of age receive as part of their regular immunization schedule.

How many doses of the vaccine are needed?

- Usually one dose of vaccine is all that is needed.
- Re-vaccination may be recommended for persons with certain medical problems such as kidney failure. A second dose is also recommended for those people 65 and older who got their first does when they were under 65, if five or more years have passed since the earlier dose.

What is the cost?

- Medicare and many other insurance plans cover the cost of pneumococcal vaccination.

What are the side effects from the vaccine?

- The pneumococcal vaccine is very safe.
- About half of the people who get the vaccine have very mild side effects such as redness or pain at the injection site.
- Less than 1% develop fever or muscle aches.
- Severe allergic reaction has been reported very rarely.

For More Information:

http://www.cdc.gov/vaccines/

American Diabetes Association. Standards of medical care in diabetes – 2010. *Diabetes Care*. 2010;33(suppl 1);11-61.

Medical Nutrition Therapy

According to the 2010 Standards of Medical Care in Diabetes issued by the American Diabetes Association, individuals who have pre-diabetes or diabetes should receive Medical Nutrition Therapy (MNT) by a Registered Dietitian.

MNT is "the use of specific nutrition services to treat an illness, injury, or condition and involves two phases *1*) assessment of the nutritional status of the client and *2*) treatment, which includes nutrition therapy, counseling, and the use of specialized nutrition supplements."**

MNT is an essential component of diabetes self-management education. It can result in cost savings and improved outcomes.

Goals of Medical Nutrition Therapy

Decrease the risk of diabetes and cardiovascular disease (CVD) by promoting healthy food choices and physical activity leading to moderate weight loss that is maintained.

Manage diabetes and prevent complications associated with the disease.

Prevention of Cardiovascular Disease

Dietary goals for patients with diabetes are the same for individuals with pre-existing CVD.

- Dietary cholesterol < 200 mg/day
- Saturated fat no more than 7% total caloric intake
- 14g fiber/1,000 kcal and ½ of daily grain intake should be whole grains
- Limit intake of *trans* fats
- Two or more servings of fish per week
- Intake of 2 grams/day of plant sterol and stanol esters may decrease total and LDL cholesterol

Diabetes Management

- Diets should be individualized to achieve weight loss and ideal lipid profiles
- Carbohydrate counting, exchanges, or experience-based estimation may be used to monitor carbohydrate intake
- Insulin to carbohydrate ratios may be used to assist with tighter glucose control
- Use of glycemic index may assist in achieving glycemic control

Energy Balance, Overweight, and Obesity

- Modest weight loss (7%) is recommended for all overweight or obese individuals who have or are at risk for developing diabetes
- In the short-term, low carbohydrate or low fat diets may be effective for weight loss
- 150 minutes/week of moderate-intensity physical activity
- Resistance training 3 times per week

American Diabetes Association. Standards of medical care in diabetes – 2010. *Diabetes Care*. 2010;33(suppl 1);11-61.
American Diabetes Association. Nutrition Recommendations and Interventions for Diabetes. *Diabetes Care*. 2008;31(suppl 1):61-78.
**Green JG, Warshaw H, Daly A, Franz M, Kulkarni K. The evidence for the effectiveness of medical nutrition therapy in diabetes management. *Diabetes Care*. 2002;25:608-613.

Guidelines for Diabetes Care

		Frequency	Description/Comments
History & Physical	Blood Pressure and Weight	Every 3 Months	If BP above 130/80 initiate measures to lower
	Fundoscopic Exam	Every 3 Months	
	Dilated Eye Exam	Annual	Refer to ophthalmologist or optometrist
	Oral Exam	Annual	Examine for lesions and yeast infections
	Dental Exam	At least every 6 months	Refer to dental professional
	Foot Exam	Every 3 Months	Visual exam **without** shoes and socks every visit
	Pedal Pulse and Monofilament	Annual	Refer to podiatrist if indicated
	Skin Evaluation	Ongoing	Sx assessment q 3 mo
	Gynecological Evaluation	Annual	Speculum exam annually
	Flu Vaccine	Every Fall	
	Pneumovax	As Indicated*	Varies with age and risk
	Smoking Status	Annual/Ongoing	Check every visit/Encourage smoking cessation
	Review Treatment Plan	Every 3 Months	Check self monitoring log book: diet, exercise
	Review Education Plan	Initial/Ongoing	Refer for diabetes education
Labs	A1c	Every 3 Months	For patients in general: <7% (ADA) or ≤6.5% (AACE); Ideal individual target: as close to normal as possible without significant hypoglycemia
	Fasting/Random Blood Glucose	As Indicated	Compare lab result with glucose self monitoring
	Fasting Lipid Profile	Annually	Every 2 years in adults with low-risk lipid profiles
	Urinalysis	Annual	If protein negative or trace, test for microalbumin If ≥ 1+ proteinurea, test 24 hr urine protein and CrCl and initiate treatment as indicated
	Urine Microalbumin/Creatinine	Initial/Annual	Test if protein negative or trace on UA If positive, recheck q 3 mo. x 2 before treatment
	Serum Creatinine	Initial/Annual/As Indicated	Check at least 2x/year if patient on metformin
	Thyroid Function	Initial	Every 5 years in type 1
Self Management	Diabetes Self-Management Education	Initial/Ongoing	See diabetes education content areas on reverse side
	Glucose Self Monitoring Goals	Every 3 Months	Assess progress / Negotiate goals
	Medical Nutrition/ Weight Management	Every 3 Months	Assess progress / Negotiate goals Refer to dietitian
	Physical Activity/ Exercise Levels	Annual/Ongoing	Assess/Prescribe based on patient's health status
Counseling	Tobacco Use	Annual/Ongoing	Assess readiness / Counsel cessation / Refer
	Alcohol/Substance Abuse	Ongoing	Utilize CAGE questionnaire / Counsel / Refer
	Foot/Skin Care	Every 3 Months	Educate on daily care and inspection
	Psychosocial Status	Annual/Ongoing	Suggest diabetes support group / Counsel / Refer
	Sexuality/Impotence	Annual/Ongoing	Discuss diagnostic evaluation and therapeutic options
	Preconception	Initial/Ongoing	Need for tight glucose control 3-6 mo preconception
	Pregnancy	Initial/Ongoing	Early referral to OB/GYN

*See pneumococcal vaccination fact sheet for details

These guidelines are based on the *American Diabetes Association: Clinical Practice Recommendations 2010. These guidelines are not intended to replace the clinical judgment of healthcare providers.* *Revised 2/2010.*

This project is funded by a cooperative agreement between the Centers for Disease Control and Prevention, Division of Diabetes Translation and the New Hampshire Department of Health and Human Services, Division of Public Health Services, Diabetes Education Program. For more information, please call 1-800-852-3345 x5172 or 603-271-5172.

Essential Educational Components for *Diabetes Self-Management Education*[1]

A high quality diabetes self-management education program should provide comprehensive instruction in the content areas listed below. The curriculum, instructional methods, and materials should be appropriate for each individual's needs, considering the type and duration of diabetes, age, cultural influences and learning styles. Most patients need ongoing self-management support to effectively manage diabetes.

Content Area	May include, but are not limited to these topics
Diabetes disease process and treatment options	Type of diabetes Role of insulin Insulin Resistance (benefit of weight loss and exercise) Treatment methods/lifestyle
Nutrition	5-10% weight loss; Nutritional adequacy; Portions Plate method; Dining out; Fat reduction Insulin/CHO ratio; DASH diet; High fiber diet CHO counting; Target CHO (meal/snack); Omega-3 fatty acids Label reading; Alcohol Renal modifications; Hyperlipedemia diet
Physical Activity	Benefits, hypo/hyperglycemia, frequency, and precautions
Medications	Action Precautions Interactions Name, dose, schedule <u>Insulin and other injectibles</u> Type/peak/source; Pen system Injection technique; Storage/shelf life Mixing; Regimen Site selection; Drawing up insulin Disposal; Timing of insulin Sick day management
Monitoring blood glucose and use of results	Technique; Frequency; Documentation Assessing results; Meter QC/maintenance; BG log review Target BG When to call provider
Prevention, detection, and treatment of chronic *and* acute complications	Lipids Influenza and pneumococcal vaccination A1C Microalbumin Blood pressure Monofilament foot exams Tobacco cessation Pregnancy planning and risks Eye care and oral health Retinopathy Blood pressure management Nephropathy Sexual Neuropathy Infection Cardiac Surgery Hypo/hyperglycemia
Psychosocial Issues and concerns	Coping, stress, family role, referral
Personal strategies to promote health and behavior change	Draft and assess S.M.A.R.T.* goals and follow up *at least* on an annual basis Dental Care, daily skin and foot care, use of self-care card *SMART= specific, measurable, achievable, realistic and time bound

[1] Funnell MM, Brown TL, Childs BP, et. al. National standards for diabetes self-management education. *Diabetes Care*. 2008;31(suppl 1) 97-104.

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NH Department of Health and Human Services, Division of Public Health Services
Diabetes Education Program and the NH Diabetes Coalition Guidelines Committee

Flow Sheet for Diabetes Care

Patient:_____ Date of Birth_____

Allergies: Yes_____None Known:_____ Type 1:_____Type 2:_____Pre-diabetes:_____

Foot Care by:_____ Eye Care by:_____ DM Onset Date: _____

VISIT DATE:								
HISTORY AND PHYSICAL								
Complete History & Physical (including risk factors, tobacco use, exercise & diet)								
Blood Pressure (Goal<130/80)								
Height _____ Current Weight:								
BMI (Target BMI<25)								
Eyes Fundoscopic(Qtrly) /**D**ilated Referral (Annual)								
Dental Exam (Every 6 months)								
Foot Exam (Every 3 months) (**V**=Visual Inspection, **M**=Monofilament, **R**=Referral)								
Pneumovax Date:_____ **Flu** Shot (Annual):								
LABORATORY								
HbA1c (every 3-6 months)								
Home BG Self Monitoring Results (Review patterns)								
Blood Sugar (**F**asting or **R**andom)								
Fasting Total Cholesterol (Annual)								
LDL < 100 mg/dL (< 70 mg/dL with overt CVD)								
HDL > 50 mg/dL for women and > 40 mg/dL for men								
Triglycerides < 150 mg/dL								
Urinalysis (Annual)								
Microalbumin <30 mg/g (or 24 hr Urine CrCl) (Annual)								
Creatinine ratio or Serum Creatinine (Annual)								
COUNSELING AND EDUCATION								
Diabetes Self-Management Education (annual)								
Tobacco: Yes No								
Alcohol Use: Yes No								
Physical Activity & Exercise Levels								
Nutrition & Weight Management								
Dietitian Referral								
Self Monitoring of Blood Glucose Meter:								
Foot & Skin Care								
Sexuality & Preconception Counseling								
Psychosocial Assessment & Depression Screening http://www.depression-primarycare.org/clinicians/toolkits/materials/forms/phq9/								
Aspirin use:Yes No N/A								
ARB/ACE use: Yes No N/A								
Self management goals Yes No								

Reference: American Diabetes Association. Standards of medical care in diabetes – 2010. *Diabetes Care*. 2010;33(suppl 1);11-61.

Revised 2/2010

ALCOHOL & DIABETES – TIPS FOR PROVIDERS

WHEN TO SCREEN FOR ALCOHOL PROBLEMS:

- ✓ At regular check-ups for chronic conditions, e.g. diabetes
- ✓ As part of every annual physical exam
- ✓ When prescribing a new medication
- ✓ When the patient is experiencing major stressful life changes
- ✓ When signs and symptoms of alcohol abuse are present, e.g. sleep complaints, injuries, depression, or self-neglect

RESEARCH SHOWS SCREENING AND BRIEF INTERVENTION BY PHYSICIANS OR OTHER CLINICIANS REDUCES RISKY ALCOHOL CONSUMPTION. MANY PEOPLE WILL ADOPT HEALTHIER BEHAVIORS SIMPLY UPON RECEIVING ADVICE FROM A HEALTHCARE PROFESSIONAL.

Physicians should:

- ✓ Provide specific feedback based on the screening, relating alcohol use to the patient's medical condition
- ✓ Affirm the patient's ability to adopt healthier behaviors
- ✓ Provide specific recommendations
- ✓ Offer options, if medically appropriate, and a specific time for follow-up
- ✓ Provide patient educational materials

WARNING SIGNS OF ALCOHOL ABUSE:

If your patient answers "Yes" to any of the following questions, they may have a problem with alcohol:

- ✓ Do you drink alone when you feel angry or sad?
- ✓ Does your drinking ever make you late for work?
- ✓ Does your drinking worry your family?
- ✓ Do you ever drink after telling yourself you won't?
- ✓ Do you ever forget what you did while drinking?
- ✓ Do you get headaches or have a hangover after drinking?

Source: SAMSHA, *How to Cut Down on Your Drinking*

Practitioner Pocket Guide for Alcohol Screening and Brief Intervention
http://pubs.niaaa.nih.gov/publications/practitioner/pocketguide/pocket_guide.htm

Helping People Who Drink Too Much—a Clinicians Guide:
http://pubs.niaaa.nih.gov/publications/practitioner/cliniciansguide2005/clinicians_guide.htm

Resource Guide For Alcohol and Drug Prevention & Treatment Services in NH available at:
http://www.dhhs.state.nh.us/DHHS/ATOD/LIBRARY/Brochure/res-guide.htm

EDUCATE PATIENTS with diabetes who choose to consume alcohol and remind them of the following:

- ✓ Alcohol intake should be limited to the recommended amounts (see chart below)
- ✓ Excessive amounts of alcohol (3 or more drinks per day), on a consistent basis, contributes to hyperglycemia
- ✓ Evening consumption of alcohol may increase the risk of nocturnal and fasting hypoglycemia, particularly in persons with type 1 diabetes
- ✓ Alcohol mixed with insulin or diabetes medication can cause blood sugar levels to drop
- ✓ Individuals using insulin or insulin secretagogues should consume alcohol with food to avoid hypoglycemia
- ✓ Non-alcoholic beer, regular beer, wine coolers, and drink mixers (soda, juice, tonic, margarita/daiquiri mix) contain sugars and carbohydrates that can elevate blood glucose levels
- ✓ Diabetes identification should always be carried, as signs and symptoms of hypoglycemia can be misidentified as intoxication (dizziness, disorientation, and sleepiness)

Standard Drinking Chart

One Standard Drink is equal to:

One glass (5 oz.) of wine

One can/bottle (12 oz.) of beer

One shot (1.5 oz.) hard liquor

One glass (4 oz.) sherry, liqueur, or aperitif

RECOMMENDED ALCOHOL INTAKE FOR PEOPLE WITH DIABETES

*If adults with diabetes choose to use alcohol, daily intake should be limited to a moderate amount.**

Women—No more than one drink per day

Men—No more than two drinks per day

**Diabetes Care, Volume 32, Supplement 1, January 2009*

Intake of alcohol should be avoided completely by:

- ✓ Patients with a history of alcohol abuse or dependence
- ✓ Patients with hypoglycemic unawareness
- ✓ Pregnant women
- ✓ People with medical problems such as liver disease, pancreatitis, advanced neuropathy, or severe hypertriglyceridemia

** ***These guidelines are not intended to replace the clinical judgment of healthcare providers*** **

NH DHHS—Bureau of Drug and Alcohol Services—105 Pleasant Street, Concord, NH 03301—800-804-0909 or 603-271-6110

Smoking and Diabetes

Background

Smoking is the number one cause of preventable death worldwide.[1] It has been associated with the development of type 2 diabetes and is known to contribute to diabetic complications.[2,3,4] Active smokers are at a higher risk for type 2 diabetes than former smokers and the relationship may be dose-dependent.[3] Smoking can interfere with insulin action in patients with pre-existing diabetes.[3] Additionally, smoking is associated with the development and progression of macrovascular complications (cardiovascular disease) as well as microvascular complications including nephropathy, neuropathy, and retinopathy.[2,3,4]

Despite the serious health risks, patients with diabetes smoke at a rate equal to that of the general population. The cessation recommendations are the same for people with and without diabetes.[3] Tobacco dependence should be treated as a chronic disease with patients receiving ongoing care and support. When delivered by a clinician, even minimal interventions (3 minutes or less) can make a difference.[5]

ADA Recommendations

- Advise all patients not to smoke[2]
- Routinely include smoking cessation counseling and other forms of treatment as part of regular care[2]
- Use the "5 A's" Model for Treating Tobacco Use and Dependence [4]

The "5 A's" Model for Treating Tobacco Use and Dependence[5]

Treating Tobacco Use and Dependence Clinical Practice Guideline 2008 Update
U.S. Department of Health and Human Services, Public Health Service

Ask about tobacco use at every visit	Implement an office system that ensures that, for every patient at every visit, tobacco-use status is queried and documented.
Advise all tobacco users to quit	"I strongly advise you to quit smoking, and I can help you."
Assess willingness to make a quit attempt	Ask every tobacco user if s/he is willing to make a quit attempt.
Assist tobacco users in a quit attempt	Provide brief counseling, recommend use of pharmacotherapy (unless contraindicated), and provide educational materials.
Arrange follow-up	Provide referrals and review progress at subsequent visits.

Smoking Cessation Resources in New Hampshire

- **Quitworks-NH**
- A tool for health care providers to aid the cessation efforts of their patients; hosts the fax-to-quit referral forms
- www.quitworksnh.org

- **Try-To-STOP TOBACCO Website**
- Fact sheets and information about local tobacco treatment resources; hosts the self-referral form for NH residents
- www.trytostopnh.org

- **The New Hampshire Smokers' Helpline**
- Free telephone-based counseling and print materials and referrals to local tobacco treatment programs
- 1-800-Try-to-Stop (1-800-879-8678); 1-800-DE'JALO (1-800-833-5256); 1-800-TDD-1477 (TYY/TDD)

- **New Hampshire Tobacco Prevention and Control Program**
- Free training and technical assistance on systems changes including implementation of the "5 A's" Model
- http://www.dhhs.state.nh.us/DHHS/ATOD/TPCP.htm

[1] Willi C, Bodenmann P, Ghali WA, Faris PD, Cornuz J. Active smoking and the risk of type 2 diabetes. *JAMA*. 2007;298(22):2654-2664.
[2] American Diabetes Association. Standards of medical care in diabetes – 2009. *Diabetes Care*. 2009;32(suppl 1);13-61.
[3] American Diabetes Association. Smoking and Diabetes: Technical Review. *Diabetes Care*. 1999;22(11):1887-1898.
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These guidelines are not intended to replace the clinical judgment of healthcare providers.

QUITWORKS-NH
The Solution to Help Patients Quit Smoking
www.quitworksnh.org

Quick Guide To Pharmacotherapy In Tobacco Treatment

NICOTINE REPLACEMENT OPTIONS

PATCHES

Nicoderm® CQ 7 mg, 14 mg, 21 mg	Initial: MAX:	1 patch/24 hrs. Same as above	Treatment Duration: 8 wks.

GUM

Nicorette® 2 mg, 4 mg	Initial: MAX:	1 piece every 1–2 hrs. 24 pieces/24 hrs.	Treatment Duration: 8–12 wks.

LOZENGE

Commit® 2 mg, 4 mg	Initial MAX:	1 lozenge/1–2 hrs. (wks 1–6) 1 lozenge/2–4 hrs. (wks 7–9) 1 lozenge/4–8 hrs. (wks 10–12) 20 pieces/24 hrs.	Treatment Duration: 12 wks.

NASAL SPRAY

Nicotrol® NS 10 mg/ml	Initial: MAX:	1–2 doses/hr. 5 doses/hr. or 40 doses/day	Treatment Duration: 3–6 mos.

INHALER

Nicotrol® Inhaler 10 mg/cartridge	Initial: MAX:	6–16 cartridges/day 16 cartridges/day	Treatment Duration: 3–6 mos.

NON-NICOTINE MEDICATION

BUPROPION HCL SR

Wellbutrin SR 150 mg tablets	Initial: MAX:	150 mg/day (days 1–3) 300 mg/day (day 4+) 300 mg/day	Treatment Duration: 7–12 wks.

VARENICLINE

Chantix®	Initial: MAX:	0.5 mg/day (days 1–3) 0.5 mg/2x/day (days 4–7) 1.0 mg/2x/day (day 8+) 2 mg/day	Treatment Duration: Up to 12 wks.

Inclusion of this adult dosage chart is strictly for the convenience of the prescribing provider. Please consult the Physicians' Desk Reference for complete product information and contraindications. This chart does not indicate or authorize insurance benefit coverage for any of these medications. For insurance benefit information, the patient will need to contact his/her insurer directly. The cost or provision of these medications is not included as any part of the New Hampshire Try-To-STOP TOBACCO Resource Center or QuitWorks-NH program.

You Can Stop. We Can Help.

Diabetes in New Hampshire

Diabetes is a common disease in New Hampshire

- In 2008, 7.3% of adults in New Hampshire reported having been diagnosed with diabetes.[1]
- Diabetes becomes more common as people grow older. About 17% of people 65 years of age and older in New Hampshire have been diagnosed with diabetes.[2]
- Approximately 40% of adults aged 20 or older with diabetes in the U.S. are unaware they have diabetes.[1]

Overweight and physical inactivity are modifiable risk factors for diabetes

- In 2008, 21.5% of New Hampshire residents reported that they did not engage in any leisure-time physical activity in the previous month.[1]
- In the same year, 63.2% of New Hampshire residents reported that they were overweight or obese.[1]
- Approximately 30% of the U.S. population has pre-diabetes,[3] many of whom will develop diabetes within 10 years unless they make significant lifestyle changes.

Diabetes is a serious disease

- Diabetes is the 7th leading cause of death in New Hampshire.[1]
- Adults with diabetes have heart disease death rates about 2 to 4 times higher than adults without diabetes.[4]
- Diabetes is a leading cause of blindness, kidney failure, heart disease and stroke.[4]
- Diabetic retinopathy causes 12,000 to 24,000 new cases of blindness each year.[4]
- More than 60% of nontraumatic lower-limb amputations occur in people with diabetes.[4]

Diabetes is a costly disease in New Hampshire

- In the United States, the average health care cost for a person with diabetes in 2007 was $11,744, compared with $2,935 for a person without diabetes.[5]
- In 2007, the cost of diabetes was nearly $174 billion per year in the United States.[5]
- The total cost of diabetes in New Hampshire was over $800 million in 2006.[6]

Diabetes is a common, serious, and costly disease that poses a major public health challenge for New Hampshire. Maintaining a proper weight, eating a healthy diet, and exercising can help prevent diabetes. For those who already have the disease, complications of diabetes can be prevented with adequate care.

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This document includes all of the references used in the development of the guidelines as well as additional resources for more information.

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American Diabetes Association	www.diabetes.org
CDC Diabetes Program	www.cdc.gov/diabetes/
American Dietetic Association	www.eatright.org
Fruits and Veggies	www.fruitsandveggiesmatter.gov
Family Health History	www.hhs.gov/familyhistory/
Immunizations	www.cdc.gov/vaccines
International Diabetes Federation	www.idf.org
Juvenile Diabetes Foundation	www.jdf.org
Medline	www.medlineplus.gov
Minority Health Coalition	www.nhhealthequity.org
National Institutes of Health	www.ndep.nih.gov/
National Diabetes Information	www.diabetes.niddk.nih.gov/
National Guidelines Clearinghouse	www.guideline.gov
National Eye Institute	www.nei.nih.gov/
NH Diabetes Educators	www.nhade.org
NH Medication Bridge Program	www.nhha.org/fhc/initiatives/access/medicationbridge.php
Nutrition site, US government	www.nutrition.gov
US Office on Smoking and Health	www.cdc.gov/tobacco/
PHQ-9 (Depression Screening)	www.depression-primarycare.org/clinicians/toolkits/materials/forms/phq9/
Quitworks- NH	www.quitworksnh.org

ALCOHOL & DIABETES

FACTS:

- Drinks with alcohol affect your blood glucose levels.
  - High blood glucose can be caused by the carbohydrates, sugars and alcohol in a drink.
  - Low blood glucose is caused by your liver's reaction to the alcohol. *Your liver stops making glucose until it has processed the alcohol.*
- If you take insulin or diabetes medications, alcohol can drop blood sugar levels even lower.
- Alcohol harms your body's ability to bounce back from a drop in blood sugar.
- Heavy drinking damages your liver making diabetes harder to control.
- Alcohol worsens high blood triglycerides (fats), nerve damage and diabetic eye disease in people with diabetes. If you have any of these conditions, you should NOT drink alcohol.

TIPS:

- It is best to drink alcohol ONLY when your diabetes is under control.
- If you do drink, choose drinks that are low in alcohol and sugar.
- Never drink alcohol on an empty stomach.
- Check your blood glucose level after you drink.
- Wear medical identification. Low blood sugar can be misidentified as drunkenness (dizziness, disorientation, and sleepiness.)
- No more then 2 drinks per day for men and 1 drink per day for women.

Standard drinking chart

One Standard drink is equal to:

One glass (5 oz.) wine

One can (12 oz) beer or ale 

One single shot (1.5 oz.) hard liquor

One small glass (4 oz.) sherry, liqueur, or aperitif

7/2009

FACT SHEET

Alcohol, Tobacco and Other Drug Abuse Clearinghouse

NH Department of Health and Human Services
Bureau of Drug and Alcohol Services
105 Pleasant Street, Concord, NH 03301
800.804.0909 / 603.271.2677 / FAX: 603.271.6105

Diabetes, Smoking & Health

New Hampshire Diabetes Education Program

If you have diabetes, you are at a high risk for heart disease, stroke, and many other conditions.
Smoking can make these health problems much worse.
Quitting smoking is one of the best things you can do for your health.

If you have diabetes and you smoke.....

Smoking can make your Blood Sugar harder to control.
It can affect how your body uses insulin.

Smoking is harmful to your heart and blood vessels.
It increases blood pressure and worsens your cholesterol levels.
You are far more likely to have a heart attack if you smoke.

Smoking causes oral health problems like cancer and periodontal disease.
It can lead to tooth loss.

Smoking can lead to problems with your kidneys.
Drugs that help prevent kidney failure don't work as well for people who smoke.

Smoking can cause vision problems and can lead to blindness.

If you have diabetes and you smoke, you are more likely to have nerve damage.

Smoking and diabetes increases your risk for erectile dysfunction.

Talk to your doctor, certified diabetes educator, or another member of your healthcare team if you would like to quit smoking. They can help you.

www.TryToStopNH.org
The Try-To-STOP TOBACCO Website offers fact sheets and information about local tobacco treatment resources. Free counseling is available to all NH Residents by Certified Tobacco Treatment Specialists.

1-800-Try-to-STOP (1-800-879-8678)
The NH Smokers' Helpline has free telephone-based counseling and print materials for all NH Residents.

American Diabetes Association. Smoking and Diabetes: Technical Review. Diabetes Care. 1999;22(11):1887-1898.
American Dieabetes Association. Smoking and Diabetes: Position Statement. Diabetes Care. 2004;27(suppl 1):S74-S75.
www.diabetes.org

NH Try To STOP TOBACCO Resource Center
www.trytostopnh.org

Blood Glucose Log

Patient Name________________________
Date of Birth________________________
Phone________________________

BLOOD GLUCOSE GOALS
Fasting/Preprandial:________________________
1-2 Hours After Meal:________________________

DATE	Breakfast	Lunch	Dinner	Bedtime	Comments: changes in diet or activity, stress, illness, ketones, hypoglycemia, etc.
January 1	116 / 162	91 / 162	104 / 162	162	Jogged after lunch
	medication/dose	medication/dose	medication/dose	medication/dose	

Record blood sugar results (before/after meals) and insulin/medication dose in the appropriate box.

What do the test results mean?

Pre-diabetes: A fasting blood sugar greater than 100, but less than 126, or blood glucose between 141 and 199 two hours after eating.

Diabetes: A fasting blood sugar greater than 126 on two separate occasions, or a blood sugar level greater than or equal to 200 two hours after eating.

Non-diabetic: A fasting blood sugar less than 100, or a blood sugar of 140 or less, 2 hours after eating.

Spread the Word!
Help prevent the onset of diabetes.
Teach friends and family members about Pre-Diabetes!
Tell family and friends: PRE-Diabetes means PREvention

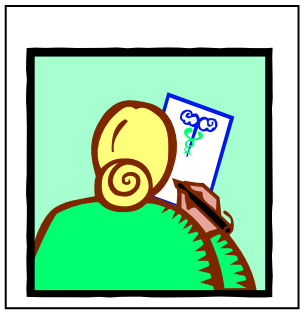
A special thanks for this brochure to:

CRHC Outpatient Diabetes Self-Management
@ Concord Hospital
253 Pleasant Street Suite 301
Concord, NH 03301

LRGHealthcare Diabetes Center
80 Highland Center
Laconia, NH 03246

NH Diabetes Education Program
Division of Public Health Services
Dept of Health and Human Services

National Diabetes Education Program
National Institutes of Health
and the Centers for Disease Control



Are you at Risk for Pre-Diabetes? It's a Serious Condition…

A "Touch of Sugar" or "Borderline Diabetes" are outdated words. Prediabetes is a warning that you could develop type 2 diabetes…

What is pre-diabetes?
Pre-diabetes is when blood sugar levels are higher than normal, but not high enough to diagnose diabetes. People with pre-diabetes are more likely to develop type 2 diabetes and its serious complications, such as heart disease, stroke, blindness, kidney failure.

Blood glucose levels rise as the body's insulin loses its effectiveness. This is called insulin resistance, which is linked to an increased risk of heart disease.

Did you know?
"If your fasting glucose is over 100, you have a 10% to 15% chance of getting diabetes in the next seven years."
Dr. Rizza, vice president of the American Diabetes Association.

It's not too late!!

Turn back the clock and prevent type 2 diabetes!

Lose weight/Eat healthy
Eat smaller portions
10 to 15 pounds can make the difference
Lower total fat and carbohydrate

Exercise 30 minutes daily
Find ways to add extra steps during the day
Find an activity you enjoy–walking, biking, dancing, swimming.

Stop Smoking
Smoking increases insulin resistance and makes it more difficult for blood to flow properly. Ask your physician for new tools to help quit smoking.

Get Adequate Sleep
7 or more hours per night.
Lack of sleep is linked to insulin resistance.

The Diabetes Prevention Program study showed that a modest 5 to 10% weight loss and physical activity (30 minutes daily) could prevent or delay the onset of type 2 diabetes by up to 58%.

Do any of these describe you? If you fit even one, you should be tested for diabetes or pre-diabetes!

- 45 years of age or older
- Overweight (Body Mass Index of 25 or more)
- Family history of diabetes - parent, sibling, grandparent
- African American, Latino, Native American, Asian
- Had a baby weighing over 9 lbs. or had gestational diabetes
- High blood pressure
- Low good cholesterol (HDL) ≤ 35 mg/dl (goal for women is above 50 mg/dl and for men above 40 mg/dl)
- High blood fats called triglycerides ≥ 250 mg/dl (goal is less than 150 mg/dl)
- High blood sugar on a previous glucose test

If you are tested and your result is **normal**, get retested once every 3 years.

If you have **pre-diabetes**, test for type 2 diabetes every 1-2 years. People with pre-diabetes may have IFG (impaired fasting glucose), IGT (impaired glucose tolerance) or both.

Physical Activity Resources

For Professionals

2008 Physical Activity Guidelines for Americans
At-A-Glance: A Fact Sheet for Professionals
US Department of Health and Human Services
http://www.health.gov/paguidelines/pdf/fs_prof.pdf

Centers for Disease Control and Prevention
http://www.cdc.gov/physicalactivity/

For Patients

2008 Physical Activity Guidelines for Americans
Be Active Your Way: A Fact Sheet for Adults
US Department of Health and Human Services
http://www.health.gov/paguidelines/pdf/fs_adult.pdf

Getting Started with Physical Activity
American Diabetes Association
http://www.diabetesarchive.net/weightloss-and-exercise/exercise/getting-started.jsp

Active Older Adults
National Diabetes Education Program
http://www.ndep.nih.gov/media/five-ways-older-adults-active.pdf

"A Walk a Day" Fact Sheet
American Council on Exercise
http://www.acefitness.org/fitfacts/pdfs/fitfacts/itemid_2549.pdf

"Exercise and Type 1 Diabetes"
American Council on Exercise
http://www.acefitness.org/fitfacts/pdfs/fitfacts/itemid_2607.pdf

"Exercise and Type 2 Diabetes"
American Council on Exercise
http://www.acefitness.org/fitfacts/pdfs/fitfacts/itemid_2608.pdf

Tips for Quitting Smoking…

- Write down your most important reason for quitting and look at it often.
- Set a date to quit and tell your friends, family and co-workers.
- If you usually drink alcoholic beverages, avoid them until you get more used to being a nonsmoker. Alcohol can encourage you to smoke.
- Try to plan ahead for situations that will be especially challenging in the early days of quitting, such as after meals or during break time at work
- When you have a craving, do something, anything to keep yourself busy and your mind occupied.
- Take deep rhythmic breaths to help you to relax, and try moderate exercise such as walking to relieve stress.
- If you quit for one day, you can quit for another.
- If you do have a cigarette, don't give up, just don't have a second one.

NH Try To STOP TOBACCO
Resource Center
1-800-Try-To-STOP

New Hampshire Department of Health and Human Services
Division of Public Health Services (800) 852-3345 extension 6891

NH Smokers' Helpline

You Can Stop. We Can Help

1-800-Try-To-STOP

What Happens When I Call?

Your Call is Free and Private. A Certified Tobacco Treatment Counselor helps tobacco users quit smoking, chewing or dipping tobacco. Anyone in New Hampshire can call whether they are currently using tobacco, have already quit or want information for a friend or family member. The call is Free & Confidential.

When You Call, You Have a Choice. You decide if you are ready to stop using tobacco and will be offered these choices:

- Self-help materials
- A list of other programs to help you quit smoking
- One-on-one advice over the phone

One-on-One Telephone Counseling. If you choose this option, the staff will make arrangements to contact you at your convenience. This way, you don't have to remember to call them back. It's great for those days when you are not sure you can stay quit!

1-800-8-DÉJALO en Español

1-800-833-1477 TYY

www.trytostopnh.org

t • p • c • p

NH Tobacco Prevention & Control Program

Live Tobacco Free or Die

Healthy New Hampshire

You Can Stop. We Can Help.

NH Try To STOP TOBACCO Resource Center

The New Hampshire Try-To-STOP TOBACCO Resource Center serves the general public, tobacco control professionals, educators, health care providers, physicians, and others who want to reduce tobacco's heavy toll on society.

The Resource Center is home to four interconnected services:

The Resource Center offers low-cost tobacco education materials (pamphlets, posters, etc.) to physicians and clinicians, and to organizations across the State. 800-852-3345 ext. 6684

The New Hampshire Smokers' Helpline 1-800-Try-To-STOP is the gateway to tobacco cessation services offered to New Hampshire residents. The toll-free helpline offers telephone-based counseling, free print materials and referrals to local tobacco treatment programs. Services are available in English (1-800-879-8678) and Spanish (1-800-8-DEJALO), with translation for other languages. A TTY line is available (1-800-833-1477). Quit tips are available 24 hours a day (1-800-8GET-A-TIP).

www.trytostopnh.org, the Try-To-STOP TOBACCO Web Site.This site provides information about local tobacco treatment resources, fact sheets and provides a link to www.BecomeAnEX.org. NH residents can access this state-of-the-art, user-friendly tool for tobacco users who want to quit on their own.

QuitWorks-NH offers health care providers the necessary tools to refer their patients to evidence-based telephonic counseling, and offers a full range of the State's tobacco treatment services. QuitWorks-NH is a collaborative effort based on the original QuitWorks program developed by the Massachusetts Department of Public Health, Massachusetts Health Plans and is recognized by the Centers for Disease Control and Prevention as a Best Practice.Visit www.QuitWorksNH.org for additional information and resources.

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