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Diabetes currently affects 246 million people and is expected to affect 380 million by 2025. Every 10 seconds two people develop diabetes and one person dies from diabetes-related causes. Diabetes is the fourth leading cause of death worldwide. Cardiovascular disease is the major cause of death in persons with diabetes, accounting for some 50% of all diabetes fatalities, and much disability. People with type 2 diabetes are more than twice as likely to have a heart attack or stroke as people without diabetes. Indeed, people with type 2 diabetes are as likely to suffer a heart attack as people without diabetes who have already had a heart attack.

In New York City, the prevalence of diabetes has reached epidemic proportions. This epidemic is fueled by the increase in obesity nationwide and worldwide. In the past 10 years, the number of people with diabetes in NYC has more than doubled. An estimated 530,000 adult New Yorkers know they have diabetes. For every two people who have diabetes, there is another person who has it and doesn’t yet know it, suggesting another 265,000 New Yorkers with diabetes. Since early symptoms may be mild or unrecognizable, people may have diabetes 5–7 years before being diagnosed.

Currently, HHC is caring for approximately 60,000 patients with diabetes in our diabetes registry. Diabetes is a serious condition but it can be prevented and controlled. HHC has developed novel approaches to improve their outcomes and reduce their complications. Our corporate goal to increase the percentage of patients with diabetes under good control to 50% by year’s end 2009 is attainable. To accomplish our goal, HHC has developed a corporate wide diabetes care protocol and a standardized corporate diabetes formulary. Our treatment protocol includes a standardized diabetes treatment and screening guidelines, a diabetes treatment algorithm, care management, medical nutritional therapy (MNT) and self management support recommendations and tools. These interventions will serve to support and promote our corporate wide improvement goal for diabetes care. The purpose of which is to guide practitioners in selecting options for prevention, diagnosis, treatment strategies for patients with type 2 diabetes.
Improving clinical outcomes for diabetes care is a major quality and patient safety priority for the corporation. Our corporate improvement goal for diabetes care challenges us to increase the number of patients with diabetes in good control (A1c<7) to 50 percent by year-end 2009.

To accomplish this objective, a diabetes guidelines and formulary workgroup composed of HHC clinical leaders was created in 2007 with a goal of developing corporate wide guidelines for diabetes care and a standardized corporate diabetes formulary. The workgroup reviewed the literature, national guidelines, and clinical practice strategies that have been found effective in controlling diabetes. Based on its findings, the workgroup developed and implemented a diabetes disease management protocol for the corporation. Our treatment protocol includes a standardized diabetes treatment and screening guidelines, a diabetes treatment algorithm, and care management, medical nutritional therapy (MNT) and self-management support recommendations and tools. These interventions will serve to support and promote our corporate wide improvement goal for diabetes care. Effective immediately, the diabetes treatment protocol and corporate diabetes formulary should be used as the standard of care in all HHC facilities. This is an excellent opportunity to decrease variability in diabetes outcomes for our patients using reliability theory.

Senior leadership at the facilities will begin to work in concert with the Office of Healthcare Improvement to incorporate these guidelines and procedures into our operations. The Office of Healthcare Improvement has conducted staff in-services at all facilities to provide instruction for the staff. We advise you to contact your ambulatory care and medical leadership to learn more about the treatment guidelines and the corporate formulary. Copies of the Diabetes algorithm and corporate formulary are available for distribution. Please forward to your clinical staff as well as those responsible for ordering supplies and medications. If you have questions, please contact Nandini Gadkar or Reba Williams, MD, Office of Healthcare Improvement.

In closing, I would like to thank the Diabetes Leadership Task Force for working diligently to accomplish its objectives and raising the bar for diabetes care and applaud our staff at HHC for their commitment and dedication to providing, quality healthcare for our patients. Your continued cooperation and support in our efforts to improve care at HHC is appreciated.

Sincerely,

Ramanathan Raju, MD, MBA, FACS
Executive Vice President/Corporate Chief Medical Officer
Medical & Professional Affairs
DIABETES LEADERSHIP TASK FORCE

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Tranice Jackson, MD, Director Residency Program
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Lincoln Medical and & Mental Health Center  Judith Flores, MD, Medical Director
Morrisania Diagnostic & Treatment Center  Michelle Soto, MD, Ambulatory Care Director
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Renaissance Health Care Network  Walid Michelen, MD, Medical Director
Segundo Ruiz Belvis Center  Arturo Caesar, MD, Director
Woodhull Medical Center  Walid Michelen, MD, Medical Director
Andrew Chin, MD, Primary Care Clinic Director
Jose Mejia, MD, Internal Medicine Chief
Diabetes Outcome Targets
- 50% A1c < 7.0%
- 60% Blood pressure < 130/80 mmHg
- 70% LDL cholesterol < 100 mg/dl
- 60% Patients with 50% reduction in PHQ9 scores at 12 weeks
- 90% Annual dilated retinal exam
- 90% Annual diabetic neuropathy screening
- 100% Annual depression screening (PHQ)

Diabetes Clinical Priorities
- Glycemic control
- Prevention of microvascular complications
- Prevention of macrovascular complications
- Reduction of cardiovascular risk
- Self-management
- Smoking cessation

Diabetes Planned Care Model
- Patient panels, along with related labs and appointments for the planned care visits are obtained by designated staff in the clinic prior to the visit. This information is reviewed by the clinician prior to the visit.
- PCA or designated staff greets and registers the patient.
- PCA or designated staff does vital signs, height, weight, BMI, finger stick / A1c, depression screen and goal sheets.
- Patient completes screening questionnaires.
- If the patient has a problem completing the questionnaires, the PCA or designated staff will assist with completion.
- All staff are responsible to review screens, questionnaires and other self management issues including goals with the patients.
- Clinician does physical and emotional assessments, reviews and updates the medications, self management plans, medical record, and registry.
- Clinician requests referrals and follow-up appts.
- Nurse reviews the self management plan, medications, appointments and consults with the patient.
- Clinic staff schedules appointments and discharges the patient.

Refer to Certified Diabetes Educator
- All patients with new onset diabetes
- A1c ≥ 8%
- Low literacy
- Language barriers
- Provider’s discretion

Refer to Care Manager
- If the patient has managed care or commercial insurance refer to plan specific care management services.
- If the patient does not have managed care and A1c is 7–9% refer to the primary care clinic registered nurse for care management or A1c>9 refer to designated care manager at your facility.

Refer to Endocrinologist
- All patients with Type 1 diabetes
- Patients with hypoglycemic unawareness
- Consider patients with A1c>7.5 despite best efforts to control for 6 months, and/or end organ damage
- Insulin titration

Please note managed care restrictions for endocrinology visits and formulary.
Diabetes Guidelines are intended for clinical use but should not replace the clinical judgment of the clinician.
TREATMENT OF DIABETES

Assessments

**Blood Pressure, Weight**—**Recommend**: On every visit. *Treat to Blood Pressure Target goal<130/80 mmHg*. Weight reduction target 5–10% decrease over 6 months if overweight.

**Foot Exam (FOR ADULTS)**—**Recommend**: Periodic foot exam and annual monofilament testing.

**Retinal Eye Exam (BY TRAINED EXPERT)**—**Recommend**: Type 1: Within 5 years after onset of diabetes, then annually. **Type 2**: Immediately after diagnosis, then annually.

**Depression**—**Recommend**: Annual screening using the 2 item screener or PHQ9 to probe for emotional/physical factors linked to depression; treat with counseling, medication and/or referral.

**Dental**—Exams at least twice annually.

**Labs**

**A1c**—**Recommend**: Quarterly, if treatment changes or if not meeting their goals; 2 times per year if stable. *Target goal<7%*. Consider an individual goal of<6.5 % if low risk of hypoglycemia and low risk of cardiac event from ACCORD. Modify as necessary to prevent significant hypoglycemia.

**Microalbuminuria (ALBUMIN/CREATININE RATIO)**—

- **Type 1**: Begin at puberty once the duration of diabetes is more than 5 years unless proteinuria has been documented.
- **Type 2**: Begin at diagnosis, then every year unless proteinuria has been documented. Recommended screening test: Albumin/Creatinine ratio.

**Lipid screening (FOR ADULTS)**—**Recommend**: On initial visit then annually if controlled. *Target goal (mg/dl): LDL<100*.

Self Management Support

**Management Principle and Complications**—**Recommend**: Initial visit and annually: Assess knowledge of diabetes, medications, self-monitoring, acute and chronic complications and problem solving skills. Ongoing: Screen for problems with and barriers to self care; assist patients in identifying achievable self management goals. Review goals at every visit.

**Self-Glucose Monitoring**—**Type 1**: test a minimum of 4 times daily. **Type 2** and others: Individualize based on A1c level. Encourage adherence to medications at each visit.

**Medical Nutritional therapy (BY A TRAINED EXPERT)**—Initially: Assess needs/condition, assist patient in setting nutritional goals. Ongoing: Assess progress toward goals, identify problem areas.

**Physical Activity**—On initial visit and ongoing: Encourage physical activity based on the patient’s needs/condition. **Recommend**: 30 minutes per day (walking).

**Weight Management**—On initial visit and ongoing: Must be individualized for the patient. Clinician sets goals with the patient. **Recommend**: 1–2 pounds /week weight loss until target is desirable.

Health Maintenance

**Preconception, Pregnancy and Postpartum Counseling and Management**—Consult with high risk, multidisciplinary obstetrical provider programs. **Recommend**: For adolescents, age appropriate counseling is advisable, beginning with puberty. Women of childbearing age receive prenatal counseling.

**Aspirin Therapy**—**Recommend**: 81 mg–162 mg/day in adults as primary and secondary prevention of Coronary Heart Disease for patients age 40 and above unless contraindicated.

**Smoking Cessation**—**Recommend**: Screen and assess readiness to quit at every diabetes care visit. Start treatment and refer to smoking cessation program as needed.

**Immunizations**—**Recommend**: Influenza and Pneumococcal vaccinations.
PREVENTION OF DIABETES

Pre–Diabetes Diagnosis & Treatment

Recommended Screening Procedures
Fasting Plasma Glucose (FPG) or 2 hr OGTT or both. An OGTT may be considered in patients with IFG to better define the risks of Diabetes.

Recommended Screening Guidelines
BMI ≥ 25 Kg/m2 (overweight or obese) and 1 or more risk factor for diabetes. In those without risk factors, testing should begin at age 45. If normal, repeat in 3 years.

Pre–Diabetes Definition
Impaired fasting glucose = FPG 100 mg/dl to 125 mg/dl or Impaired glucose tolerance= 2-h plasma glucose 140 mg/dl to 199 mg/dl

Initiate Lifestyle Modification
Medical Nutritional Therapy (MNT), Exercise: 30 minutes 5 times per week, Weight loss: 5–10% reduction (if overweight)

Cardiovascular Risk Reduction Targets
BP<130/80, LDLc<100 mg/dl, FPG=70—100 or 2hr IGT<140

Pharmacologic
In persons for whom lifestyle changes were not effective after 6 months consider metformin (preferred agent), TZD, AGI, or Orlistat. Consider in high risk patient groups : CVD, CKD, Metabolic Syndrome.

Persistent Monitoring of Glucose and Risk Reduction Measures
CURRENTLY ON ORAL MONO OR COMBINATION THERAPY WITH A1c>8.5

ADD INSULIN:
Basal analogue (Glargine)
(10 units or 0.2 units/kg/day whichever is greater)

TITRATE INSULIN:
Instruct the patient or Refer to homecare
• Patient must call the clinic to report each change in dosage.
• Discontinue SU if C–petide is<1.
• FPG 110 mg–180 mg/dl increase Glargine or other insulin by 2 units every 3 days until at goal.
• FPG>180 mg/dl increase Glargine or other insulin by 10% or more, up to 4 units every 3 days until at goal.

Repeat titration for a total of 4 wks & return to clinic.
Refer patients with literacy and language issues to an educator or home care for instruction.

**ADD PRANDIAL INSULIN WHEN:
• A1c is>7 or pre–meal SMBG>120 or postprandial SMBG>140. 
Dosage: 5 units or 0.1 units per kg before meals whichever is greater.
• PrPG>120 mg/dl increase prandial insulin 2 units for every 30 mg–50 mg/dl above goal.
• Or +ADD PRANDIAL ORAL AGENT: e.g. glinides or AGI or DPP4. Refer to Table 4.
• Or ADD EXENATIDE: If already on maximum doses of 2 or 3 oral agents. Refer to endocrinology.
Must eat 2 servings of carbohydrates to use prandial insulin.

NEUALLY DIAGNOSED WITH AN A1c>10 OR FPG>300 MG/DL OR RANDOM BG>400 MG/DL

START INSULIN:
BASAL ANALOGUE (Glargine)
(10 units or 0.2 units/kg/every day whichever is greater).
&/or
BOLUS (Aspart or Lispro)
(5 units or 0.1 units/kg before each meal whichever is greater)
or Use mixed insulin only if compliance is an issue.
70/30 or 75/25:
(10 units or 0.3–0.5 units/kg BID whichever is greater).

MONITOR A1c every 3–6 months.
RE–EVALUATE for continuation or change in therapy if insulin is required.

QUESTIONS TO ASK PATIENTS NOT AT GOAL AT EVERY VISIT:
• Are you taking the medication/s?
• Do you think the meds are harmful?
• Were you told they were bad for you?
• Are the meds too expensive?
• Do you feel bad when taking the medications?
• How does your family feel about it?

CONTINUE to SMBG and TITRATE insulin until at goal, and INTENSIFY Lifestyle Modification.

* Metformin contraindications include: Creatinine>1.4 women and>1.5 men, hyperkalemia, acidosis, CHF, shock, iodinated contrast, liver disease, alcohol abuse. Consider SU, TZD, or other oral agent in special circumstances. For diarrhea on metformin, decrease the dose and titrate medication slowly.
** Goal is FPG of 110 or PrPG of 80–120. Review the FS record and use an average of 3–5 readings.
Legend: SMBG = self monitoring of blood glucose; SU = sulfonylurea; TZD = thiazolidinedione; AGI = alpha glucosidase inhibitor, DPP4 = Dipeptidyl peptidase – 4 inhibitor. FPG = fasting plasma glucose,PrPG = preprandial glucose.
Individualized treatment is recommended for persons over 65 years old or with multiple cardiovascular risk equivalents.
HHC TYPE 2 DIABETES ORAL TREATMENT ALGORITHM

NEWLY DIAGNOSED WITH AN A1c>7 AND<10

STEP 1

START METFORMIN UNLESS CONTRAINDICATIONS*:
Start Metformin 500 mg BID and titrate to 1500 mg in 1 week. Not at goal in 1 week increase to 1000 mg BID with food.

At **Goal in 4 weeks NO

YES

MONITOR A1c every 3–6 months.
RE-EVALUATE for continuation or change in therapy if insulin is required.

ADD ORAL AGENT: SU or TZD or DPP4 or AGI (Refer to table 4 for dosages).
OR START INSULIN: Basal analogue (Glargine).
(10 units or 0.2 units/kg/day whichever is greater) If not at goal on combo tx.
OR ADD EXENATIDE: If already on maximum doses of 2 or 3 oral agents.

At **Goal in 4 weeks with 2 oral agents?

NO

TITRATE INSULIN:
Instruct the patient or Refer to homecare
• Patient must call the clinic to report each change in dosage.
• Discontinue SU if C–petide is<1.
• FPG 110 mg–180 mg/dl increase Glargine or other insulin by 2 units every 3 days until at goal.
• FPG>180mg/dl increase Glargine or other insulin by 10% or more, up to 4 units every 3 days until at goal.

Repeat titration for a total of 4 wks & return to clinic or refer to Step 3 Algorithm 1 for additional treatment options.

At **Goal in 8 weeks?

NO

CONTINUE to SMBG and TITRATE insulin until at goal, and INTENSIFY Lifestyle Modification.

At **Goal in 4 weeks?

NO

Repeat insulin titration for a total of 4 wks & return to clinic or refer to Step 3 Algorithm 1 for additional treatment options.

CONTINUE to SMBG and TITRATE insulin until at goal, and INTENSIFY Lifestyle Modification.

At **Goal in 8 weeks?

NO

STEP 2

Current on Mono or Combination Therapy with an A1c>7 AND<8.5

ADD ORAL AGENT: SU or TZD or DPP4 or AGI (Refer to table 4 for dosages).
OR START INSULIN: Basal analogue (Glargine).
(10 units or 0.2 units/kg/day whichever is greater) If not at goal on combo tx.
OR ADD EXENATIDE: If already on maximum doses of 2 or 3 oral agents.

At **Goal in 4 weeks with 2 oral agents?

NO

TITRATE INSULIN:
Instruct the patient or Refer to homecare
• Patient must call the clinic to report each change in dosage.
• Discontinue SU if C–petide is<1.
• FPG 110 mg–180 mg/dl increase Glargine or other insulin by 2 units every 3 days until at goal.
• FPG>180mg/dl increase Glargine or other insulin by 10% or more, up to 4 units every 3 days until at goal.

Repeat titration for a total of 4 wks & return to clinic or refer to Step 3 Algorithm 1 for additional treatment options.

At **Goal in 8 weeks?

NO

CONTINUE to SMBG and TITRATE insulin until at goal, and INTENSIFY Lifestyle Modification.

At **Goal in 8 weeks?

NO

STEP 3

CURRENTLY ON MONO OR COMBINATION THERAPY WITH AN A1c>7 AND<8.5

ADD ORAL AGENT: SU or TZD or DPP4 or AGI (Refer to table 4 for dosages).
OR START INSULIN: Basal analogue (Glargine).
(10 units or 0.2 units/kg/day whichever is greater) If not at goal on combo tx.
OR ADD EXENATIDE: If already on maximum doses of 2 or 3 oral agents.

At **Goal in 4 weeks with 2 oral agents?

NO

TITRATE INSULIN:
Instruct the patient or Refer to homecare
• Patient must call the clinic to report each change in dosage.
• Discontinue SU if C–petide is<1.
• FPG 110 mg–180 mg/dl increase Glargine or other insulin by 2 units every 3 days until at goal.
• FPG>180mg/dl increase Glargine or other insulin by 10% or more, up to 4 units every 3 days until at goal.

Repeat titration for a total of 4 wks & return to clinic or refer to Step 3 Algorithm 1 for additional treatment options.

At **Goal in 8 weeks?

NO

CONTINUE to SMBG and TITRATE insulin until at goal, and INTENSIFY Lifestyle Modification.

At **Goal in 8 weeks?

NO

STEP 4

NEVER DIAGNOSED WITH AN A1c>7 AND<10

STEP 1

START METFORMIN UNLESS CONTRAINDICATIONS*:
Start Metformin 500 mg BID and titrate to 1500 mg in 1 week. Not at goal in 1 week increase to 1000 mg BID with food.

At **Goal in 4 weeks NO

YES

MONITOR A1c every 3–6 months.
RE-EVALUATE for continuation or change in therapy if insulin is required.

ADD ORAL AGENT: SU or TZD or DPP4 or AGI (Refer to table 4 for dosages).
OR START INSULIN: Basal analogue (Glargine).
(10 units or 0.2 units/kg/day whichever is greater) If not at goal on combo tx.
OR ADD EXENATIDE: If already on maximum doses of 2 or 3 oral agents.

At **Goal in 4 weeks with 2 oral agents?

NO

TITRATE INSULIN:
Instruct the patient or Refer to homecare
• Patient must call the clinic to report each change in dosage.
• Discontinue SU if C–petide is<1.
• FPG 110 mg–180 mg/dl increase Glargine or other insulin by 2 units every 3 days until at goal.
• FPG>180mg/dl increase Glargine or other insulin by 10% or more, up to 4 units every 3 days until at goal.

Repeat titration for a total of 4 wks & return to clinic or refer to Step 3 Algorithm 1 for additional treatment options.

At **Goal in 8 weeks?

NO

CONTINUE to SMBG and TITRATE insulin until at goal, and INTENSIFY Lifestyle Modification.

At **Goal in 8 weeks?

NO

STEP 3

Questions to Ask Patients Not at Goal at Every Visit:
• Are you taking the medication/s?
• Do you think the meds are harmful?
• Were you told they were bad for you?
• Are the meds too expensive?
• Do you feel bad when taking the meds?

* Metformin contraindications include: Creatinine>1.4 women and>1.5 men, hyperkalemia, acidosis, CHF, shock, iodinated contrast, liver disease, alcohol abuse. Consider SU, TZD, or other oral agent in special circumstances. For diarrhea on metformin, decrease the dose and titrate medication slowly.

** Goal is FPG of 110 or PrPG of 80–120. Review the FS record and use an average of 3–5 readings.

Legend: SMBG = self monitoring of blood glucose; SU = sulfonylurea; TZD = thiazolidinedione; AGI = alpha glucosidase inhibitor, DPP4 = Dipeptidyl peptidase – 4 inhibitor. FPG = fasting plasma glucose, PrPG = preprandial glucose.

Individualized treatment is recommended for persons over 65 years old or with multiple cardiovascular risk equivalents.
TREATMENT OF HYPERTENSION IN ADULTS WITH DIABETES

BP Goal: < 130/80

1. PRESCRIBE HEALTHY LIFESTYLE CHANGES FOR ALL PATIENTS WITH HYPERTENSION (Table 1)
2. PERFORM INITIAL LABORATORY TESTS AND STUDIES (Table 3)
3. COMPELLING INDICATION? (Table 2)

What is the blood pressure?

- 130-149 systolic or 80-89 diastolic
  - Prescribe Lisinopril 5-10 mg daily¹ or Enalapril 5 mg daily¹ (or if ACE-I intolerant, Losartan 50 mg daily)
  - Check Chem-7 two wks after starting/changing dose¹
  - Titrate doses to target BP or to max in 4-6 wks
  - Discontinue ACE-I/ARB if creatinine rises by > 30% or K+ ≥ 5.6 despite diet counseling, K+ lowering meds

- 150 systolic or ≥ 90 diastolic
  - Prescribe Lisinopril 5-10 mg daily¹ or Enalapril 5 mg daily¹ AND HCTZ 12.5 mg daily (or if ACE-I intolerant, Losartan 50 mg daily)
  - Check Chem-7 two wks after starting/changing dose¹
  - Reassess BP and Rx tolerance in 2 wks
  - Titrate doses to target BP or to max (200mg) in 4-6 wks
  - Change to ACE-I/HCTZ or ARB/HCTZ combination pill when BP controlled and if dosing allows
  - Discontinue ACE-I/ARB if creatinine rises by > 30% or K+ ≥ 5.6 despite diet counseling, K+ lowering meds

- Add HCTZ 12.5 mg daily
  - Check Chem-7 two wks after starting/changing dose
  - Reassess BP and Rx tolerance in 2 wks
  - Titrate dose to target BP or to max (25 mg)
  - Change to ACE-I/HCTZ or ARB/HCTZ combination pill when BP controlled and if dosing allows in 4-6 wks

- Add Amlodipine 2.5 to 5 mg daily
  - Reassess BP and Rx tolerance in 2 wks
  - Monitor for tachycardia and ankle edema
  - Titrate dose to target BP or to max (10 mg) in 4-6 wks

- Add Metoprolol XL 50 mg daily
  - Reassess BP and Rx tolerance in 2 wks
  - Titrate dose to target BP or to max (200mg) in 4-6 wks

- Is BP < 130/80?
  - No
  - Is BP < 130/80?
  - Yes
  - Is BP < 130/80?
  - Yes
  - REFER TO A SPECIALIST

4. Once at BP goal, change to combination formulations if possible, and continue to promote healthy lifestyle changes. Follow up every 3-6 months and continue to assess adherence. Please refer to medication table for additional prescribing information.

Table 1. Healthy Lifestyle Changes
- Quit smoking
- DASH/low sodium diet
- Physical activity
- Healthy weight
- Limit alcohol

Table 2. Compelling Indication
- Cerebrovascular disease
- Chronic kidney disease/GFR < 60
- Congestive heart failure
- Coronary Artery Disease
- Pregnancy

Table 3. Laboratory Tests and Studies
- Chem-7
- Fasting lipid panel
- Electrocardiogram (ECG)
- Urinalysis (U/A)

¹ This algorithm is NOT applicable (See suggested first-line meds for compelling indications)
GLYCEMIC TARGETS FOR DIABETES

- A1c<7 mg%
- FPG<110 mg/dl
- Preprandial 80 mg–120 mg/dl
- 2 hour PPG<140 mg/dl

A1c = glycosylated hemoglobin
FPG = fasting plasma glucose
PrPG = preprandial glucose
PPG = post prandial glucose

References: Consistent with the American Diabetes Association Clinical Practice Recommendations, 2008 and American College of Clinical Endocrinologists Road Maps To Achieve Glycemic Control in Type 2 Diabetes, 2007. Adapted from North Bronx Health Network Type 2 Diabetes Treatment Algorithm, Douglas Hirshon, DO, 2007.

<table>
<thead>
<tr>
<th>AVERAGE DAILY BLOOD SUGAR</th>
<th>A1c LEVEL</th>
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<tbody>
<tr>
<td>Use 3–5 readings</td>
<td></td>
</tr>
<tr>
<td>126</td>
<td>6%</td>
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<tr>
<td>154</td>
<td>7%</td>
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<tr>
<td>269</td>
<td>11%</td>
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<td>12%</td>
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</table>

# Table 3

## Common Subcutaneous Insulins

<table>
<thead>
<tr>
<th>Action</th>
<th>Insulin Name</th>
<th>Onset (hrs.)</th>
<th>Peak (hrs.)</th>
<th>Duration (hrs.)</th>
<th>Considerations</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Bolus</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rapid Acting</td>
<td>Aspart (Novolog)</td>
<td>0.25</td>
<td>0.6–1</td>
<td>3–5</td>
<td><strong>Bolus</strong> insulin lowers after-meal glucose.</td>
</tr>
<tr>
<td>Analogs</td>
<td>Lispro (Humalog)</td>
<td>0.25</td>
<td>0.5–1.5</td>
<td>3–6</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Glulisine (Apidra)</td>
<td>0.25</td>
<td>0.5–1.5</td>
<td>3–6</td>
<td></td>
</tr>
<tr>
<td><strong>Short Acting</strong></td>
<td>Regular</td>
<td>0.5</td>
<td>2.5–5</td>
<td>6–8</td>
<td></td>
</tr>
<tr>
<td><strong>Basal</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Intermediate</td>
<td>NPH</td>
<td>1–3</td>
<td>6–8</td>
<td>10–16</td>
<td><strong>Basal</strong> insulin controls blood glucose between meals and while sleeping.</td>
</tr>
<tr>
<td>Intermediate</td>
<td>Detemir (Levimir)</td>
<td>1–2</td>
<td>peakless</td>
<td>16–24</td>
<td></td>
</tr>
<tr>
<td>Long Acting</td>
<td>Glargine (Lantus)</td>
<td>1–2</td>
<td>peakless</td>
<td>24</td>
<td></td>
</tr>
<tr>
<td><strong>Bolus &amp; Basal</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Intermediate +</td>
<td>Novolog® Mix 70/30 =</td>
<td>0.25</td>
<td>1–4 dual</td>
<td>10–16</td>
<td><strong>Insulin</strong> side effects: hypoglycemia, weight gain.</td>
</tr>
<tr>
<td>rapid</td>
<td>70% NPH + 30% Aspart</td>
<td></td>
<td>peaks</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Humolog® Mix 75/25 =</td>
<td>0.25</td>
<td>0.5–6.5</td>
<td>10–16</td>
<td>Typical dosing range: 0.5–1.0 units/kg body wt/day.</td>
</tr>
<tr>
<td></td>
<td>75% NPH + 25% Lispro</td>
<td></td>
<td>dual peaks</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>50/50 = 50% NPH + 50%</td>
<td></td>
<td></td>
<td></td>
<td>Discard opened insulin vials after 28 days.</td>
</tr>
<tr>
<td></td>
<td>Lispro</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>0.25</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Intermediate +</td>
<td>Combo of NPH + Reg</td>
<td>0.5</td>
<td>1.5–16</td>
<td>10–16</td>
<td></td>
</tr>
<tr>
<td>short</td>
<td>(Humulin &amp; Novolin)</td>
<td></td>
<td>dual peaks</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>70/30 = 70% NPH +</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>30% Reg</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>50/50 = 50% NPH +</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>50% Reg</td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

## Injectables That Lower Glucose

<table>
<thead>
<tr>
<th>Class/Main Action</th>
<th>Name</th>
<th>Dose Range</th>
<th>Considerations</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Incretin Mimetic</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stimulates glucose</td>
<td>Exenatide</td>
<td>5–10 mcg BID (keep refrigerated)</td>
<td>For Type 2 only in combo with sulfonylurea and/or metformin and or TZD. SQ injection 60 minutes before meals. The information given here are general guidelines only; please consult prescribing information for details.</td>
</tr>
<tr>
<td>dependent insulin release, slows gastric emptying, suppresses glucagon, promotes satiety.</td>
<td>(Byetta)</td>
<td></td>
<td>Side effects: nausea, weight loss, hypoglycemia. Lowers A1c 1.6%–2.8%.</td>
</tr>
<tr>
<td><strong>Amylin Mimetic</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Slows gastric emptying, suppresses glucagon release, promotes satiety.</td>
<td>Pramlintide</td>
<td>Type 1: 15–60 mcg; Type 2: 60–120 mcg ac major meals</td>
<td>For Type 1 or 2 on insulin. Prevent hypoglycemia, decrease insulin dose when starting Symlin. The information given here are general guidelines only; please consult prescribing information for details.</td>
</tr>
<tr>
<td>(Symlin)</td>
<td></td>
<td></td>
<td>Side effects: severe hypoglycemia risk 3 hrs post injection (BLACK BOX), nausea, wt loss.</td>
</tr>
</tbody>
</table>

Onset, peak and action times are as listed in product package inserts. Because insulin action times can vary with each injection, time periods listed here are general guidelines only; please consult prescribing information for details.
## Oral Antihyperglycemic Medications

<table>
<thead>
<tr>
<th>Action</th>
<th>Name(s)</th>
<th>Daily Dose Range</th>
<th>Consideration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Biguanides</td>
<td>Decrease hepatic glucose output</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Metformin (Glucophage)</td>
<td></td>
<td>500 mg–2000 mg</td>
<td>Take caution if Creatinine&gt;1.4 women, &gt;1.5 men or GFR&lt;60, CHF on meds, &gt;80 yrs, binge drinker, liver disease, during IV dye study. For diarrhea on metformin, decrease the dose and titrate medication slowly. <strong>Lowers A1c 1%–2%.</strong></td>
</tr>
<tr>
<td>Glucophage XR (extended release)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Glipizide: (Glucotrol*) (Glucotrol XL)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Glyburide: (Micronase, Diabeta) (Glynase)</td>
<td>1.25 mg–20 mg 0.75 mg–12 mg</td>
<td></td>
<td>Side effects of all sulfonylureas include hypoglycemia and weight gain. *Glucotrol should be taken on an empty stomach. <strong>Lowers A1c 1%–2%.</strong></td>
</tr>
<tr>
<td>Glimepiride (Amaryl)</td>
<td>2.5 mg–40 mg 2.5 mg–20 mg</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Meglitinides</td>
<td>Stimulate rapid insulin “burst”</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Repaglinide (Prandin)</td>
<td>0.5 mg–4 mg ac 16 mg max daily dose</td>
<td>+Consider use in post prandial hyperglycemia. Take before meals. Side effects may include hypoglycemia and weight gain. <strong>Lowers A1c 1%–2%.</strong></td>
<td></td>
</tr>
<tr>
<td>Nateglinide (Starlix)</td>
<td>60 mg–120 mg ac meals</td>
<td></td>
<td></td>
</tr>
<tr>
<td>DPP4 Inhibitors</td>
<td>&quot;Incretin mimetic&quot; Increase insulin release w/meals, promote satiety, suppress glucagon</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sitagliptin (Januvia)</td>
<td>100 mg daily (eliminated via kidney)</td>
<td>+Consider use in post prandial hyperglycemia. No weight gain or hypoglycemia. Januvia approved as mono–therapy or in combo w/TZDs, metformin or SU. If SU is used decrease the dose of SU by 50%. Adjust dose based on GFR. <strong>Lowers A1c 0.6%–0.8%.</strong></td>
<td></td>
</tr>
<tr>
<td>Glucosidase inhibitors (AGI)</td>
<td>Delay carbohydrate absorption</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Acarbose (Precose) Miglitol (Glyset)</td>
<td>75 mg–300 mg based on weight</td>
<td>+ Consider use in post prandial hyperglycemia. Start with low dose, increase slowly to decrease GI effects. Caution with liver or kidney problems. <strong>Lowers A1c 0.5%–1%.</strong></td>
<td></td>
</tr>
<tr>
<td>Thiazolidinediones (TZD)</td>
<td>Increase insulin sensitivity</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rosiglitazone (Avandia)</td>
<td>4 mg–8 mg</td>
<td>Check baseline liver function. Can cause edema and weight gain. Caution in patients with heart failure. No hypoglycemia as monotherapy. Caution there is literature associating rosiglitazone with cardiovascular disease. Note: Black Box Warning for CVD with both agents. <strong>Lowers A1c 0.5%–1%.</strong></td>
<td></td>
</tr>
<tr>
<td>Pioglitazone (Actos)</td>
<td>15 mg–45 mg</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**NOTE:** These meds are for people with Type 2 diabetes and should not be used during pregnancy. Content is for educational purposes only; consult prescribing information for details. Adapted from Diabetes Coalition of California and the California Diabetes Program, Basic Guidelines for Diabetes Care, 2005–06. Table 4. 

**REFERENCES:** Consistent with the American Diabetes Association Clinical Practice Recommendations, 2008 and American College of Clinical Endocrinologists Road Maps To Achieve Glycemic Control in Type 2 Diabetes, 2007. Adapted from North Bronx Health Network Type 2 Diabetes Treatment Algorithm, Douglas Hirshon, DO, 2007.
## Table 5
### Antihypertensive Medications

<table>
<thead>
<tr>
<th>Class/Action</th>
<th>Names</th>
<th>Dosage</th>
<th>Maximum Dose</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACE Inhibitors (ACEI)</td>
<td>Captopril, (Capoten)</td>
<td>25 mg–150 mg BID or TID</td>
<td>450 mg/Daily</td>
<td>SIDE EFFECTS: persistent cough, renal insufficiency, weakness or dizziness, skin rashes, an altered sense of taste, hyperkalemia, angioedema, anaphylaxis. Avoid in 2nd and 3rd trimester pregnancy. Beneficial in heart failure and post MI. CAUTION: neutropenia, agranulocytosis and angioedema with captopril.</td>
</tr>
<tr>
<td></td>
<td>Enalapril, (Vasotec)</td>
<td>10 mg–40 mg Daily or BID</td>
<td>40 mg Daily</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Fosinopril, (Monopril)</td>
<td>20 mg–40 mg Daily</td>
<td>80 mg Daily</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Lisinopril, (Prinivil, Zestril)</td>
<td>10 mg–40 mg Daily</td>
<td>40 mg Daily</td>
<td></td>
</tr>
<tr>
<td>Angiotensin II Receptor Blockers (ARB)</td>
<td>Losartan, (Cozaar)</td>
<td>50 mg–100 mg Daily</td>
<td>100 mg Daily</td>
<td>Well tolerated as a class. SIDE EFFECTS: angioedema, hyperkalemia, hypersensitivity, cramps, nasal congestion, dizziness. Avoid in 2nd and 3rd trimester pregnancy. CAUTION: RENAL ARTERY STENOSIS. CAUTION: monitor closely for cough, angioedema, and alopecia, if present consider CCB.</td>
</tr>
<tr>
<td></td>
<td>Telemasartan, (Micardis)</td>
<td>40 mg–80 mg Daily</td>
<td>80 mg Daily</td>
<td></td>
</tr>
<tr>
<td>Calcium Channel Blockers (CCB)</td>
<td>Amlodipine, (Norvasc)</td>
<td>2.5 mg–10 mg Daily</td>
<td>10 mg Daily</td>
<td>SIDE EFFECTS: headaches, facial flushing, dizziness, ankle edema, hypotension, reflex tachycardia, use of Norvasc in hepatic insufficiency. CAUTION: sick sinus, 2nd and 3rd degree AVb, hypotension, pulmonary congestion with diltiazem.</td>
</tr>
<tr>
<td></td>
<td>Diltiazem, (Cardia)</td>
<td>120 mg–360 mg Daily</td>
<td>540 mg Daily</td>
<td></td>
</tr>
<tr>
<td>Beta Blockers (BB)</td>
<td>Carvedilol, (Coreg)</td>
<td>6.25 mg–25 mg BID</td>
<td>50 mg Daily</td>
<td>SIDE EFFECTS: exercise intolerance, hypotension, bronchospasm, decreased libido, impotence. Titrate labetalol in 200 mg increments.</td>
</tr>
<tr>
<td></td>
<td>Labetalol, (Normodyne, Trandate)</td>
<td>200 mg–400 mg BID</td>
<td>2400 mg Daily</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Metoprolol, ER, (Toprol XL)</td>
<td>25 mg–100 mg Daily</td>
<td>400 mg Daily</td>
<td></td>
</tr>
<tr>
<td>Thiazide Diuretics</td>
<td>Hydrochlorothiazide, (Hydriduril, Microzide)</td>
<td>12.5 mg–25 mg Daily</td>
<td>50 mg Daily</td>
<td>SIDE EFFECTS: fatigue, hypotension, renal insufficiency, hypokalemia, hypernatremia.</td>
</tr>
<tr>
<td></td>
<td>Chlorthalidone, (Hygroton)</td>
<td>25 mg–50 mg Daily</td>
<td>100 mg Daily</td>
<td></td>
</tr>
<tr>
<td>Loop Diuretics</td>
<td>Furosemide, (Lasix)</td>
<td>20 mg–40 mg Daily or BID</td>
<td>600 mg Daily</td>
<td>SIDE EFFECTS: hypersensitivity, sulfa allergy, anuria.</td>
</tr>
<tr>
<td></td>
<td>Torsemide, (Demadex)</td>
<td>5 mg–10 mg Daily</td>
<td>40 mg Daily</td>
<td></td>
</tr>
<tr>
<td>K+ Sparing Diuretics</td>
<td>Spironolactone, (Aldactone)</td>
<td>50 mg–100 mg Daily or BID</td>
<td>100 mg Daily</td>
<td>SIDE EFFECTS: hyperkalemia.</td>
</tr>
<tr>
<td>Centrally Acting Alpha Agonist</td>
<td>Clonidine, (Catapres)</td>
<td>0.2 mg–0.6 mg BID</td>
<td>2.4 mg Daily</td>
<td>CAUTION: postural hypotension with methyldopa.</td>
</tr>
<tr>
<td></td>
<td>Methyldopa, (Aldomet)</td>
<td>250 mg–500 mg BID or TID</td>
<td>2 grams Daily</td>
<td></td>
</tr>
<tr>
<td>Alpha Blocker</td>
<td>Doxazosin, (Cardura)</td>
<td>1 mg–16 mg Daily</td>
<td>16 mg Daily</td>
<td>SIDE EFFECTS: dizziness, orthostatic hypotension, nasal congestion, headaches, reflex tachycardia and wt gain. Benefit in treatment of BPH. Give test dose of 1 mg and monitor BP over 24 hours before titrating dose.</td>
</tr>
<tr>
<td></td>
<td>Prazosin, (Minipress)</td>
<td>6 mg–15 mg Daily</td>
<td>40 mg Daily</td>
<td></td>
</tr>
<tr>
<td>Vasodilators</td>
<td>Hydralazine</td>
<td>10 mg–50 mg Daily</td>
<td>300 mg Daily</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Minoxidil, (Par)</td>
<td>10 mg–40 mg Daily</td>
<td>100 mg Daily</td>
<td></td>
</tr>
</tbody>
</table>

* * Scored indicates a medication that is scored for its efficacy and safety profile.
### HHC Corporate Diabetes Formulary Injectables 2008

<table>
<thead>
<tr>
<th>Category</th>
<th>Medications</th>
<th>Dosage</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Basal Insulin</td>
<td>Glargine (Lantus)</td>
<td>Unit dose</td>
<td>1st line</td>
</tr>
<tr>
<td></td>
<td>NPH</td>
<td>Unit dose</td>
<td>Generic</td>
</tr>
<tr>
<td>Bolus Insulin</td>
<td>Regular</td>
<td>Unit dose</td>
<td>Generic</td>
</tr>
<tr>
<td></td>
<td>Lispro or Aspart</td>
<td>Unit dose</td>
<td>Pens</td>
</tr>
<tr>
<td>Combo Insulin</td>
<td>Lispro or Aspart (Mix)</td>
<td>70/30</td>
<td>Elderly, Compliance issues, Pens</td>
</tr>
<tr>
<td></td>
<td>Reg/NPH (Mix)</td>
<td>70/30, 50/50 Elderly</td>
<td>Elderly, Compliance issues, Pens, Generic</td>
</tr>
<tr>
<td>Incretin mimetic</td>
<td>Exenatide (Byetta)</td>
<td>10 mcg</td>
<td>Endocrine only</td>
</tr>
</tbody>
</table>

### HHC Corporate Diabetes Formulary Oral Agents 2008

<table>
<thead>
<tr>
<th>Category</th>
<th>Medications</th>
<th>Dosage</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Biguanides</td>
<td>Metformin</td>
<td>500 mg–2000 mg</td>
<td>1st line, Generic</td>
</tr>
<tr>
<td>Sulfonylureas</td>
<td>Glyburide</td>
<td>2.5 mg–20 mg</td>
<td>Pregnancy, Generic</td>
</tr>
<tr>
<td></td>
<td>Glipizide</td>
<td>2.5 mg–40 mg</td>
<td>Generic</td>
</tr>
<tr>
<td>Meglitinides</td>
<td>Repaglinide (Prandin)</td>
<td>0.5 mg–4 mg ac meals</td>
<td>Elderly, Post prandial hyperglycemia</td>
</tr>
<tr>
<td>DPP4 Inhibitors</td>
<td>Sitagliptide (Januvia)</td>
<td>50 mg–100 mg</td>
<td>Post prandial hyperglycemia</td>
</tr>
<tr>
<td>Thiazolidinediones (TZD)</td>
<td>Pioglitazone (Actos)</td>
<td>15 mg–45 mg</td>
<td>Improves insulin resistance</td>
</tr>
<tr>
<td>Glucosidase Inhibitors (AGI)</td>
<td>Acarbose (Precose)</td>
<td>75 mg–300 mg</td>
<td>Not in renal failure, Post prandial hyperglycemia</td>
</tr>
<tr>
<td>Combo Orals</td>
<td>Glipizide/metformin</td>
<td>2.5/250 mg–20/2000 mg</td>
<td>Improve Compliance, Generic</td>
</tr>
<tr>
<td></td>
<td>Glyburide/metformin</td>
<td>1.25/250 mg–10/2000 mg</td>
<td>Improve Compliance, Generic</td>
</tr>
<tr>
<td></td>
<td>Januvia/Metformin</td>
<td>50/500 mg–100/2000 mg</td>
<td>Improve Compliance</td>
</tr>
<tr>
<td></td>
<td>Pioglitazone/Metformin (Actoplus)</td>
<td>15/500 mg–45/2550 mg</td>
<td>Improve Compliance</td>
</tr>
</tbody>
</table>

Approved 6-3-2008
<table>
<thead>
<tr>
<th>CATEGORY</th>
<th>MEDICATIONS</th>
<th>DOSAGE</th>
<th>COMMENTS</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Angiotensin Converting Enzyme Inhibitors (ACEI)</strong></td>
<td>Lisinopril (Prinivil)</td>
<td>10 mg, 20 mg</td>
<td>Generic</td>
</tr>
<tr>
<td></td>
<td>Enalapril (Vasotec)</td>
<td>2.5 mg, 5 mg, 10 mg, 20 mg</td>
<td>Generic</td>
</tr>
<tr>
<td><strong>Angiotensin Receptor Blockers (ARB)</strong></td>
<td>Losartan (Cozaar)</td>
<td>25 mg, 50 mg, 100 mg</td>
<td>On Patent</td>
</tr>
<tr>
<td></td>
<td>Telemasartan (Micardis)</td>
<td>20 mg, 40 mg, 80 mg</td>
<td>On Patent</td>
</tr>
<tr>
<td><strong>Calcium Channel Blockers</strong></td>
<td>Amlodipine</td>
<td>2.5 mg, 5 mg, 10 mg</td>
<td>Generic, 1st line</td>
</tr>
<tr>
<td></td>
<td>Diltiazem ER</td>
<td>120 mg</td>
<td>Generic</td>
</tr>
<tr>
<td><strong>Beta Blockers</strong></td>
<td>Lopressor</td>
<td>25 mg, 50 mg, 100 mg</td>
<td>Generic</td>
</tr>
<tr>
<td></td>
<td>Metoprolol XL (Toprol, Lopressor)</td>
<td>25 mg, 50 mg, 100 mg</td>
<td>On Patent</td>
</tr>
<tr>
<td></td>
<td>Carvedilol (Coreg)</td>
<td>6.25 mg, 12.5 mg, 25 mg</td>
<td>ACCORD, Diabetics</td>
</tr>
<tr>
<td><strong>Thiazide Diuretics</strong></td>
<td>Hydrochlorothiazide</td>
<td>12.5 mg, 25 mg, 50 mg</td>
<td>Generic</td>
</tr>
<tr>
<td></td>
<td>Chlorthalidone</td>
<td>25 mg, 50 mg</td>
<td>Generic</td>
</tr>
<tr>
<td><strong>Potassium Sparing Diuretic</strong></td>
<td>Dyazide (HCTZ/Triamterene)</td>
<td>25/37.5 mg, 25/50 mg</td>
<td>Generic</td>
</tr>
<tr>
<td><strong>Loop Diuretics</strong></td>
<td>Furosemide</td>
<td>20 mg, 40 mg, 80 mg</td>
<td>Generic</td>
</tr>
<tr>
<td></td>
<td>Torsemide</td>
<td>5 mg</td>
<td>Generic</td>
</tr>
<tr>
<td><strong>Centrally Acting Alpha Agonist</strong></td>
<td>Clonidine</td>
<td>0.1 mg, 0.2 mg, 0.3 mg</td>
<td>Generic</td>
</tr>
<tr>
<td><strong>Alpha Blocker</strong></td>
<td>Doxazosin</td>
<td>1 mg, 2 mg, 4 mg, 8 mg</td>
<td>Generic</td>
</tr>
<tr>
<td><strong>Vasodilators</strong></td>
<td>Hydralazine</td>
<td>10 mg, 25 mg, 50 mg, 100 mg</td>
<td>Generic</td>
</tr>
<tr>
<td></td>
<td>Minoxidil</td>
<td>2.5 mg, 5 mg, 10 mg</td>
<td>Generic</td>
</tr>
<tr>
<td><strong>Aldosterone antagonist</strong></td>
<td>Spironolactone</td>
<td>25 mg, 50 mg, 1000 mg</td>
<td>Generic</td>
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<tr>
<td><strong>Combo Drugs</strong></td>
<td>Enalapril/HCTZ</td>
<td>5/12.5 mg</td>
<td>Generic, Improve Compliance</td>
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<tr>
<td></td>
<td>Lisinopril/HCTZ</td>
<td>10/12.5 mg, 20/12.5 mg, 20/25 mg</td>
<td>Improve Compliance, Generic</td>
</tr>
<tr>
<td></td>
<td>Losartan/HCTZ</td>
<td>50/25 mg, 100/25 mg</td>
<td>Improve Compliance</td>
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<tr>
<td></td>
<td>Amlodipine/Benzepril</td>
<td>5/10 mg, 5/20 mg, 10/20 mg</td>
<td>Improve Compliance</td>
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<td>Methyldopa (Aldomet)</td>
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<tr>
<td></td>
<td>Labetolol</td>
<td>200 mg, 300 mg</td>
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<tr>
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<td>Hydralazine</td>
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<tr>
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<td>Diltiazem</td>
<td>30 mg, 60 mg, 120 mg</td>
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Self–Management Support

Self–management is a method of engaging the patient in their care. Self–management allows the patient to partner with the provider in setting goals that the patient selects. Every person self–manages their chronic condition. Most of the chronic care decisions are made by the patient away from the health care system. Those who self–manage will improve their clinical outcomes.

The purpose of self–management support is to encourage patients to become informed and activated. This is done by providing information, encouraging collaborative decision making and assisting people to set their own goals.

Anyone on the care team can work with patients in establishing care goals. But, the provider should start the conversation. Here are some suggestions:

Diabetes is a serious condition. There are things that you can do to live better with diabetes and things the medical care team can do to assist you. We are going to work together on this.

• "What is the one thing you want to work on before your next visit to improve your health?"
• "What are you willing to do for your diabetes between now and your next visit?"

Self–Management Goals

• Afford patients an opportunity to set objectives for behavior change.
• Encourage patients’ involvement in their disease management process.
• Are chosen based upon the willingness of the patient and agreed upon by both patient and clinician.
• For behavior change to occur the patient must be clear about what it is she or he will do.
• Are specific, measurable, achievable, realistic and time–based (SMART).

Self Care Goals

Diabetes Self Care Goal Sheets will assist you with establishing goals with the patients. Renegotiate goals with patients scoring less than 7 on the importance and confidence scales.

Choose one goal at a time.

What will I do? ______________________________________________________________

When will I do it? ____________________________________________________________

Where would I do it? _________________________________________________________

How often will I do it? _______________________________________________________

What might get in the way of my plan? __________________________________________

What could I do to make sure my plan works? ___________________________________

Goal review

How important is this goal to you? (rate 1–10) Circle one

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<td>A little</td>
<td>Somewhat sure</td>
<td>Very sure</td>
<td>Totally sure</td>
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How sure are you that you will reach this goal? (rate 1–10) Circle one

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<td>Totally sure</td>
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Patient Signature: _______________________________ 
Clinician Signature: _____________________________ 
Date__________________

Agreed upon by the patient and clinician
Medical Nutritional Therapy (MNT) recommendations will assist you in providing appropriate nutritional counseling for your patients.

**General Principles**

Individuals who have pre–diabetes or diabetes should receive individualized MNT as needed to achieve treatment goals.

- **Recommend** weight loss for all overweight or obese persons.
- **Weight loss** (5%–10%) has been shown to reduce insulin resistance in obese and overweight persons.
- **Lifestyle change should be the primary approach to weight loss.**
- **Structured programs** that emphasize lifestyle changes can produce long–term weight loss on the order of 5 –7% of starting weight. Education, reduced energy and fat (~30% of total energy) intake, regular physical activity and regular participant contact.
- **Physical activity** (150 minutes per week) and behavior modification.

**Advice for patients**

- See a dietician/nutritionist or clinician trained in MNT.
- Emphasize plate method.
- Instruct patients to reduce by half, portions of starches.
- Increase non–starchy vegetables.
- Eliminate or reduce beverages with added sugars.
- Encourage aerobic exercise 15 minutes out (walking in one direction) and 15 minutes in (walking back to start point) at least 5 times per week and include 30 minutes of resistance training weekly.

**PLATE METHOD**

The Plate Method is a simple method for teaching meal planning. A 9–inch dinner plate serves as a pie chart to show proportions of the plate that should be covered by various food groups. This meal planning approach is simple and versatile. Non–Starchy Vegetables should cover 50 percent of the plate for lunch and dinner. The remainder of the plate should be divided between starchy foods, such as bread, pasta, grains such as corn, rice, barley or potatoes, and a choice from the meat group such as chicken, beef, fish, turkey, pork. A serving of fruit and milk are represented outside the plate. Choose fresh, frozen, dried or canned fruit in fruit juice. Choose skim milk or 1% or 6 ounces of low–fat yogurt.
What does food have to do with Diabetes?
Diabetes means that your body does not make enough insulin or the insulin it makes does not work well. This causes glucose (sugar) in the blood to be higher than normal. Glucose comes from the foods you eat. Insulin is a hormone that helps your body use the glucose by moving it from the blood, and putting it into the cells for energy. Your meals will be planned with you. It will be helpful if you can keep a list of the foods that you like to eat to discuss them with the dietitian.

Choose the correct amount of food from the following food groups. You are only allowed to exchange within the same food group. Foods listed are (1) one serving only.

**FOOD LIST**

(1) **CARBOHYDRATES** (sometimes called starches)
   - For Breakfast, Lunch or Dinner choose 2 different ones or double one
     - 1 slice of wheat bread
     - ½ cup of cooked cereal
     - 1 small baked potato
     - 1/3 cup cooked pasta
     - 1/3 cup rice

(2) **PROTEIN OR MEAT**
   (1 serving = 1 oz)
   Choose 1 for breakfast, 2 for lunch and 3 for dinner.
   - 1 oz fish
   - 1 oz chicken or turkey (without skin)
   - 1 egg or 2 egg whites

(3) **VEGETABLES** (1 serving = ½ cup cooked or 1 cup raw)
Choose 1 for lunch, choose 2 two or double for dinner.
   - Broccoli
   - Greens (collard, callaloo)
   - Eggplant/melonene
   - Choo–choo/christophene
   - Bora/long beans
   - Cabbage
   - Spinach
   - Green beans
   - Carrots, beets
   - Okra

(4) **MILK OR DAIRY**
Choose one 1 for breakfast and 1 for dinner.
   - 1 cup Skim or 1% milk
   - 8 oz. plain yogurt

(5) **FRUIT**
Choose 1 for breakfast, 1 for lunch and 1 for dinner.
   - 1 small orange
   - 1 small apple
   - 17 small grapes
   - ½ banana (9” long) or 1 small
Limit juices until your blood sugar is controlled, (juice raises the blood sugar quickly)

(6) **FATS** (1 tsp)
Choose 1 for breakfast, 1 for lunch and 1 for dinner.
   - Margarine
   - Oil (olive or canola)
   - Mayonnaise

**SAMPLE MEAL PLAN**

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<tr>
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<th>L</th>
<th>D</th>
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<tr>
<td>Protein (2)</td>
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<tr>
<td>Fats (6)</td>
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**INSTRUCTIONS**

1. Limit foods containing sugar, dextrose, honey, corn syrup, molasses, juices, etc.
2. Take your medicine as ordered.
3. Follow your meal plan.
4. Exercise 30 minutes per day (get physician approval).
5. Test your blood sugar as instructed.
6. Keep all appointments.

**BLOOD SUGARS RANGES:**
- Fasting: 70 mg–110 mg/dl
- Before meals: 80 mg–120 mg/dl, 2 hours after meals<140 mg/dl
- Not to be used for children or in pregnancy.

From KCHC Diabetes Education Program, "Now That I Have Diabetes, What can I eat?", Beulah Bradshaw, RN, CDE et al.
Healthy Eating Tips

Ask your patients to select 3–5 diet interventions to improve their health. This handout is helpful to all patients regardless of their diagnoses.

- Watch your serving size or portions.
- Use two cups of skim milk instead of two cups of whole milk a day.
- Order your coffee “skinny”—with skim milk instead of cream.
- Use a smaller bowl for your morning cereal.
- One cup of whole grain cereal instead of two.
- Substitute Canadian bacon for regular bacon.
- Add more fresh fruits and vegetables to your diet. Eat fresh fruit instead of juice or dried fruit.
- Choose salads, fruits or vegetables instead of fries.
- Use whole grain foods like brown rice or whole wheat spaghetti in your meals.
- Add dried beans like kidney or pinto beans and lentils to your meals.
- Add fish 2–3 times a week to your meals.
- Try baked, broiled or steamed foods instead of fried.
- Choose lean cuts of meat like pork loin or sirloin steak.
- Use “light” or fat–free salad dressing instead of regular.
- Use water–packed tuna instead of oil–packed.
- Replace sugar with artificial sweeteners.
- A cup of low fat, sugar free yogurt, instead of a doughnut.
- Choose water, low–fat or fat–free milk, diet soda or club soda with lime instead of regular soda.
- Use tomato slices, lettuce leaves, pepper strips and mustard on a sandwich instead of mayonnaise.
- Order thin crust pizza instead of pan pizza. Choose low fat toppings like chicken or ham and add lots of vegetables. Ask for half as much cheese and more tomato sauce.
- Choose chicken tacos and bean burritos and skip the cheese, sour cream and guacamole. Double the fresh salsa on anything you order.
- Enjoy the taste of fried chicken or turkey without the added fat. Just remove the skin and breading before eating.
- Ask for grilled or roasted chicken sandwiches. Add lettuce, tomato and mustard for flavor without the fat and calories.
- Order smaller portions of items that have several pieces. For example, order two pieces of chicken rather than four or save half the chicken for tomorrow’s lunch.

These are healthy food choices you can make to:
1. Reduce your calorie intake,
2. Reduce your weight,
3. Reduce the fat and carbohydrate in your diet

FOOD & PORTION SIZES
If you want to lose weight, cutting calories is a good place to start. This does not mean you have to stop eating your favorite foods. It does mean eating less.

PORTION CONTROL MEANS:
- See how much you eat
- Decide how much to eat
- Cut back on portion size

SERVING SIZE & PORTION GUIDELINES
- Meat, fish, poultry–3 oz. (about the size of the palm of your hand)
- Cheese–1 oz. (about the size of your thumb)
- Milk, yogurt, fresh vegetables–1 cup (about the size of a tennis ball)
- Bread–one slice
- Rice or cooked pasta–1/3 cup
- Potato or corn–1/2 cup
- Dry cereal–3/4 cup
Special thanks to the New York City Department of Health and Mental Hygiene, Office of Commissioner Thomas Frieden, MD, MPH and the Diabetes Prevention and Control Program for their assistance in developing the guidelines.