DIABETES FOR CARE MANAGERS: PART 1 Pathophysiology and Management

Webinar for Michigan Care Management Resource Center

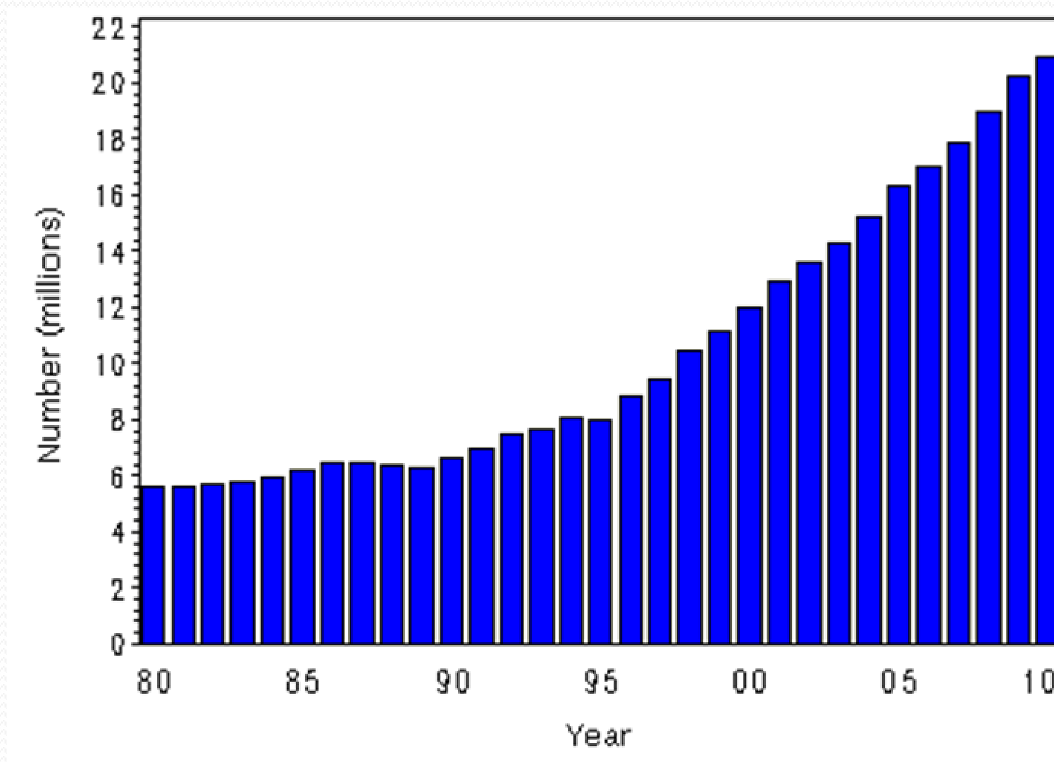
Lisa Bosio, BSN, RN, CDE

Objectives

- Discuss the increased prevalence of diabetes and the long-term health consequences
- Differentiate the pathophysiology and incidence of Type 1 and Type 2 diabetes
- Review Standards of Care and Management of diabetes
- Discuss various resource to assist with diabetes management

Diabetes Prevalence

Diabetes in the U.S. has more than tripled in the past 30 years.



Number (in millions) of civilian, non-institutionalized persons with diagnosed diabetes in the United States, 1980-2010 (CDC, 2010)

Prevalence (cont.)

T1DM

- More common in males than females (ratio 1.5 to 1)
- More common in non-Hispanic whites
- More common in the children and young adults, peak age of onset ages 13-17
- Accounts for 5% of all cases in the U.S.

T2DM

- Incidence about the same for men and women
- Less common in non-Hispanic whites
- More common in older adults, peak age of onset 45-64
- Accounts for 95% of all cases in the U.S.

Economic Impact of Diabetes

- In 2007, national cost of diabetes in U.S. exceeded $174 billion
  - $116 billion in diabetes related medical costs
  - $58 billion in reduced national productivity
- Patients with diabetes have medical costs 2.3 times higher than patients without diabetes
- Accounts for 32% of all Medicare expenditures
- 10% of **ALL** health care dollars attributed to diabetes
- Future estimates: incidence more than will double and costs will more than triple in the next 25 years

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Pathophysiology

Type 1

- Autoimmune destruction of pancreatic beta cells
- More common in youth
- Sudden onset
- Three “Poly’s”, fatigue, weight loss, blurred vision
- Antibodies found in lab studies

Type 2

- Insulin resistance + inadequate insulin secretion
- More common in older adults
- Gradual onset
- Can be asymptomatic for years
- No antibodies

Complications of Diabetes

- Microvascular:
  - Retinopathy—small vessels become thickened and narrowed, growth of abnormal vessels in late stage
  - Nephropathy—thickening and scarring of glomerulus
  - Neuropathy—impaired nerve function, can be abnormal sensation or loss of sensation.
    - Peripheral vs. Autonomic
- Macrovascular:
  - CVD/CAD: MI and CVA
  - PVD/PAD: Claudication, ischemic ulcers, gangrene, amputation
  - RAS: Renal Artery Stenosis

Management

2013 ADA Standards of Care:

- Recommend collaborative, team approach
- Patient-oriented, patient plays active role
- Plan of care should be *individualized*

Target goals:

- A1c <7% for most, < 8% for elderly
- BP < 140/80 (new systolic parameter in 2013)
- LDL < 100 (<70 if hx CAD)
- HDL > 40 in men, >50 in women
- Trig < 150
- Exercise: 150 mins/week, resistance training 2 days/week

Management (cont.)

- SMBG testing:
  - T1DM: at least 4x/day
  - T2DM: variable, dependent upon patient
- SMBG targets:
  - Fasting: 90-130 (around 100)
  - 2 hrs post-prandial: < 180, even better if < 150.
- Benefits of SMBG testing:
  - Evaluates treatment regime
  - Increased awareness of how food affects BS levels
  - Increases self-accountability

Medications

- Metformin: 1st line drug, unless contraindicated—low cost
- Sulfonylureas: Glimepiride (Amaryl) is preferred, use caution with Glipizide and Glyburide (longer half-life)—all are low cost
- TZD's: Actos or Avandia (seldom prescribed)—medium cost
- Glinides: Prandin and Starlix—medium-high cost
- DPP-4 Inhibitors: Januvia (Sitagliptin) or Onglyza (Saxagliptin)—medium-high cost
- GLP-1 analogs: Byetta/Bydureon, Victoza—expensive and require injection

Medications (cont.)

- Insulin:
  - Basal: Lantus®(glargine) or Levemir®(detemir)
  - NPH: Humulin®N or Novolin®N
  - Mixed: "-lins" and "-logs"
    - Humulin®70/30 or Novolin®70/30
    - Humalog®75/25 , Humalog®50/50, Novolog®70/30
  - Short: Humulin®R or Novolin®R
  - Rapid: Humalog®(lispro), Novolog®(aspart), Apidra®(glulisine)
  - Inexpensive vs. expensive
  - Vial vs. pens

Medications (cont)

Less frequently seen medications:

- Alpha-Glucosidase Inhibitors: Precose® and Glyset®—moderately expensive, unpleasant side effects.
- Dopamine receptor agonist: Cycloset® (Bromocriptine)—expensive, significant side effects
- Amylin analog: Symlin®—expensive, higher risk of hypoglycemia

Self-Management Resources

- American Diabetes Association (www.diabetes.org):
  - Patient education and self-management tools
  - Can print off patient information free
  - Leading professional diabetes resource
- Learning About Diabetes (www.learningaboutdiabetes.org)
  - Low literacy teaching materials—diet, disease process, meds, prevention of complications
  - English and Spanish
  - Resources for children and teens

Resources (cont.)

- DiabetesCare.net (www.diabetescare.net):
  - Free resource for patients and healthcare providers
  - Educational tools in PDF, can be printed and shared with patients
  - Recipes, blogs, resources, coupons

- Dlife (www.dlife.com):
  - Over 8000 diabetes-friendly recipes
  - Diabetes resources in the community
  - Forums and blogs, "Ask The Experts"
  - Educational videos

Always steer patients toward reputable websites!

Resources in the Neighborhood

- Make friends with a Pharmaceutical rep!
  - Patient education print materials
  - Free online self-management programs
  - Copay savings cards
  - Free samples
- MDCH Resources (www.michigan.gov/mdch)
  - NDPP: National Diabetes Prevention Program
    - CDC-funded grant in 2012, located throughout state
  - PATH(Personal Action Towards Health):
    - Uses Stanford Model for Chronic Disease Self-Management

More Neighborhood Resources

- Diabetes Self Management Education (DSME):
  - Medicare/Medicaid: up to 10 hours of instruction in year 1, 2 hours each year after
    - Part B Deductible and 20% copay apply
  - Commercial Insurances: may have deductible, copays
  - Available in variety of settings
  - Program must be certified for insurance to cover
    - ADA, MDCH, or AADE
    - Meets established national criteria

Nutrition Resources

Medical Nutrition Therapy:

- Provided by RD
- Covered in full by Medicare Part B, if one of criteria met (must have PCP referral):
  - Diabetes
  - Renal Disease
  - Kidney transplant in past 36 months
  - Nutrition provider accepts Medicare
- Part B deductible and copay do not apply
- Can receive every year
- Coverage varies with commercial insurance