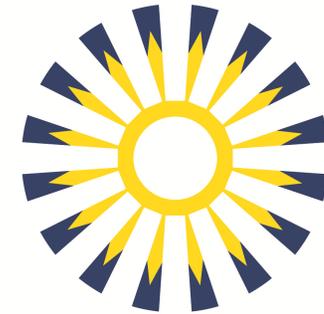


DIABETES STANDARDS OF CARE AND QUALITY IMPROVEMENT 2012

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NEBRASKA
Diabetes Prevention
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Objectives



- Identify the American Diabetes Association's Standards of Care
- Recognize the Nebraska Diabetes Consensus Guidelines
- Examine applications of the quality improvement process
- Discuss the "Chronic Care Model" and "Model for Improvement" as tools for testing change in high-quality chronic disease management

What is diabetes?



- a group of diseases characterized by high blood glucose levels that result from defects in the body's ability to produce and/or use insulin.

What are the different types of diabetes?



- Type 1
- Type 2
- Gestational diabetes
- Other

Other types of diabetes due to various causes



- Genetic defects in
 - insulin action
 - Beta cell function
- Diseases of the pancreas
 - Cystic Fibrosis
- Drug or chemical induced
 - AIDS treatment
 - Organ transplantation

How is diabetes diagnosed?



- **Hemoglobin A1c 6.5 or greater**
- **Random/casual blood glucose of 200+ in a person with symptoms of hyperglycemia**
- **Fasting plasma glucose (FPG) of 126+**
 - ▣ 8 hour fast
- **Two hour plasma glucose of 200+ after oral glucose tolerance test (OGTT)**

Who should we check for diabetes?

- Consider testing all adults overweight or obese (BMI 25+) with one or more risk factors
 - Physical inactivity
 - First degree relative with diabetes
 - African American, Latino, Native American, Asian
 - Women who have had
 - Gestational diabetes
 - Baby >9 lbs
 - Polycystic Ovarian Syndrome

Who should we check for diabetes?



- Consider testing all adults overweight or obese (BMI 25+) with one or more risk factors
 - HTN
 - HDL <35 and/or triglyceride >250
 - A1c of 5.7+ or IFG or IGT on previous testing
 - History of CVD
 - Severe obesity, acanthosis nigricans

Who should we check for diabetes?



- In people without those risk factors, begin testing at age 45
- If results are normal, repeat every 3 years

Why test?



- Diagnose diabetes
 - ▣ Type 2 diabetes has long asymptomatic phase
 - ▣ Many with diabetes are undiagnosed

- Assess risk for future diabetes
 - ▣ Identify those with pre-diabetes
 - Prevent or delay diabetes
 - Treat other risk factors

Gestational diabetes



- Pregnant women should be tested (OGTT) at 24-28 weeks
- If diagnosed, follow-up test for diabetes at 6-12 weeks after delivery

Diabetes Prevention

Those at increased risk...

- ▣ IFG
- ▣ IGT
- ▣ A1c 5.7-6.4
- ▣ Refer to weight loss program
 - ▣ Lose 5-10% of body weight
- ▣ 150 min/wk of activity
- ▣ Follow-up counseling
- ▣ Consider metformin
- ▣ Test every year



Healthy Eating and Physical Activity are keys to Success

- Even a small weight loss may help to lower blood glucose
- For best results, work with a diabetes care team



Basic Diabetes Management Tools



TYPE 1: HEALTHY EATING, PHYSICAL ACTIVITY,
TAKING INSULIN

TYPE 2: HEALTHY EATING, PHYSICAL ACTIVITY,
BLOOD GLUCOSE TESTING*

*MANY ALSO NEED ORAL MEDICATION OR INSULIN

What are the signs and symptoms of diabetes?

Type 1 Diabetes:

- Frequent urination
- Excessive thirst
- Unexplained weight loss
- Extreme hunger
- Extreme tiredness
- Irritability



What are the signs and symptoms of diabetes?

Type 2 Diabetes *

- Any symptom of type 1 diabetes
- Frequent infections
- Blurred vision from time to time
- Cuts or bruises that are slow to heal
- Tingling or numbness in hands or feet
- Recurring skin, gum, or bladder infections
- * Often people with type 2 diabetes have no symptoms

What **problems** can diabetes cause?

- **Eye** Problems – blurred vision or blindness
- **Nerve** Damage – pain, tingling, or numbness
- **Foot** Problems – sores that won't heal, may lead to amputations
- **Dental** Problems – gum disease
- **Kidney** Disease – kidneys may fail, may need dialysis or transplant
- **Heart and blood vessel** disease – more likely to have heart attack or stroke

How do you **manage** diabetes?



- ❑ Check your blood sugar
- ❑ Know what your numbers should be
- ❑ Take your medications
- ❑ Lose weight
- ❑ Be active
- ❑ Eat foods that are low in fat and sodium (salt)
- ❑ Keep your BP and cholesterol down

Clinical practice guidelines



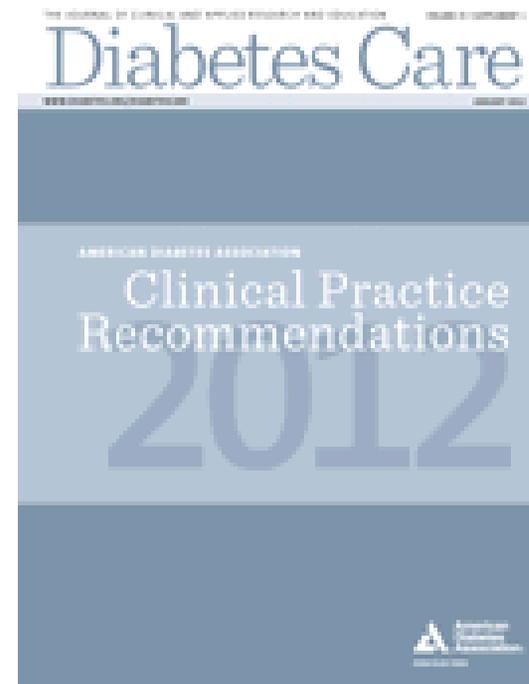
American Diabetes Association (ADA)

- Evidence-Based
- Developed by a panel of scientific and medical experts in the area of diabetes
- Annual review and revision

ADA Guidelines

□ Brand New!

□ **Diabetes Care**
January 2012
Volume 35, S. 1-2



Nebraska Diabetes Consensus Guidelines



- Developed by the Nebraska Department of Health and Human Services
- Based on the ADA's Standards of Care
- Care flow sheets developed with adult and pediatric versions
- http://dhhs.ne.gov/publichealth/Pages/diabetes_index.aspx

Nebraska diabetes consensus guidelines



- Guidelines Task Force: Multiple primary and specialty care physicians, diabetes educators, and representatives of the major managed care plans in the State of Nebraska participate

- Anyone can volunteer to be on it!

 [Nebraska Diabetes Consensus Guidelines](#) - Guidelines suggested for use in the management of diabetes in Nebraska. Also includes adult and pediatric flow sheets, summary of the ADA's testing criteria, and information and charts on foot, eye, and dental examinations.

- **Adult Care & Guidelines**

- [Format 1 - Guidelines of Medical Care for Adult Patients with Diabetes](#)

- [Format 2 - Guidelines of Medical Care for Adult Patients with Diabetes](#)

- [Format 3 - Guidelines of Medical Care for Adult Patients with Diabetes](#)

- [Format 1 - Basic Self-Management Routine Education Record for Adult Patients](#)

- [Format 2 - Basic Self-Management Routine Education Record for Adult Patients](#)

- **Pediatric Care & Guidelines**

- [Format 1 - Guidelines of Medical Care for Pediatric Patients with Diabetes](#)

- [Format 2 - Guidelines of Medical Care for Pediatric Patients with Diabetes](#)

- [Format 1 - Basic Self-Management Routine Education Record for Pediatric Patients](#)

- [Format 2 - Basic Self-Management Routine Education Record for Pediatric Patients](#)

- **Misc.**

- [Chart Page for Comprehensive Foot Exams](#)

- [Dental-Care Guidelines](#)

- [Eye Exam Report](#)

- [Chart Pages for Diabetes Eye Exam](#)

Blood Glucose Standards



- Hemoglobin A1c (now just called A1c test)
 - < 7.0 for most
- Perform the A1C test at least two times a year in patients who are meeting treatment goals (and who have stable glycemic control).
- Perform the A1C test quarterly in patients whose therapy has changed or who are not meeting glycemic goals.

A1c goals



- a reasonable A1C goal for many nonpregnant adults is $<7\%$
- more stringent A1C goals (such as $<6.5\%$) for selected individual patients, if this can be achieved without significant hypoglycemia or other adverse effects of treatment.
 - Appropriate patients might include those with
 - short duration of diabetes,
 - long life expectancy, and
 - no significant CVD

A1c goals



- Less-stringent A1C goals (such as $<8\%$) may be appropriate for patients with
 - a history of severe hypoglycemia
 - limited life expectancy
 - advanced microvascular or macrovascular complications
 - extensive comorbid conditions, and
 - those with longstanding diabetes in whom the general goal is difficult to attain despite DSME, appropriate glucose monitoring, and effective doses of multiple glucose-lowering agents including insulin. (B)

Blood Glucose Standards



- Preprandial (before meal) bg
 - 70-130

- 2 h postprandial (after meal) bg
 - <180

- Fasting (8 hour) bg
 - 126+ diabetes
 - 100-125 pre-diabetes

Lipid Standards

- Annually
 - ▣ Complete lipid profile
 - ▣ Goal
 - Cholesterol < 200 mg/dl
 - HDL > 50 women > 40 men
 - **Triglycerides < 150 mg/dl**
 - LDL < 100

Improved lipid control could
reduce CV complications 20-50%.



Blood pressure



- Keep BP less than 130/80 mm Hg

Self-Monitoring of Blood Glucose



- ▣ 3+ times daily
 - Insulin pump therapy
 - Multiple insulin injections per day

- ▣ Factors to consider:
 - Adjusting insulin or medication
 - Learning glycemic effects of food
 - Cost of testing

Self-Monitoring of Blood Glucose



- Machine accuracy should meet ADA standards
- Potential sources of error
 - inadequate blood sample
 - soiled meter
 - uncalibrated meter
 - defective reagents

Annual Assessments



- Complete physical exam
- Comprehensive foot exam
- Dilated eye exam
- Kidney function test
- Cholesterol
- Triglycerides
- Flu shot
- A1c (every 3-6 mo)

Annual Assessments



Physical:

- History
- Height, weight, BMI
- BP
- Thyroid palpation
- Skin examination (for acanthosis nigricans and insulin injection sites)
- Abdominal exam
- Neurological exam
- Depression screening

Annual Assessments cont'd...

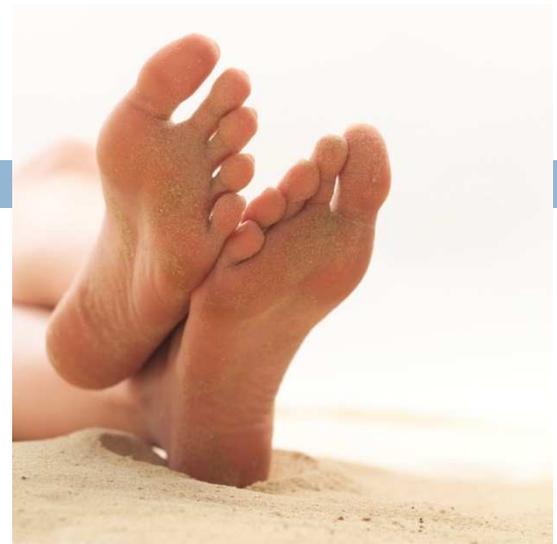


Referrals:

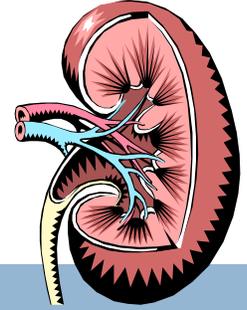
- Annual Dilated eye exam
- Registered Dietitian for medical nutrition therapy
- Diabetes self-management education
- Dental examination
- Mental Health professional, if needed

Foot Exam

- Comprehensive foot examination:
 - Inspection
 - palpation of pedal pulses
 - reflexes
 - determination of vibration and monofilament sensation
 - At least once/yr, more if pt has high-risk feet



Kidney Function



- Annual serum creatinine--everyone
- Annual test for urine albumin
 - ▣ Type 1 patients with diabetes duration of 5+ years
 - ▣ All type 2 patients, starting at diagnosis
 - ▣ Random spot urine for albumin/creatinine ratio (UACR) is most common test
 - Normal < 30 $\mu\text{g}/\text{mg}$
 - Microalbuminuria 30-299
 - Macro (clinical)-albuminuria 300+

Dental Exam



- Bi-annual
- More likely to develop periodontal disease
 - ▣ This can increase blood sugars
 - ▣ Lead to complications
 - ▣ Those with poor diabetes control most at risk
 - ▣ Must be treated so pt doesn't get periodontal infections
- Increased cavities and oral infections

Eye Exam

- Annual dilated eye exam
 - Early detection the best way to prevent vision loss
- People with diabetes at risk for
 - Diabetic Retinopathy
 - Cataracts
 - Glaucoma



Every visit



- Review blood sugars
- Check BP
- Review meal plan
- Review activity level
- Check weight
- Discuss questions or concerns

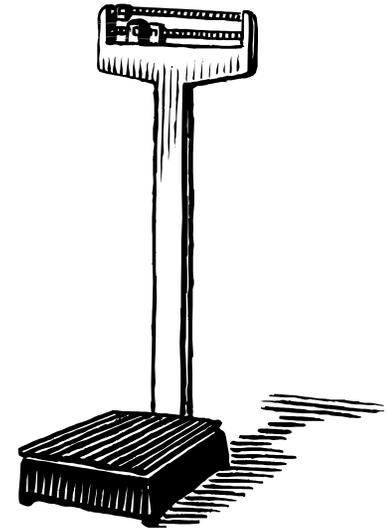
Other Considerations



- Smoking/Tobacco/Substance Use
- Consider for daily ASA
- Consider for ACE inhibitor
 - or ARB (angiotensin receptor blocker)
- Diabetes education
- Depression screening
- Screen for sexual dysfunction

Additional Considerations

- Review of needed labs
- Unusual symptoms
- New therapies
- Vaccination status
 - ▣ Influenza yearly (≥ 6 months of age)
 - ▣ Pneumococcal
 - Only need once, but may get booster if over 65 and it's been over 5 years



Nursing/Medical Assistant Care



- Review lifestyle factors with patient, such as alcohol, tobacco, street drug use
- Assess patients for knowledge of sick-day management
- Vital signs
- Medication changes and side effects
- Monitoring blood glucose control, diet

Nursing/Medical Assistant Care



- Hypoglycemia treatment
- Diabetes education
- Foot care
- Physical activity (150 min/wk)
- Lab work—A1C and microalbumin
- Eye exams/Dental care

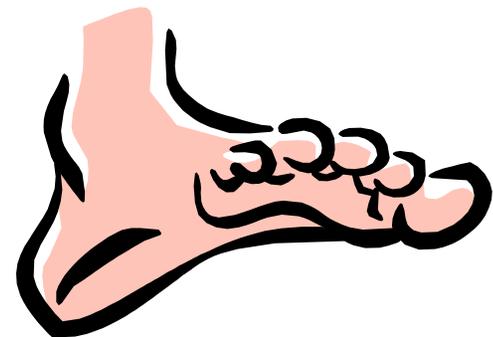
Foot Care



- Keep blood glucose, blood pressure, and cholesterol close to normal
- Check your feet every day
- Wash your feet every day
- Keep the skin soft and smooth

Foot Care

- Smooth corns and calluses gently
- Trim your toenails each week or when needed
- Wear shoes and socks at all times
- Protect your feet from hot and cold
- Keep the blood flowing to your feet
- Proper footwear



BASICS OF QUALITY IMPROVEMENT



Environment of Quality Improvement



- ▣ Emphasis on quality and safety(IOM)
- ▣ ***“Between the health care we have and the care we could have lies not just a gap, but a chasm” Institute of Medicine***
- ▣ Documented outcomes: cost & quality
- ▣ From managing care to managing health
- ▣ From provider centered to patient centered
- ▣ Quality reports
 - Specific aims: care should be safe, effective, patient-centered, timely, efficient and equitable

Chronic Care Model

- AKA “Planned Care Model”
- Can be applied to:
 - ▣ A variety of chronic illnesses, health care settings and populations
 - ▣ Informed patients and families who take an active role in their care
 - ▣ Providers with resources and expertise

Chronic Care Model



Essential elements of a health care system that encourage high-quality chronic disease care:

1. Health System (Organization of Health Care)
2. Decision Support
3. Delivery System Design
4. Clinical Information Systems
5. Self-Management Support
6. Community- Resources & Policies

Chronic Care Model

The Chronic Care Model



Health Systems- Organization of Healthcare

Create a culture, organization and mechanisms that promote safe, high quality care

- Senior leadership must make improving chronic care a priority and provide the resources and support needed to pursue it.
- Should be reflected in:
 - policies and procedures
 - business plan
 - financial planning

1. Health System (Organization of Healthcare)



Create a culture, organization and mechanisms that promote safe, high quality care

- Entire organization must be engaged in the improvement effort
- Encourage open and systematic handling of errors
- Develop agreements that facilitate care coordination within and across organizations

2. Decision Support

Promote clinical care that is consistent with scientific evidence and patient preferences

- Treatment based on evidence-based guidelines
- Integrate into day-to-day practice in an easy to use manner
- Healthcare providers need to receive ongoing education on:
 - ▣ the disease process
 - ▣ treatment guidelines
 - ▣ facility quality improvement activities
- Share guidelines and information with patients to encourage their participation

3. Delivery System Design

Assure the delivery of effective, efficient clinical care and self-management support

- Determining what care is needed
- Clarify roles and tasks to ensure care
- Making sure staff have centralized up-to-date information about patient status
- Follow-up a part of standard procedure
- Cross training personnel
- Using standing orders or protocols

3. Delivery System Design cont'd...

- Provide clinical case management services for complex patients
- Give care that patients understand and that fits within their cultural background



4. Clinical Information Systems

Organize patient and population data to facilitate efficient and effective care

- An information system that can track individual patients as well as populations of patients is a necessity when managing chronic illness.
 - ▣ Track needs of individuals
 - ▣ Track progress of individuals
 - ▣ Track progress of a population

5. Self-Management Support

Empower and prepare patients to manage their health and health care

- Essential for people to be involved in their own care
- Use collaborative approach between healthcare team and patient/family
 - ▣ define problems
 - ▣ set priorities
 - ▣ establish goals
 - ▣ create treatment plans
 - ▣ solve problems along the way

6. Community

Mobilize community resources to meet needs of patients

- Community programs and organizations can support or expand a health system's efforts
- Advocate for policies to improve patient care
- Form alliances and partnerships
 - ▣ State programs
 - ▣ Local agencies
 - ▣ Faith organizations
 - ▣ Businesses
 - ▣ Civic clubs



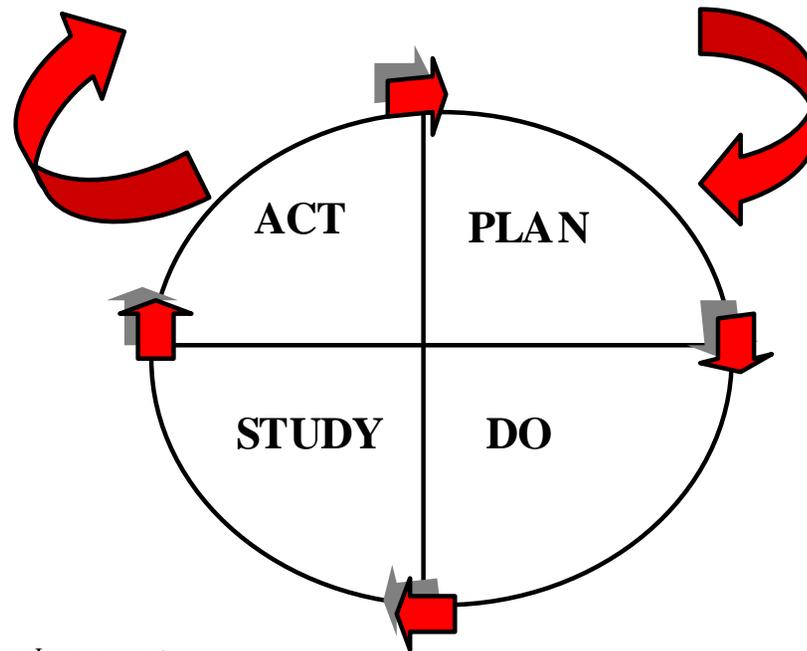
Model for Improvement

- Model for accelerating improvement
- Defines how to test and implement changes in a fast and efficient way
- Rapid change model (PDSA)



Model for Improvement

1. What are we trying to accomplish?
2. How will we know that a change is an improvement?
3. What change can we make that will result in improvement?



Setting Aims



What's the problem? Why is it important? What are we going to do about it?

Develop Aim Statement--

- Written statement summarizing what you hope to achieve
 - ▣ Write clear aim statement with specific numerical goals
 - ▣ Make the target achievable
 - ▣ Involve senior leaders, obtain sponsorship
 - ▣ Provide frequent and brief updates
 - ▣ Focus on issues important to your organization
 - ▣ Connect aim statement to strategic plan

Aim Statement



- It will help you to:
 - ▣ Focus on specific actions to implement
 - ▣ Define which patients and which health care providers will participate
- Needs to be time-specific with measurable goals
 - ▣ How good? By when?

Example: Overall, to increase the number of patients screened for kidney disease by 30% within 12 months.

Define Goals

Establish Measures

- Measures play important role
- They tell you whether a change you make actually leads to improvement
 - ▣ Should be designed to accelerate improvement, not slow it down!
 - ▣ Integrate measurement into daily routine (information systems)
 - ▣ Want just enough measurement to answer the question and no more
- Measures should be linked to team's aim

Select Changes



- Determine what changes will result in improvement

Plan



- Objective
- Questions and predictions (why)
- Plan to carry out the cycle (who, what, where, when)

Do

-
- Carry out the plan
 - Remember to collect data during the “do” phase of your cycle
 - Document problems and unexpected observations
 - Plot monthly data and begin analysis

Study

- Complete the analysis of the data
- Compare data to predictions
- Summarize what was learned



Act

- What changes are to be made?
- Next cycle?

Getting Started

- Gain Buy-In
 - Management and Employees
- Form A Team
 - Not too many people
 - Representative of areas involved



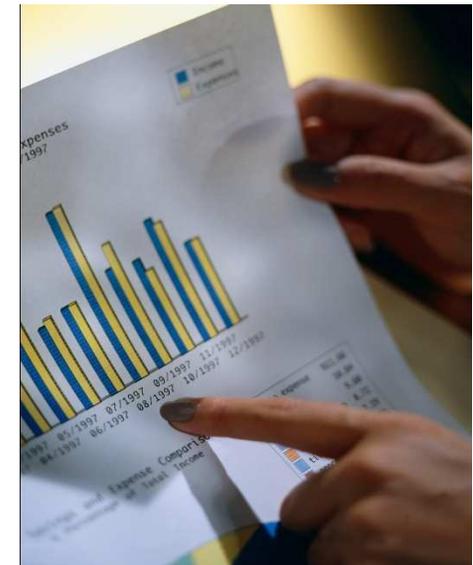
Testing On a Small Scale



- ❑ Learn how to adapt the change to conditions in the local environment. Consider change of workflow and daily schedule.
- ❑ Evaluate costs and side-effects of the change.
- ❑ Conduct the test over a short time period (3-5 days).
- ❑ Minimizes resistance upon implementation.

Why QI?

- It's about changing your organization's *approach* to an area of care.
- Increasingly more data available to both the public and payers on provider performance-- rates of reimbursement may become more closely tied to performance.
- Diabetes education centers require documentation of QI.
- CIMRO of Nebraska



Bottom Line



- Healthier patients
- More satisfied patients
- More satisfied providers
- Decreased health care costs

Changing Practices, Changing Lives...



□ **Goals:**

- Optimal outcomes and clinical excellence
- Making the switch from unplanned, acute care to more “planned, proactive care”- **David K. McCulloch, MD, FRCP**

New developments:

Medications

Use of data management systems that include a registry to organize and measure data

Use of flow sheets

On a final note...

- Goals for someone with diabetes at any age remain the same:

Reduce complications and enhance quality of life!

Remember:

- Warning signs may not always present as expected (think dehydration, etc.)
- Hypoglycemia symptoms may not show until blood glucose is <50
- Medications may metabolize at much different rates from one person to the next.

FOCUS!

- **F**ind a process that needs improvement.
- **O**rganize a team that knows the process.
- **C**larify the current knowledge of the process.
- **U**nderstand the variation in the process.
- **S**elect a process for improvement.
- **--How to Make Systems Changes
for Improved Care** –National Diabetes Education Program

Mental Health and Diabetes



- Risk for diabetes
 - Substance abuse
 - Medications
- Diabetes and Depression
- Behavior changes
 - Hypoglycemia
 - Hyperglycemia
- Concerns?

References

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- National diabetes fact sheet <http://www.diabetes.org/diabetes-statistics.jsp>
- ADA Standards of Care http://care.diabetesjournals.org/content/35/Supplement_1/S11.full#sec-15

For more information



Nebraska Diabetes Prevention and Control

Program http://dhhs.ne.gov/publichealth/Pages/diabetes_index.aspx

American Diabetes Association www.diabetes.org

Institute for Healthcare Improvement

<http://www.ihl.org/IHI/Topics/ChronicConditions/Diabetes/>

Chronic Care Model

<http://www.improvingchroniccare.org/>

National Diabetes Information Clearinghouse

<http://diabetes.niddk.nih.gov/>

Thank you!

- Take the post test to get contact hour certificate
- <http://www.zoomerang.com/Survey/WEB22EB4FKQT2H>