Complete Summary

GUIDELINE TITLE

Diabetes management in the long-term care setting.

BIBLIOGRAPHIC SOURCE(S)

American Medical Directors Association (AMDA). Diabetes management in the long-term care setting. Columbia (MD): American Medical Directors Association (AMDA); 2008. 44 p. [72 references]

GUIDELINE STATUS

This is the current release of the guideline.

This guideline updates a previous version: American Medical Directors Association (AMDA). Managing diabetes in the long-term care setting. Columbia (MD): American Medical Directors Association (AMDA); 2002. 51 p.

** REGULATORY ALERT **

FDA WARNING/REGULATORY ALERT

Note from the National Guideline Clearinghouse: This guideline references a drug(s) for which important revised regulatory and/or warning information has been released.

- February 26, 2008, Avandia (rosiglitazone): A new Medication Guide for Avandia must be provided with each prescription that is dispensed due to the U.S. Food and Drug Administration's (FDA's) determination that this medication could pose a serious and significant public health concern.
- November 14, 2007, Avandia (rosiglitazone): New information has been added to the existing boxed warning in Avandia's prescribing information about potential increased risk for heart attacks.
- August 14, 2007, Thiazolidinedione class of antidiabetic drugs: Addition of a boxed warning to the updated label of the entire thiazolidinedione class of antidiabetic drugs to warn of the risks of heart failure.
- October 16, 2007, Byetta (exenatide): Amylin Pharmaceuticals, Inc. has agreed to include information about acute pancreatitis in the PRECAUTIONS section of the product label.

COMPLETE SUMMARY CONTENT

SCOPE

DISEASE/CONDITION(S)

- Diabetes mellitus (type 2 diabetes)
- Impaired fasting glucose (IFG)
- Impaired glucose tolerance (IGT)

GUIDELINE CATEGORY

Diagnosis
Evaluation
Management
Screening
Treatment

CLINICAL SPECIALTY

Cardiology
Dentistry
Endocrinology
Family Practice
Geriatrics
Infectious Diseases
Internal Medicine
Nephrology
Neurology
Nutrition
Ophthalmology
Orthopedic Surgery
Pharmacology
Podiatry

INTENDED USERS

Advanced Practice Nurses
Allied Health Personnel
Dentists
Dietitians
Health Care Providers

Nurses
Occupational Therapists
Pharmacists
Physical Therapists
Physician Assistants
Physicians
Podiatrists
Social Workers

GUIDELINE OBJECTIVE(S)

- To improve the quality of care delivered to patients with diabetes in long-term care settings
- To offer care providers and practitioners in long-term care facilities a systematic approach to recognizing, assessing, treating, and monitoring patients with type 2 diabetes mellitus

TARGET POPULATION

Elderly residents of long-term care facilities with diabetes

INTERVENTIONS AND PRACTICES CONSIDERED

Screening/Diagnosis/Assessment

1. Laboratory tests (blood glucose - initial assessment and ongoing monitoring of fasting blood glucose, postprandial glucose, and hemoglobin A1c) and ancillary tests (renal function tests, lipid levels, urinalysis for protein)
2. Assessment of the patient's hyperglycemia and identification of the cause (medical history, physical findings, and review of medications and laboratory tests)
3. Evaluation of the nature and severity of diabetic complications
4. Identification of the impact of diabetes on the patient and summarization of the patient's condition

Note: Hemoglobin A1C measurement is not currently recommended for the diagnosis of diabetes, and oral glucose tolerance test is not recommended for routine clinical use.

Treatment/Management of Diabetes

1. Development of an individualized care plan and definition of treatment goals including achieving appropriate nutritional status, controlling pain, educating patient and family about diabetes and its management, setting target ranges for blood pressure and blood glucose, reducing risks of diabetic complications, reducing progression of diabetic complications, and others
2. Implementation of the care plan
    - Documentation
    - Lifestyle modification including diet and exercise
    - Oral agents including metformin (preferred), second-generation sulfonylureas, alpha-glucosidase inhibitors, meglitinides, thiazolidinediones, dipeptidyl peptidase IV (DPP-IV) inhibitors
    - Combination oral therapy

- Insulin therapy, including short-acting, intermediate-acting , and long-acting insulins, premixed combination insulins, and insulins from animal sources (refer to Tables 12 through 17 and Appendices 1 and 2 in the original guideline document for detailed information on insulin use)

  Note: Routine and prolonged use of sliding-scale insulin (SSI) is generally not recommended because of lack of evidence of efficacy

3. Timing and frequency of re-evaluation
4. Rotation of insulin injection sites

Treatment of Hypoglycemia

1. Carbohydrate or glucose 15 g or equivalents (e.g., ½ cup juice, 1 tube glucose gel, 3 glucose tablets)
2. Intramuscular glucagon
3. Intravenous 50% dextrose

Prevention and Treatment of Diabetic Complications

1. Foot care
   - **At-risk foot** -- routine podiatric care; daily foot care by patient and caregivers
   - **Current mild infection or ulcer** -- local dressings; baseline X-ray for bone integrity or osteomyelitis; podiatry or wound care referral as needed
   - **Limb-threatening ulcer or infection** -- hospitalization or intravenous antibiotics; referral to podiatry, orthopedic or vascular surgery

2. Eye care
   - Assessment for eye infections and eye pain
   - Comprehensive dilated eye examination if appropriate
   - Control of blood glucose, hypertension, and proteinuria

3. Oral care
   - Assessment for mouth infection, mouth pain, or eating difficulties
   - Dental services if indicated
   - Dietitian consultation if needed
   - Prophylactic antibiotics

4. Control of hypertension
   - Angiotensin-converting enzyme (ACE) inhibitors
   - Angiotensin receptor blockers (ARBs)

5. Management of diabetic nephropathy
   - Protein-restricted diet
   - Control of blood glucose and hypertension
   - Angiotensin-converting enzyme inhibitors, angiotensin receptor blockers
   - Nephrologist consultation

6. Management of diabetic neuropathy with analgesics, anticonvulsants, antioxidants, selective serotonin- and norepinephrine-reuptake inhibitors, or other medications
7. Management of dyslipidemia
    - Control of blood glucose
    - Lipid-lowering medication if appropriate

    Note: Dietary restriction to achieve lipid lowering is not recommended in frail elderly patients

8. Management of cardiovascular disease
    - Assessment of cardiovascular complications using electrocardiogram, echocardiogram, chest X-ray, arterial Doppler studies of the legs, cognitive testing, computed tomography (CT), and brain magnetic resonance imaging (MRI)
    - Enteric-coated aspirin
    - Clopidogrel or aspirin/extended release dipyridamole
    - Beta-blockers

Immunization

1. Influenza vaccine
2. Pneumococcal vaccine

Monitoring

1. Monitoring patient's blood glucose at specific intervals
2. Screening at-risk patients for diabetes
3. Comprehensive monitoring of the minimally impaired patient with diabetes

MAJOR OUTCOMES CONSIDERED

- Prevalence of diabetes in the long-term care setting
- Complications of diabetes
- Barriers to optimal management of diabetes in the long-term care setting
- Quality of life
- Adverse effects and complications of treatment
- Cost-effectiveness
- Mortality

METHODOLOGY

METHODS USED TO COLLECT/SELECT EVIDENCE

Searches of Electronic Databases

DESCRIPTION OF METHODS USED TO COLLECT/SELECT THE EVIDENCE

Not stated

NUMBER OF SOURCE DOCUMENTS

Not stated

METHODS USED TO ASSESS THE QUALITY AND STRENGTH OF THE EVIDENCE

Expert Consensus

RATING SCHEME FOR THE STRENGTH OF THE EVIDENCE

Not applicable

METHODS USED TO ANALYZE THE EVIDENCE

Review
Review of Published Meta-Analyses

DESCRIPTION OF THE METHODS USED TO ANALYZE THE EVIDENCE

Not stated

METHODS USED TO FORMULATE THE RECOMMENDATIONS

Expert Consensus

DESCRIPTION OF METHODS USED TO FORMULATE THE RECOMMENDATIONS

The guideline was developed by an interdisciplinary workgroup using a process that combined evidence- and consensus-based thinking. The workgroup included practitioners and others involved in patient care in long-term care facilities. Beginning with a general guideline developed by an agency, association, or organization such as the Agency for Healthcare Research and Quality (AHRQ), pertinent articles and information, and a draft outline, the group worked to make a concise, usable guideline that is tailored to the long-term care setting. Because scientific research in the long-term care population is limited, many recommendations were based on the expert opinion of practitioners in the field.

RATING SCHEME FOR THE STRENGTH OF THE RECOMMENDATIONS

Not applicable

COST ANALYSIS

- Diabetes care accounts for an estimated 32% of Medicare expenses. The estimated cost of providing care in LTC facilities for patients with diabetes increased from $13.9 billion in 2002 to $18.5 billion in 2007.
- A more expensive medication may ultimately be more cost-effective than a less-expensive alternative if it has fewer side effects, reduces nursing time, or can be given at a lower dose and frequency.

METHOD OF GUIDELINE VALIDATION

External Peer Review
Internal Peer Review

DESCRIPTION OF METHOD OF GUIDELINE VALIDATION

Guideline revisions are completed under the direction of the Clinical Practice Guideline Steering Committee. The committee incorporates information published in peer-reviewed journals after the original guidelines appeared, as well as comments and recommendations not only from experts in the field addressed by the guideline but also from "hands-on" long-term care practitioners and staff.

All American Medical Director Association (AMDA) clinical practice guidelines undergo external review. The draft guideline is sent to approximately 175+ reviewers. These reviewers include American Medical Director Association physician members and independent physicians, specialists, nurse practitioners, pharmacists, nurses, consultants in the specified area, and organizations that are knowledgeable of the guideline topic and the long-term care setting.

RECOMMENDATIONS

MAJOR RECOMMENDATIONS

The Diabetes Management in the Long-Term Care Setting algorithm is to be used in conjunction with the clinical practice guideline. The numbers next to the different components of the algorithm correspond with the steps in the text. Refer to the "Guideline Availability" field for information on obtaining the full text guideline.

CLINICAL ALGORITHM(S)

A clinical algorithm is provided for Diabetes Management in the Long-Term Care Setting.

EVIDENCE SUPPORTING THE RECOMMENDATIONS

TYPE OF EVIDENCE SUPPORTING THE RECOMMENDATIONS

The type of evidence supporting the recommendations is not specifically stated.

The guideline was developed by an interdisciplinary work group using a process that combined evidence- and consensus-based thinking.

BENEFITS/HARMS OF IMPLEMENTING THE GUIDELINE RECOMMENDATIONS

POTENTIAL BENEFITS

Potential benefits associated with the implementation of this guideline include the following:

- Greater individualization of care
- Enhanced quality of life
- Earlier identification of diabetes and its complications
- Better documentation of, and rationale for, patients' personal goals and decision-making processes regarding their disease and its treatment
- A decline in the rate of hypoglycemic and hyperglycemic events
- A decline in the frequency of infection, electrolyte imbalance, and dehydration
- A decline in the rate of progression of diabetic complications
- A reduction in emergency room visits and hospitalizations caused by uncontrolled diabetes
- A reduction in direct and indirect patient care costs as a result of more appropriate resource utilization
- Improved monitoring and treatment protocols
- Improved staff education and awareness of this complex progressive disease

POTENTIAL HARMS

Adverse effects of drugs used to treat diabetes and diabetic complications including hypoglycemia, weight gain, gastrointestinal side effects, liver toxicity, increased level of low-density lipoprotein (LDL) cholesterol, and weight loss.

See also Table 16 in the original guideline document.

CONTRAINDICATIONS

CONTRAINDICATIONS

- Patients with cardiac, renal, or liver problems should not take the older sulfonylureas.
- Chlorpropamide should be avoided entirely in the elderly.
- Thiazolidinediones should not be given to patients with symptomatic heart failure or initiated in patients with New York Heart Association Class III or IV congestive heart failure (CHF). Patients with active liver disease or serum transaminases equal to or greater than 2.5 times the upper limit of normal as well as those with moderately severe congestive heart failure (CHF) should not take thiazolidinediones (see also the FDA Warning/Regulatory Alert field)
- Metformin is contraindicated in diabetic patients with impaired renal function because it may cause lactic acidosis. It is not recommended for men whose creatinine is greater than 1.5 mg/dL, women whose creatinine is greater than 1.4 mg/dL, or for individuals with abnormal glomerular filtration rate (GFR) (GFR <60 mL/min/1.73 m^2). For this reason, it is not recommended for patients aged over 80. Metformin must be discontinued for at least 48 hours after contrast-enhanced radiologic studies.
- Sulfonylureas are contraindicated in severe liver or renal disease and severe allergy to sulfas.
- Pramlintide is contraindicated in patients with hypoglycemia unawareness, gastroparesis, or poor adherence. Should never be mixed with insulin and should be injected separately.

- Examples of contraindications to antiplatelet therapy include active liver disease, allergy, anticoagulation therapy, bleeding tendency, recent gastrointestinal bleeding, and thrombocytopenia.

See Table 16 in the original guideline document for more information on contraindications.

QUALIFYING STATEMENTS

QUALIFYING STATEMENTS

- This clinical practice guideline is provided for discussion and educational purposes only and should not be used or in any way relied upon without consultation with and supervision of a qualified physician based on the case history and medical condition of a particular patient. The American Medical Directors Association (AMDA), its heirs, executors, administrators, successors, and assigns hereby disclaim any and all liability for damages of whatever kind resulting from the use, negligent or otherwise, of this clinical practice guideline.
- The utilization of the AMDA's Clinical Practice Guideline does not preclude compliance with State and Federal regulation as well as facility policies and procedures. They are not substitutes for the experience and judgment of clinicians and caregivers. The Clinical Practice Guidelines are not to be considered as standards of care but are developed to enhance the clinicians' ability to practice.
- AMDA guidelines emphasize key care processes and are organized for ready incorporation into facility-specific policies and procedures to guide staff and practitioner practices and performance. They are meant to be used in a manner appropriate to the population and practice of a particular facility.
- It is important to note that data from randomized controlled studies on the benefits of tighter glycemic control in long-term care populations are scarce. It is difficult to extrapolate conclusions from studies of community-dwelling adults with type 2 diabetes to the frail elderly in long-term care facilities, who generally have shorter life expectancies and impaired functional and cognitive abilities that may limit the clinical benefits of improved glucose control. In this context, it is extremely important to take the anticipated clinical benefit, as well as patient preferences and values, into account when approaching diabetes management.

IMPLEMENTATION OF THE GUIDELINE

DESCRIPTION OF IMPLEMENTATION STRATEGY

The implementation of this clinical practice guideline (CPG) is outlined in four phases. Each phase presents a series of steps, which should be carried out in the process of implementing the practices presented in this guideline. Each phase is summarized below.

I. **Recognition**

- Define the area of improvement and determine if there is a CPG available for the defined area. Then evaluate the pertinence and feasibility of implementing the CPG.

II. **Assessment**

- Define the functions necessary for implementation and then educate and train staff. Assess and document performance and outcome indicators and then develop a system to measure outcomes.

III. **Implementation**

- Identify and document how each step of the CPG will be carried out and develop an implementation timetable.
- Identify individual responsible for each step of the CPG.
- Identify support systems that impact the direct care.
- Educate and train appropriate individuals in specific CPG implementation and then implement the CPG.

IV. **Monitoring**

- Evaluate performance based on relevant indicators and identify areas for improvement.
- Evaluate the predefined performance measures and obtain and provide feedback.

IMPLEMENTATION TOOLS

Clinical Algorithm

For information about availability, see the "Availability of Companion Documents" and "Patient Resources" fields below.

INSTITUTE OF MEDICINE (IOM) NATIONAL HEALTHCARE QUALITY REPORT CATEGORIES

IOM CARE NEED

End of Life Care
Living with Illness

IOM DOMAIN

Effectiveness
Patient-centeredness
Safety

IDENTIFYING INFORMATION AND AVAILABILITY

BIBLIOGRAPHIC SOURCE(S)

American Medical Directors Association (AMDA). Diabetes management in the long-term care setting. Columbia (MD): American Medical Directors Association (AMDA); 2008. 44 p. [72 references]

ADAPTATION

Not applicable: Guideline was not adapted from another source.

DATE RELEASED

2002 (revised 2008)

GUIDELINE DEVELOPER(S)

American Medical Directors Association - Professional Association

GUIDELINE DEVELOPER COMMENT

Organizational participants included:

- American Association of Homes and Services for the Aging
- American College of Health Care Administrators
- American Geriatrics Society
- American Health Care Association
- American Society of Consultant Pharmacists
- National Association of Directors of Nursing Administration in Long-Term Care
- National Association of Geriatric Nursing Assistants
- National Conference of Gerontological Nurse Practitioners

SOURCE(S) OF FUNDING

Funding was supported by the following: Sanofi-Aventis, US LLC

GUIDELINE COMMITTEE

Steering Committee

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FINANCIAL DISCLOSURES/CONFLICTS OF INTEREST

Not stated

GUIDELINE STATUS

This is the current release of the guideline.

This guideline updates a previous version: American Medical Directors Association (AMDA). Managing diabetes in the long-term care setting. Columbia (MD): American Medical Directors Association (AMDA); 2002. 51 p.

GUIDELINE AVAILABILITY

Electronic copies: None available

Print copies: Available from the American Medical Directors Association, 10480 Little Patuxent Pkwy, Suite 760, Columbia, MD 21044. Telephone: (800) 876-2632 or (410) 740-9743; Fax (410) 740-4572. Web site: www.amda.com.

AVAILABILITY OF COMPANION DOCUMENTS

None available

PATIENT RESOURCES

None available

NGC STATUS

This NGC summary was completed by ECRI on September 3, 2003. The information was verified by the guideline developer on April 8, 2004. This summary was updated by ECRI on January 11, 2006 following the U.S. Food and Drug Administration advisory on rosiglitazone. This summary was updated by ECRI Institute on September 5, 2007 following the U.S. Food and Drug Administration advisory on the Thiazolidinedione class of antidiabetic drugs. This summary was updated by ECRI Institute on November 28, 2007 following the U.S. Food and Drug Administration advisory on the Avandia (rosiglitazone maleate) Tablets. This summary was updated by ECRI Institute on March 10, 2008 following the U.S. Food and Drug Administration advisory on Avandia (rosiglitazone maleate). This summary was updated by ECRI Institute on May 21, 2008.

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Date Modified: 11/10/2008