Complete Summary

GUIDELINE TITLE

Improving medication management for older adult clients.

BIBLIOGRAPHIC SOURCE(S)

Bergman-Evans B. Improving medication management for older adult clients. Iowa City (IA): University of Iowa Gerontological Nursing Interventions Research Center, Research Dissemination Core; 2004 Oct. 55 p. [135 references]

GUIDELINE STATUS

This is the current release of the guideline.

COMPLETE SUMMARY CONTENT

SCOPE
METHODOLOGY - including Rating Scheme and Cost Analysis
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SCOPE

DISEASE/CONDITION(S)

Chronic and acute disorders requiring treatment with medications, such as heart disease, cancer, diabetes, stroke, osteoporosis, osteoarthritis, and Alzheimer's disease

GUIDELINE CATEGORY

Management

CLINICAL SPECIALTY

Geriatrics
Nursing
Pharmacology

INTENDED USERS

Advanced Practice Nurses
Nurses
Pharmacists

GUIDELINE OBJECTIVE(S)

To improve medication management practices for older adults including reducing inappropriate prescribing, decreasing polypharmacy, avoiding adverse events, and maintaining function

TARGET POPULATION

Adults age 65 years and older with chronic and acute disorders, including older adults that are community dwelling as well as those in long term care facilities

INTERVENTIONS AND PRACTICES CONSIDERED

1. Assessment of patient's medications and comparison of assessment data with Beer's list
2. Referral to treatment guidelines
3. Assessment of cost factors
4. Interventions to reduce non-compliance including:
    - Patient education
    - Simplifying medication regimen
5. Regular medication review
6. Interventions to avoid adverse effects, including:
    - Cockcroft-Gault Formula assessment tool
    - Drug Regimen Unassisted Grading Scale (DRUGS) Tool
7. Assessment of functional status
    - Scale for Instrumental Activities of Daily Living
    - The Activities of Daily Living Physical Self-Maintenance Scale

MAJOR OUTCOMES CONSIDERED

- Incidence of inappropriate prescribing of medications
- Incidence of polypharmacy
- Adverse events of medications
- Functional status of older adults

METHODOLOGY

METHODS USED TO COLLECT/SELECT EVIDENCE

Hand-searches of Published Literature (Primary Sources)
Hand-searches of Published Literature (Secondary Sources)
Searches of Electronic Databases

DESCRIPTION OF METHODS USED TO COLLECT/SELECT THE EVIDENCE

The guideline developer performed literature searches using the following sources: Medline, Cumulative Index to the Nursing and Allied Health Literature (CINAHL). Databases: CINAHL, MEDLINE, Pharmacy Literature, Embase Drugs and Pharmacology
1990+
Classic articles that predated 1990 cited repeatedly in the current literature
Recommendations of peer reviewers and content and clinical experts
Terms: medication management, compliance, adherence, prescribing, older adults, medication review, medication assessment, pharmacotherapeutics

NUMBER OF SOURCE DOCUMENTS

841

METHODS USED TO ASSESS THE QUALITY AND STRENGTH OF THE EVIDENCE

Weighting According to a Rating Scheme (Scheme Given)

RATING SCHEME FOR THE STRENGTH OF THE EVIDENCE

The grading schema used to make recommendations in this evidence-based practice protocol is as follows:

A. Evidence from well-designed meta-analysis
B. Evidence from well-designed controlled trials, both randomized and nonrandomized, with results that consistently support a specific action (e.g., assessment, intervention, or treatment)
C. Evidence from observational studies (e.g., correlational descriptive studies) or controlled trials with inconsistent results
D. Evidence from expert opinion or multiple case reports

METHODS USED TO ANALYZE THE EVIDENCE

Review of Published Meta-Analyses
Systematic Review

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

Not stated

RATING SCHEME FOR THE STRENGTH OF THE RECOMMENDATIONS

Not applicable

COST ANALYSIS

Older adults that incur high medication costs are at particular risk of being admitted to the acute care hospital as a result of adverse drug reactions. Although older adults consume more medications than younger counterparts, approximately half have no insurance coverage for prescription medications. Expense has been repeatedly found as a reason for intentional failure to adhere to or comply with medication. Inability to pay for a medication may lead an older adult to use less, buy less, or ask for samples. Problems with adverse drug reactions (ADR) in hospitalized patients are associated with significantly prolonged lengths of stay, increased cost, and an increased risk of death. There is no doubt that less expensive drugs is a prescribing dimension with definite room for improvement. Use of generics is not only more cost effective but also decreases drug name confusion.

METHOD OF GUIDELINE VALIDATION

Clinical Validation-Trial Implementation Period
External Peer Review
Internal Peer Review

DESCRIPTION OF METHOD OF GUIDELINE VALIDATION

This protocol was reviewed by experts knowledgeable of research on medication management for older adults and development of guidelines. The reviewers suggest additional evidence for selected actions, inclusion of additional practice recommendations, and changes in the protocol presentation to enhance its clinical utility.

RECOMMENDATIONS

MAJOR RECOMMENDATIONS

The grades of evidence (A-D) are defined at the end of the "Major Recommendations".

Description of Practice

Practice Model

The Medication Management Outcome Monitor (see Appendix E in the original guideline document) will guide the initial assessment and subsequent evaluations preferably at six-month intervals for stable clients and more frequently for those experiencing acute illness or exacerbations of chronic disease. The Medication Assessment Tool (see Appendix B in the original guideline document) is useful for recording data needed to evaluate the outcomes.

Outcome 1: Reduce Inappropriate Prescribing

Assessment

- Community dwelling older adults: Patients or their families will be instructed to bring all medications in their original containers. The directions will include herbs, vitamins, and prescription and nonprescription medications. This assessment will be performed at least yearly (Colt & Shapiro, 1989: Fillit et al., 1999; Knight & Avorn, 2001; Nathan et al., 1999) (*Evidence Grade = C*).
- For individuals residing in long term care facilities, monthly medication review is completed by consulting pharmacists. These medication reviews have repeatedly been found to have a positive effect on clinical and economic outcomes (Gupchup, Vogenbeg, & Larrat, 2001; Harrison, Bootman, & Cox, 1998). Consultation between pharmacy and nursing is imperative, but given the complexity of medication regimens in long term care, nurses and providers must also evaluate routine and as needed (prn) usage from the medication administration record. These evaluations should correspond with the admission process and at scheduled periodic reviews (Ouslander & Osterweil, 1996; Torrible & Hogan, 1997) (*Evidence Grade = C*).
- The assessment data will then be compared to the Beer's list (See Appendix A-1 and A-2 in the original guideline document) to ascertain appropriateness of current medication regimen (Fick et al., 2003) (*Evidence Grade = C*).

Assessment Action

- Medications found to be in conflict with the Beer's list should be discontinued unless compelling evidence exists for continuance (Fick et al., 2003; Doucet et al., 1996) (*Evidence Grade = B*).
- The Beer's list should be used when planning medication initiation, reviewing established medication regimens, or making changes in the medication regimen (Fick et al., 2003; Doucet et al., 1996) (*Evidence Grade = C*).

<u>Clinical Practice Guidelines</u>:

Assessment

- The list of chronic conditions should be compared with the medications prescribed.

Assessment Action

- Unless contraindicated, health professionals should follow treatment guidelines for chronic and acute disorders that affect older adults ("Collaborative overview," 1994; Berlowitz et al., 1998; Edep et al., 1997; Fonarow, 2002; Fonarow et al., 2001; Lipton et al., 1992; Miettinen et al., 1997; Mulrow et al., 1994; Rochon & Gurwitz, 1999; Staessen, Gasowski, & Wang, 2000; United Kingdom Prospective Diabetes Study (UKPDS) 1998; Yusuf et al, 1985) (*Evidence Grade = B*).

<u>Cost</u>:

Assessment

- For clients in the community, professionals should ask whether the present medication regimen or new prescriptions are/will be responsible for an undue financial burden (Conn, Taylor, & Stineman, 1992; Coons et al., 1994; Col, Fanale, & Kronholm, 1990) (*Evidence Grade = C*).
- For nursing home clients, professionals should consider if the drug regimen prescribed is both the most efficacious and economical possible (Schmader et al., 1994) (*Evidence Grade = D*).

Assessment Action

- Methods of paying for therapy other than drug samples need to be identified at the time the therapy is initiated (Mitchell et al., 2001) (*Evidence Grade = D*).
- When possible, generic drugs should be considered (Carlson, 1996) (*Evidence Grade = D*).
- Information about the Medicare prescription benefit may be obtained from http://www.medicare.gov/MedicareReform. Clients with questions should be referred to this reference.

Noncompliance:

Assessment

- Clients should be asked the following compliance questions:
    - Are they taking the medication(s) as prescribed (Schaffer & Yoon, 2001)
    - If they have any questions about their medications (Fineman & Delice, 1992)
    - How often they forget to take their medication (Horne, Weinman, & Hankins, 1999)
    - How often they miss a dose of their medication, or adjust it to suit their own needs (Horne, Weinman, & Hankins, 1999) (*Evidence Grade = C*)
- A complete history and physical exam to ascertain whether the client is responding to the therapy as expected (Bedell et al., 2000; Donovan & Blake, 1992; Edelberg et al., 2000; Johnson, Williams, & Marshall, 1999) (*Evidence Grade = C*).

Assessment Action

- Pre-poured pillboxes, automatic dispensers with voice-activated message, and regular or video-telephone call reminders have been useful for enhancing medication compliance for older community dwelling congestive heart failure patients (Fulmer et al., 1999) (*Evidence Grade = D*).
- Organizational charts with over-the-counter medication organizer improved adherence for old-old subjects (Park et al., 1992) (*Evidence Grade = D*).
- Although forgetting is the most common reason for missed dose (Conn, Taylor, & Stineman, 1992), numerous interventions have been employed successfully to help individuals remember to take their medications. The

following are suggestions of possible external and/or internal cues that may help to decrease forgetting:
    - Leaving the pills in a prominent place
    - Planning medication taking around activities at the beginning of the day
    - Rereading instructions to increase recall
    - Reading regimen instructions slowly
    - Mentally repeating instructions
    - Concentrating hard when receiving instructions
    - Trying hard to learn about new medications
    - Concentrating hard to learn medication times by repeating the process out loud each time (Gould, McDonald-Miszczak, & King, 1997)
    - Considering the association between medications and daily activities such as taking the prophylactic aspirin in the middle of the largest meal or taking the daily vitamin when brushing teeth in the morning (Schaffer & Yoon, 2001) (*Evidence Grade = D*)
- Patients should be given a medication list to carry with them that is updated at each visit (Conn & Edwards, 1999; Haynes, Wang, & Gomes, 1987) (*Evidence Grade = D*).

Outcome 2: Decrease Polypharmacy

Medication Review: It should be completed every 6 months or with any medication change.

Assessment

The Medication Review prompts the examiner to query the record and/or the patient regarding the following:

1. Is the indication for which the medication was originally prescribed still present?
2. Are there duplications in drug therapy (same class)? Are simplifications possible?
3. Does the regimen include drugs prescribed for an adverse drug reaction? If so, can the original drug be withdrawn?
4. Is the present dosage likely to be sub-therapeutic or toxic in light of age and renal status?
5. Are any significant drug-drug or drug-illness interactions present? (Hamdy et al., 1995) (*Evidence Grade = C*)

Assessment Action

1. To simplify the regimen, combination drugs and alternative routes should be considered and used if at all possible. The use of combination tablets improves adherence when compared to dual therapy (Carlson, 1996; Lau et al., 1996; Melikian et al., 2002; Dezii, 2001) (*Evidence Grade = B*).
2. Once a day dosing should be followed if at all possible. Decreasing antihypertensive medication dosing from 3 to 1 times daily has been shown to dramatically increase adherence (Eisen et al., 1990; Gambert, Grossberg, & Morley, 1994; Pullar et al., 1988) (*Evidence Grade = C*).

3. Medications that fail to meet any of the Hamdy et al. criteria should be discontinued (Carlson, 1996; Hamdy et al., 1995; Hanlon et al., 1992) (*Evidence Grade = C*).
4. Medications should not be prescribed to counteract side effects of other medications (Bergman-Evans & Ranno, 1998; Hamdy et al., 1995; Rochon & Gurwitz, 1997) (*Evidence Grade = C*).
5. Laboratory studies may require more frequent monitoring (Kane, Ouslander, & Abrass, 1999; Turkoski, 1999) (*Evidence Grade = D*).
6. Professionals should screen regularly for drug interactions that may result from the drug regimen (Carlson, 1996; French, 1996) (*Evidence Grade = D*).

Outcome 3: Avoid Adverse Events

Assessment

- The **Cockcroft-Gault Formula** (See Appendix A.3 in the original guideline document) is a useful method for estimating creatinine clearance based on age, weight, and serum creatinine levels (Kane, Ouslander, & Abrass, 1999). It will be calculated and recorded at least yearly on the Medication Assessment Tool. A decreased creatinine clearance <50 mL/min is a risk factor for drug related problems (*Evidence Grade = C*).

Assessment Action

- In general, lower doses should be initially used with the elderly, and upward titration should be performed at a slower rate (French, 1996; Hamdy et al., 1995; Turkoski, 1999) (*Evidence Grade = D*).
- For identified renal failure, dosage for drugs renally excreted will need to be adjusted. Examples of these agents are digoxin, aminoglycoside antibiotics, radiographic contrast media, agents affecting the rennin angiotensin system (e.g., angiotensin-converting enzyme [ACE] inhibitors), or those inhibiting renal prostaglandin production (e.g., nonsteroidal anti-inflammatory drugs [NSAIDs]) (Fang, 2000) (*Evidence Grade = D*).

The Drugs Regimen Unassisted Grading Scale (DRUGS) Tool (See Appendix A.4 in the original guideline document):

Assessment

- The DRUGS will be administered at the initial visit and at least annually thereafter for clients who are self-administering their own medications (Edelberg, Shallenberger, & Wei, 1999; Edelberg et al., 2000) (*Evidence Grade = C*).

Assessment Action

- If inability to self-administer medications is identified with the DRUGS tool, specific measures should be undertaken to correct the situation. (Edelberg, Shallenberger, & Wei, 1999; Edelberg, et al., 2000.). For instance, problems with identification, dosage, or timing could be addressed with adherence aids

such as weekly pillboxes. Problems with access could be rectified by ordering non-child resistant packaging (Fulmer et al., 1999) (*Evidence Grade = C*).

Nonprescription Medications:

Assessment

- Professionals need to directly inquire regarding the use of over the counter, herbs, and vitamins as part of the drug history of older adults. Specific questions should be asked in the review of systems such as "What medicines or herbs do you use for a headache, muscle aches or pains, nausea, or constipation?" (Astin et al., 2000; Conn , 1992; Ellor & Kurz, 1982; French, 1996; Gambert, Grossberg, & Morley, 1994) (*Evidence Grade = C*).

Assessment Action

- Professionals need to counsel patients regarding safety and possible efficacy of nonprescription products. If duplications, interactions, adverse drug reactions/side effects, or high cost are identified, professionals and patients should collaborate on a plan to correct the problem (French, 1996; Willis & Gutirrez, 2003) (*Evidence Grade = C*).

Outcome 4: Maintain Functional Status

Assessment

- Functional status will be assessed using two standardized instruments: **Scale for Instrumental Activities of Daily Living Scale** (See Appendix A.5 in the original guideline document) and **The Activities of Daily Living Physical Self-Maintenance Scale** (See Appendix A.6 in the original guideline document) (Lawton & Brody, 1969) (*Evidence Grade = C*).

Assessment Action

- If changes in functional status are related to proposed or existing medications, the benefits should be carefully weighed against the harms and discussed in detail with the patient (French, 1996; Gambert, Grossberg, & Morley, 1994; Murphy & Cleveland, 2004, Simonson & Florkowski, 1996) (*Evidence Grade = C*).

Definitions:

Evidence Grading

A. Evidence from well-designed meta-analysis
B. Evidence from well-designed controlled trials, both randomized and nonrandomized, with results that consistently support a specific action (e.g., assessment, intervention, or treatment)
C. Evidence from observational studies (e.g., correlational descriptive studies) or controlled trials with inconsistent results
D. Evidence from expert opinion or multiple case reports.

CLINICAL ALGORITHM(S)

None provided

EVIDENCE SUPPORTING THE RECOMMENDATIONS

REFERENCES SUPPORTING THE RECOMMENDATIONS

References open in a new window

TYPE OF EVIDENCE SUPPORTING THE RECOMMENDATIONS

The type of supporting evidence is identified and graded for each recommendation (see "Major Recommendations").

BENEFITS/HARMS OF IMPLEMENTING THE GUIDELINE RECOMMENDATIONS

POTENTIAL BENEFITS

Reduced inappropriate prescribing, decreased polypharmacy, maintenance of functional status, and prevention of adverse events

Subgroups Most Likely to Benefit

Older adults in the following situations are at risk for medication mismanagement and thus likely to benefit from use of this evidence-based protocol:

- Older adults in the community, receiving home care, or in nursing homes who are at risk for or experiencing polypharmacy
- Older adults who self-treat, take over-the-counter medications, or use complimentary medications
- Patients who lack coordinated care in any or all of the following ways: multiple providers, lack of a primary provider coordinator, use of multiple pharmacies, and drug regimen changes
- Older adults discharged from the hospital
- Patients who incur significant expense from medications
- Clients with impaired cognitive status
- Individuals on complicated medication regimens including multiple doses of the same drug each day, combination therapies, five or more medications, 12 or more medication doses per day, four or more medication changes in the last year, or drugs requiring therapeutic monitoring

POTENTIAL HARMS

Not stated

QUALIFYING STATEMENTS

QUALIFYING STATEMENTS

This evidence-based practice is a general guideline. Patient care continues to require individualization based on patient needs and requests.

IMPLEMENTATION OF THE GUIDELINE

DESCRIPTION OF IMPLEMENTATION STRATEGY

The "Evaluation of Process and Outcomes" section and the appendices of the original document contain a complete description of implementation strategies.

IMPLEMENTATION TOOLS

Audit Criteria/Indicators
Chart Documentation/Checklists/Forms
Resources
Staff Training/Competency Material

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

Getting Better
Living with Illness

IOM DOMAIN

Effectiveness
Patient-centeredness
Safety

IDENTIFYING INFORMATION AND AVAILABILITY

BIBLIOGRAPHIC SOURCE(S)

Bergman-Evans B. Improving medication management for older adult clients. Iowa City (IA): University of Iowa Gerontological Nursing Interventions Research Center, Research Dissemination Core; 2004 Oct. 55 p. [135 references]

ADAPTATION

Not applicable: The guideline was not adapted from another source.

DATE RELEASED

2004 Oct

GUIDELINE DEVELOPER(S)

University of Iowa Gerontological Nursing Interventions Research Center, Research Translation and Dissemination Core - Academic Institution

SOURCE(S) OF FUNDING

Developed with the support provided by Grant #P30 NR03979, National Institute of Nursing Research, NIH

GUIDELINE COMMITTEE

Not stated

COMPOSITION OF GROUP THAT AUTHORED THE GUIDELINE

Author: Brenda Bergman-Evans, PhD, APRN, BC

Series Editor: Marita G. Titler, PhD, RN, FAAN

FINANCIAL DISCLOSURES/CONFLICTS OF INTEREST

Not stated

GUIDELINE STATUS

This is the current release of the guideline.

GUIDELINE AVAILABILITY

Electronic copies: Not available at this time.

Print copies: Available from the University of Iowa Gerontological Nursing Interventions Research Center, Research Dissemination Core, 4118 Westlawn, Iowa City, IA 52242. For more information, please see the University of Iowa Gerontological Nursing Interventions Research Center Web site.

AVAILABILITY OF COMPANION DOCUMENTS

The original guideline document and its appendices include a variety of implementation tools, including outcome and process indicators, staff competency material, and other forms.

PATIENT RESOURCES

None available

NGC STATUS

This NGC summary was completed by ECRI on February 7, 2005. The information was verified by the guideline developer on March 4, 2005.

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Date Modified: 10/6/2008