



Complete Summary

GUIDELINE TITLE

Clinical practice guideline: benign paroxysmal positional vertigo.

BIBLIOGRAPHIC SOURCE(S)

Bhattacharyya N, Baugh RF, Orvidas L, Barrs D, Bronston LJ, Cass S, Chalian AA, Desmond AL, Earll JM, Fife TD, Fuller DC, Judge JO, Mann NR, Rosenfeld RM, Schuring LT, Steiner RW, Whitney SL, Haidari J, American Academy of Otolaryngology-Head and Neck Surgery Foundation. Clinical practice guideline: benign paroxysmal positional vertigo. Otolaryngol Head Neck Surg 2008 Nov;139(5 Suppl 4):S47-81. [218 references] [PubMed](#)

GUIDELINE STATUS

This is the current release of the guideline.

COMPLETE SUMMARY CONTENT

SCOPE
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RECOMMENDATIONS
EVIDENCE SUPPORTING THE RECOMMENDATIONS
BENEFITS/HARMS OF IMPLEMENTING THE GUIDELINE RECOMMENDATIONS
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INSTITUTE OF MEDICINE (IOM) NATIONAL HEALTHCARE QUALITY REPORT
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SCOPE

DISEASE/CONDITION(S)

Benign paroxysmal positional vertigo

GUIDELINE CATEGORY

Diagnosis
Prevention
Treatment

CLINICAL SPECIALTY

Chiropractic
Emergency Medicine
Family Practice
Geriatrics
Internal Medicine
Neurology
Nursing
Otolaryngology
Physical Medicine and Rehabilitation
Surgery

INTENDED USERS

Advanced Practice Nurses
Allied Health Personnel
Nurses
Physician Assistants
Physicians

GUIDELINE OBJECTIVE(S)

- To provide evidence-based recommendations on managing benign paroxysmal positional vertigo (BPPV)
- To improve quality of care and outcomes for BPPV by improving the accurate and efficient diagnosis of BPPV, reducing the inappropriate use of vestibular suppressant medications, decreasing the inappropriate use of ancillary tests such as radiographic imaging and vestibular testing, and to promote the use of effective repositioning maneuvers for treatment

TARGET POPULATION

Patients aged 18 years or older with a potential diagnosis of benign paroxysmal positional vertigo (BPPV)

The guideline excludes the following patient groups:

- Patients with BPPV affecting the anterior semicircular canal
- Benign paroxysmal vertigo of childhood
- Patients with disabling positional vertigo due to vascular loop compression in the brain stem or vertigo that arises from changes in head position *not* related to gravity (i.e., vertigo of cervical origin or vertigo of vascular origin)

INTERVENTIONS AND PRACTICES CONSIDERED

Diagnosis

1. Clinical history
2. Review of the medication list
3. Physical examination
4. Dix-Hallpike (positional) testing
5. Side-lying maneuver

6. Post-head-shaking nystagmus
7. Audiometry
8. Magnetic resonance imaging (not recommended routinely)
9. Computed tomography (not recommended routinely)
10. Blood tests: complete blood count, serum chemistry, etc.
11. Frenzel lenses and infrared goggle testing
12. Electronystagmography
13. Videonystagmography
14. Balance and gait testing
15. Vestibular function testing (not recommended routinely)
16. Computerized posturography
17. Orthostatic balance testing
18. Vestibular caloric testing

Treatment/Management

1. Watchful waiting/observation
2. Education/information/counseling
3. Medical therapy (vestibular suppressant medications, benzodiazepines)
4. Cervical immobilization with cervical collar
5. Patient self-treatment with vestibular exercises (Brandt-Daroff exercises)
6. Epley maneuver (canalith repositioning procedure [CRP])
7. Semont (liberatory) maneuver
8. Gufoni maneuver
9. Physical therapy/vestibular physical therapy
10. Spinal manipulative therapy
11. Mastoid vibration
12. Posterior semicircular canal occlusion (excluded from guideline)
13. Singular neurectomy (excluded from guideline)
14. Vestibular neurectomy (excluded from guideline)

Prevention

1. Head trauma or whiplash injury as potential causative factors
2. Use of helmets to prevent head trauma and/or cervical collars
3. Prolonged bed rest
4. General anesthesia

MAJOR OUTCOMES CONSIDERED

- Resolution of the symptoms associated with benign paroxysmal positional vertigo (BPPV)
- Return to regular activities and work
- Minimization of the use of inappropriate medications and unnecessary diagnostic tests
- Reduction in the recurrence of BPPV
- Reduction in adverse events associated with undiagnosed or untreated BPPV
- Minimization of costs in the diagnosis and treatment of BPPV
- Minimization of return physician visits
- Maximization of the health-related quality of life of individuals afflicted with BPPV

METHODOLOGY

METHODS USED TO COLLECT/SELECT EVIDENCE

Searches of Electronic Databases

DESCRIPTION OF METHODS USED TO COLLECT/SELECT THE EVIDENCE

General search strategy. Several literature searches were performed through December 2007 (initial search) and February 2008 (focused search) by American Academy of Otolaryngology—Head and Neck Surgery Foundation (AAO-HNS) staff. The initial MEDLINE search using "BPPV OR Benign Paroxysmal Position Vertigo" in any field, or "positional [tiab] vertigo [tiab]" or "benign [tiab] positional [tiab] vertigo [tiab]" or "paroxysmal [tiab] positional [tiab] vertigo [tiab]" or "benign [tiab] paroxysmal [tiab] positional [tiab] vertigo [tiab]" in the title or abstract, yielded 1004 potential articles:

1. *Clinical practice guidelines* were identified by limiting the MEDLINE search to one article using "guideline" as a publication type or title word. Search of the National Guideline Clearinghouse (www.guideline.gov) identified 21 guidelines with a topic of vertigo. After elimination of articles that did not have BPPV as the primary focus, no guidelines met quality criteria of being produced under the auspices of a medical association or organization and having an explicit method for ranking evidence and linking evidence to recommendations. One article by the American College of Radiology addressed "appropriateness criteria" for imaging for BPPV.
2. *Systematic reviews (meta-analyses)* were identified by limiting the MEDLINE search to 26 articles using a validated filter strategy for systematic reviews. Search of the Cochrane Library identified two relevant reviews that met quality criteria of having explicit criteria for conducting the literature search and selecting source articles for inclusion or exclusion.
3. *Randomized controlled trials (RCTs)* were identified by a search of the Cochrane Controlled Trials Register, which identified 28 trials with "BPPV" as a title word.
4. *Original research studies* were identified by limiting the MEDLINE search to articles with a vertigo (MeSH term) as a focus, published in English with human subjects, and not having a publication type of case report. The resultant data set of 741 articles yielded 323 related to diagnosis, 119 to treatment, 223 to etiology, and 125 to prognosis.

Results of all literature searches were distributed to guideline panel members at the first meeting. The materials included full-text hard copy and/or electronic versions of the articles or the listings with abstracts (if available) of the searches for randomized trials and original research. This material was supplemented with targeted searches to address specific needs identified in writing the guideline and specific statements of recommendation.

Targeted searches. From the set of 741 articles, key words from each "bold-faced statement" were used to refine the literature search. For example; from the statement MEDICAL THERAPY: Clinicians should not routinely treat BPPV with vestibular suppressant medications such as antihistamines or benzodiazepines,"

the target search strategy would combine "BPPV OR Benign Paroxysmal Position Vertigo" search terms with pharmaco* OR drug therapy OR drug* OR medical OR side effect* OR vestibular suppressant OR suppressant, and so on.

NUMBER OF SOURCE DOCUMENTS

Not stated

METHODS USED TO ASSESS THE QUALITY AND STRENGTH OF THE EVIDENCE

Expert Consensus (Committee)
Weighting According to a Rating Scheme (Scheme Given)

RATING SCHEME FOR THE STRENGTH OF THE EVIDENCE

Evidence Quality for Grades of Evidence

Grade A: Well-designed randomized controlled trials or diagnostic studies performed on a population similar to the guideline's target population

Grade B: Randomized controlled trials or diagnostic studies with minor limitations; overwhelmingly consistent evidence from observational studies

Grade C: Observational studies (case-control and cohort design)

Grade D: Expert opinion, case reports, reasoning from first principles (bench research or animal studies)

Grade X: Exceptional situations where validating studies cannot be performed and there is a clear preponderance of benefit over harm

METHODS USED TO ANALYZE THE EVIDENCE

Review of Published Meta-Analyses
Systematic Review

DESCRIPTION OF THE METHODS USED TO ANALYZE THE EVIDENCE

The evidence-based approach to guideline development requires that the evidence supporting a policy be identified, appraised, and summarized, and that an explicit link between evidence and statements be defined. Evidence-based statements reflect both the *quality of evidence* and the *balance of benefit and harm* that is anticipated when the statement is followed. The definitions for evidence-based statements are listed in "Ratings Scheme for the Strength of the Evidence" and "Rating Scheme for the Strength of the Recommendations" fields.

METHODS USED TO FORMULATE THE RECOMMENDATIONS

Expert Consensus

DESCRIPTION OF METHODS USED TO FORMULATE THE RECOMMENDATIONS

The guideline was developed by using an explicit and transparent a priori protocol for creating actionable statements based on supporting evidence and the harm-benefit balance. The multidisciplinary guideline development panel was chosen to represent the fields of audiology, chiropractic medicine, emergency medicine, family medicine, geriatric medicine, internal medicine, neurology, nursing, otolaryngology–head and neck surgery, physical medicine and rehabilitation, and physical therapy. Several group members had significant prior experience in developing clinical practice guidelines, and consultant experts in guideline development were available throughout the guideline construction process.

During the 10 months devoted to guideline development ending in August 2008, the group met twice and participated in three conference calls with interval electronic review and feedback on each guideline draft to ensure accuracy of content and consistency with standardized criteria for reporting clinical practice guidelines. American Academy of Otolaryngology–Head and Neck Surgery Foundation (AAO-HNS) staff, with guidance from the Yale Center for Medical Informatics, used the Guideline Implementability Appraisal (GLIA) tool to appraise adherence of the guideline to methodological standards, to improve clarity of recommendations, and to predict potential obstacles to implementation. Panel members received summary appraisals in June 2008 and modified an advanced draft of the guideline.

RATING SCHEME FOR THE STRENGTH OF THE RECOMMENDATIONS

Guideline Definitions for Evidence-Based Statements

Strong Recommendation: A strong recommendation means the benefits of the recommended approach clearly exceed the harms (or that the harms clearly exceed the benefits in the case of a strong negative recommendation) and that the quality of the supporting evidence is excellent (Grade A or B)*. In some clearly identified circumstances, strong recommendations may be made on the basis of lesser evidence when high-quality evidence is impossible to obtain and the anticipated benefits strongly outweigh the harms. *Implication:* Clinicians should follow a strong recommendation unless a clear and compelling rationale for an alternative approach is present.

Recommendation: A recommendation means the benefits exceed the harms (or that the harms exceed the benefits in the case of a negative recommendation), but the quality of evidence is not as strong (Grade B or C)*. In some clearly identified circumstances, recommendations may be made on the basis of lesser evidence when high-quality evidence is impossible to obtain and the anticipated benefits outweigh the harms. *Implication:* Clinicians should also generally follow a recommendation, but should remain alert to new information and sensitive to patient preferences.

Option: An option means that either the quality of evidence that exists is suspect (Grade D)* or that well-done studies (Grade A, B, or C)* show little clear advantage to one approach versus another. *Implication:* Clinicians should be flexible in their decision making regarding appropriate practice, although they

may set bounds on alternatives; patient preference should have a substantial influencing role.

No Recommendation: No recommendation means there is both a lack of pertinent evidence (Grade D)* and an unclear balance between benefits and harms. *Implication:* Clinicians should feel little constraint in their decision making and be alert to new published evidence that clarifies the balance of benefit versus harm; patient preference should have a substantial influencing role.

* Refer to "Rating Scheme for the Strength of the Evidence" field above for the definitions of evidence grades.

COST ANALYSIS

The guideline reviewed published cost analyses.

In two algorithmic studies, audiometry was found to be cost-effective and diagnostically effective in the broad evaluation of patients with vertigo. In a study of 192 patients referred to an academic center for the evaluation of vertigo, it was found that the audiogram was the most cost-effective test among various studies including electronystagmography, posturography, magnetic resonance imaging (MRI), and blood tests. Notably, however, the cost-effectiveness (diagnostic benefit) of the history and physical examination (i.e., Dix-Hallpike maneuver or supine role test) was not directly studied. This diagnostic focus notably differs from the current guideline, which emphasizes the value of the clinical history and physical examination.

In a study of 564 cases, investigators found in a diagnostic algorithm analysis that the presence of a normal audiogram was corroborating for a diagnosis of benign paroxysmal positional vertigo (BPPV), distinguishing BPPV from other associated conditions such as Ménière's disease, vestibular schwannoma, and so on. However, the panel felt that distinction from such associated conditions could be made accurately and more cost-effectively on the basis of the history, rather than relying on audiometry. Upon review of the literature, no meaningful observational or diagnostic cohort studies either supporting or arguing against the use of audiometry in the diagnosis of the BPPV population was identified.

METHOD OF GUIDELINE VALIDATION

External Peer Review

DESCRIPTION OF METHOD OF GUIDELINE VALIDATION

The final draft practice guideline underwent extensive external peer review. Comments were compiled and reviewed by the group chairperson.

RECOMMENDATIONS

MAJOR RECOMMENDATIONS

The evidence grades (**A-D, X**) and evidence-based statements (**Strong Recommendation, Recommendation, Option, and No Recommendation**) are defined at the end of the "Major Recommendations" field.

Statement 1a. Diagnosis of Posterior Canal Benign Paroxysmal Positional Vertigo (BPPV)

Clinicians should diagnose posterior semicircular canal BPPV when vertigo associated with nystagmus is provoked by the Dix-Hallpike maneuver, performed by bringing the patient from an upright to supine position with the head turned 45 degrees to one side and neck extended 20 degrees.

Strong recommendation based on diagnostic studies with minor limitations and a preponderance of benefit over harm.

Evidence Profile:

- Aggregate evidence quality: **Grade B**, based on diagnostic studies with minor limitations
- Benefit: improved diagnostic accuracy and efficiency
- Harm: risk of provoking temporary symptoms of BPPV
- Cost: minimal
- Benefit-harm assessment: preponderance of benefit over harm
- Value judgments: conclusion that paroxysmal positional nystagmus induced by the Dix-Hallpike maneuver confirms the diagnosis of BPPV and is the gold standard test for diagnosis (The panel emphasized that a history of positional vertigo alone should not be relied upon for the diagnosis of posterior canal BPPV.)
- Role of patient preferences: minimal
- Patient exclusions: patients with physical limitations including cervical stenosis, severe kyphoscoliosis, limited cervical range of motion, Down syndrome, severe rheumatoid arthritis, cervical radiculopathies, Paget's disease, ankylosing spondylitis, low back dysfunction, spinal cord injuries, and morbid obesity
- Policy level: **strong recommendation**

Statement 1b. Diagnosis of Lateral Canal BPPV

If the patient has a history compatible with BPPV and the Dix-Hallpike test is negative, the clinician should perform a supine roll test to assess for lateral semicircular canal BPPV.

Recommendation based on diagnostic studies with limitations and a preponderance of benefit over harm.

Evidence Profile:

- Aggregate evidence quality: **Grade C**, based on observational studies with limitations and selected populations

- Benefit: avoidance of a false-negative result in the diagnosis of BPPV attributable to a missed lateral canal variant; allowance of confirmation of a diagnosis of lateral canal BPPV, thereby avoiding unnecessary diagnostic tests
- Harm: risk of provoking temporary symptoms of BPPV
- Cost: minimal
- Benefit-harm assessment: preponderance of benefit over harm
- Value judgments: the importance of evaluating additional variants of BPPV rather than limiting the evaluation to posterior canal BPPV
- Role of patient preferences: minimal
- Exclusions: patients with physical limitations including cervical stenosis, severe kyphoscoliosis, limited cervical range of motion, Down syndrome, severe rheumatoid arthritis, cervical radiculopathies, Paget's disease, morbid obesity, ankylosing spondylitis, low back dysfunction, and spinal cord injuries
- Policy level: **recommendation**

Statement 2a. Differential Diagnosis of BPPV

Clinicians should differentiate BPPV from other causes of imbalance, dizziness, and vertigo.

Recommendation based on observational studies and a preponderance of benefit over harm.

Evidence Profile:

- Aggregate evidence quality: **Grade C**, based on observational studies with limitations
- Benefit: prevention of false-positive diagnosis of BPPV when another condition actually exists
- Harm: none
- Cost: minimal
- Benefit-harm assessment: preponderance of benefit over harm
- Value judgments: none
- Role of patient preferences: minimal
- Policy level: **recommendation**

Statement 2b. Modifying Factors

Clinicians should question patients with BPPV for factors that modify management including impaired mobility or balance, central nervous system (CNS) disorders, a lack of home support, and increased risk for falling.

Recommendation based on observational and cross-sectional studies and a preponderance of benefit over harm.

Evidence Profile:

- Aggregate evidence quality: **Grade C**, based on observational and cross-sectional studies

- Benefit: allowance for global management of patients with BPPV with appropriately structured comprehensive treatment plan; identification of patients at risk for falls and prevention of fall-related injury
- Harm: none
- Cost: none
- Benefit-harm assessment: preponderance of benefit over harm
- Value judgments: the management of BPPV will benefit from assessment of these modifying factors
- Role of patient preferences: minimal
- Policy level: **recommendation**

Statement 3a. Radiographic and Vestibular Testing

Clinicians should not obtain radiographic imaging, vestibular testing, or either in a patient diagnosed with BPPV, unless the diagnosis is uncertain or there are additional symptoms or signs unrelated to BPPV that warrant testing.

Recommendation against based on diagnostic studies with limitations and a preponderance of benefit over harm.

Evidence Profile:

- Aggregate evidence quality: **Grade C**, based on diagnostic studies with limitations in referred patient populations and observational studies for vestibular testing; **Grade C**, based on observational studies for radiographic imaging
- Benefit: facilitation of prompt treatment by avoiding unnecessary testing associated with low yield and potential false-positive diagnoses; avoidance of radiation exposure and adverse reactions to testing
- Harm: potential missed diagnosis of comorbid conditions; discomfort such as nausea and vomiting produced by vestibular testing
- cost savings associated with decreased testing
- Benefit-harm assessment: preponderance of benefit over harm
- Value judgments: importance of reducing unnecessary testing and delays in diagnosis
- Role of patient preferences: minimal
- Exclusions: patients who have separate indications for radiographic or vestibular testing aside from confirmation of a diagnosis of BPPV
- Policy level: **recommendation against**

Statement 3b. Audiometric Testing

No recommendation is made concerning audiometric testing in patients diagnosed with BPPV.

No recommendation based on insufficient evidence for the diagnostic or prognostic value of audiometry in the evaluation of BPPV.

Evidence Profile:

- Aggregate evidence quality: **Grade D**, based on expert opinion specifically in the BPPV population and an absence of diagnostic studies on audiometry in BPPV
- Benefit: possible identification of an unsuspected hearing loss or an underlying otological condition
- Harm: delay in treatment if audiometry is not readily available
- Cost: possible realization of cost savings if fewer audiograms are performed
- Benefit-harm assessment: relative balance of benefit and harm
- Value judgments: Ease of identification of a small subset of patients in whom audiometry might be valuable on the basis of the clinical history
- Role of patient preferences: minimal
- Policy level: **no recommendation**

Statement 4a. Repositioning Maneuvers as Initial Therapy

Clinicians should treat patients with posterior canal BPPV with a particle repositioning maneuver.

Recommendation based on randomized controlled trials with small sample sizes and heterogeneity conducted in specialty practice settings and a preponderance of benefit over harm.

Evidence Profile:

- Aggregate evidence quality: **Grade B**, based on randomized controlled trials (RCTs) with small sample sizes and significant heterogeneity (Most studies were conducted in specialty practice settings with limited data from other treatment settings, potentially limiting generalizability of results).
- Benefit: prompt resolution of symptoms with a relatively low number needed to treat (NNT) ranging from 1 to 3
- Harm: transient provocation of symptoms of BPPV by the maneuver; risk for falls due to imbalance after the procedure; no serious adverse events reported in RCTs
- Cost: cost of the procedure
- Benefit-harm assessment: preponderance of benefit over harm
- Value judgments: high value ascribed to prompt resolution of symptoms and the ease with which the canalith repositioning procedure (CRP) may be performed
- Role of patient preferences: limited
- Exclusions: patients with physical limitations including cervical stenosis, Down syndrome, severe rheumatoid arthritis, cervical radiculopathies, Paget's disease, morbid obesity, ankylosing spondylitis, low back dysfunction, retinal detachment, and spinal cord injuries may not be candidates for this maneuver or may need specialized examination tables for performance of the maneuver
- Policy level: **recommendation**

Statement 4b. Vestibular Rehabilitation as Initial Therapy

The clinician may offer vestibular rehabilitation, either self-administered or with a clinician, for the initial treatment of BPPV.

Option based on controlled observational studies and a balance of benefit and harm.

Evidence Profile:

- Aggregate evidence quality: **Grade C**, based on controlled observational studies and limited randomized controlled trials
- Benefit: potentially faster resolution of symptoms compared with observation alone
- Harm: no serious adverse events noted in published trials; transient provocation of BPPV symptoms during rehabilitation exercises; potential for delayed symptom resolution compared with PRMs as a sole intervention
- Cost: need for repeated visits if done with clinician supervision; cost of therapy
- Benefit-harm assessment: relative balance of benefits and harm
- Value judgments: vestibular rehabilitation considered possibly better as an adjunctive therapy rather than a primary treatment modality. (Subsets of patients with preexisting balance deficit, central nervous system disorders, or risk for falls may derive more benefit from vestibular rehabilitation than the patient with isolated BPPV.)
- Role of patient preferences: substantial role for shared decision making
- Exclusions: patients with physical limitations such as cervical stenosis, Down syndrome, severe rheumatoid arthritis, cervical radiculopathies, Paget's disease, morbid obesity, ankylosing spondylitis, low back dysfunction, and spinal cord injuries
- Policy level: **option**

Statement 4c. Observation as Initial Therapy

Clinicians may offer observation as initial management for patients with BPPV and with assurance of follow-up.

Option based on data from cohort and observational studies with heterogeneity and a relative balance of benefits and harms.

Evidence Profile:

- Aggregate evidence quality: **Grade B**, based on control groups from randomized controlled trials and observational studies with heterogeneity in follow-up and outcomes measures
- Benefit: symptom resolution in 15 to 85 percent of patients at 1 month without intervention
- Harm: prolonged symptoms compared with other interventions that may expose patients to increased risks for falls or lost days of work
- Cost: indirect costs of delayed resolution compared with other measures
- Benefit-harm assessment: relative balance of benefits and harms
- Value judgments: bias of the panel for treatment intervention rather than observation, particularly with respect to the value of a quicker time to resolution (The panel felt that older patients and patients with preexisting balance disorders or high risks for falls may not be suitable for observation.)
- Role of patient preferences: substantial for shared decision making
- Exclusions: none

- Policy level: **option**

Statement 5. Medical Therapy

Clinicians should not routinely treat BPPV with vestibular suppressant medications such as antihistamines or benzodiazepines.

Recommendation against based on observational studies and a preponderance of benefit over harm.

Evidence Profile:

- Aggregate evidence quality: **Grade C**, based on observational and cross-sectional studies
- Benefit: unknown or unclear benefit in patients with BPPV
- Harm: adverse effects from or medication interactions with these medications; decreased diagnostic sensitivity during Dix-Hallpike maneuvers from vestibular suppression
- Cost: none
- Benefit-harm assessment: preponderance of benefit over harm
- Value judgments: avoidance of harm from ineffective treatments
- Role of patient preferences: minimal
- Exclusions: severely symptomatic patients refusing other treatment options and patients requiring prophylaxis for canalith repositioning procedure
- Policy level: **recommendation against**

Statement 6a. Reassessment of Treatment Response

Clinicians should reassess patients within 1 month after an initial period of observation or treatment to confirm symptom resolution.

Recommendation based on observational outcomes studies and expert opinion and a preponderance of benefit over harm.

Evidence Profile:

- Aggregate evidence quality: **Grade C**, based on studies with known significant failure rates for an observation option and lower failure rates for particle repositioning maneuver (PRM)
- Benefit: increased accuracy of diagnosis of BPPV; identification of patients with persistent symptoms who were initially treated with observation and may benefit from vestibular rehabilitation or PRM to hasten symptom resolution
- Harm: none
- Cost: cost of reassessment
- Benefit-harm assessment: preponderance of benefit over harm
- Value judgments: assurance of accuracy of diagnosis and capture of patients who could benefit from treatment or re-treatment to improve symptom resolution
- Role of patient preferences: minimal
- Policy level: **recommendation**

Statement 6b. Evaluation of Treatment Failure

Clinicians should evaluate patients with BPPV who are initial treatment failures for persistent BPPV or underlying peripheral vestibular or CNS disorders.

Recommendation based on observational studies of diagnostic outcomes in patients with BPPV and a preponderance of benefit over harm.

Evidence Profile:

- Aggregate evidence quality: **Grade C**, based on case series of treatment failure and limited retrospective diagnostic studies
- Benefit: expedition of effective treatment of patients with persistent BPPV and associated comorbidities; decrease in the potential for missed serious medical conditions that require a different treatment algorithm
- Harm: none
- Cost: costs of reevaluation and the additional testing
- Benefit-harm assessment: preponderance of benefit vs. harm
- Value judgments: comprehensive treatment of not only BPPV but associated conditions that affect balance and function; expeditious treatment of cases of persistent BPPV with a particle repositioning maneuver (as more definitive therapy) following the failure of observation or vestibular rehabilitation
- Role of patient preferences: minimal
- Policy level: **recommendation**

Statement 7. Education

Clinicians should counsel patients regarding the impact of BPPV on their safety, the potential for disease recurrence, and the importance of follow-up.

Recommendation based on observational studies of diagnostic outcomes and recurrence in patients with BPPV and a preponderance of benefit over harm.

Evidence Profile:

- Aggregate evidence quality: **Grade C**, based on observational and cross-sectional studies of recurrence and fall risk
- Benefit: increased awareness of fall risk, potentially decreasing injuries related to falls; increased patient awareness of BPPV recurrence, allowing prompt intervention
- Harm: none
- Cost: none
- Benefit-harm assessment: preponderance of benefit over harm
- Value judgments: inadequate data to elaborate recommendations for patients with BPPV with regard to driving vehicles
- Role of patient preferences: none
- Policy level: **recommendation**

Definitions:

Guideline Definitions for Evidence-Based Statements

Strong Recommendation: A strong recommendation means the benefits of the recommended approach clearly exceed the harms (or that the harms clearly exceed the benefits in the case of a strong negative recommendation) and that the quality of the supporting evidence is excellent (Grade A or B). In some clearly identified circumstances, strong recommendations may be made on the basis of lesser evidence when high-quality evidence is impossible to obtain and the anticipated benefits strongly outweigh the harms. *Implication:* Clinicians should follow a strong recommendation unless a clear and compelling rationale for an alternative approach is present.

Recommendation: A recommendation means the benefits exceed the harms (or that the harms exceed the benefits in the case of a negative recommendation), but the quality of evidence is not as strong (Grade B or C). In some clearly identified circumstances, recommendations may be made on the basis of lesser evidence when high-quality evidence is impossible to obtain and the anticipated benefits outweigh the harms. *Implication:* Clinicians should also generally follow a recommendation, but should remain alert to new information and sensitive to patient preferences.

Option: An option means that either the quality of evidence that exists is suspect (Grade D) or that well-done studies (Grade A, B, or C) show little clear advantage to one approach versus another. *Implication:* Clinicians should be flexible in their decision making regarding appropriate practice, although they may set bounds on alternatives; patient preference should have a substantial influencing role.

No Recommendation: No recommendation means there is both a lack of pertinent evidence (Grade D) and an unclear balance between benefits and harms. *Implication:* Clinicians should feel little constraint in their decision making and be alert to new published evidence that clarifies the balance of benefit versus harm; patient preference should have a substantial influencing role.

Evidence Quality for Grades of Evidence

Grade A: Well-designed randomized controlled trials or diagnostic studies performed on a population similar to the guideline's target population

Grade B: Randomized controlled trials or diagnostic studies with minor limitations; overwhelmingly consistent evidence from observational studies

Grade C: Observational studies (case-control and cohort design)

Grade D: Expert opinion, case reports, reasoning from first principles (bench research or animal studies)

Grade X: Exceptional situations for which validating studies cannot be performed and there is a clear preponderance of benefit over harm

CLINICAL ALGORITHM(S)

None provided

EVIDENCE SUPPORTING THE RECOMMENDATIONS

TYPE OF EVIDENCE SUPPORTING THE RECOMMENDATIONS

The recommendations contained in the practice guideline are based on the best available published data through March 2008. Where data were lacking, a combination of clinical experience and expert consensus was used. The type of supporting evidence is identified and graded for each recommendation (see "Major Recommendations").

BENEFITS/HARMS OF IMPLEMENTING THE GUIDELINE RECOMMENDATIONS

POTENTIAL BENEFITS

Improved quality of care and outcomes for benign paroxysmal positional vertigo (BPPV) by improving the accurate and efficient diagnosis of BPPV, reducing the inappropriate use of vestibular suppressant medications, decreasing the inappropriate use of ancillary tests such as radiographic imaging and vestibular testing, and promoting the use of effective repositioning maneuvers for treatment.

For benefits of specific interventions considered in the guideline, see the "Major Recommendations" field.

POTENTIAL HARMS

Although the Dix-Hallpike maneuver is the test of choice to confirm the diagnosis of posterior canal benign paroxysmal positional vertigo (BPPV), it should be avoided in certain circumstances. Although there are no documented reports of vertebrobasilar insufficiency provoked by performing the Dix-Hallpike maneuver, clinicians should be careful to consider the risk of stroke or vascular injury in patients with significant vascular disease. Care should also be exercised in patients with cervical stenosis, severe kyphoscoliosis, limited cervical range of motion, Down syndrome, severe rheumatoid arthritis, cervical radiculopathies, Paget's disease, ankylosing spondylitis, low back dysfunction, spinal cord injuries, and morbid obesity.

For additional harms associated with specific interventions considered in the guideline, see the "Major Recommendations" field.

CONTRAINDICATIONS

CONTRAINDICATIONS

Anecdotally, several investigators have suggested that the canalith repositioning procedure (CRP) should be applied cautiously in patients with cervical spine disease, certain vascular conditions, retinal detachment, and other contraindications to its performance.

QUALIFYING STATEMENTS

QUALIFYING STATEMENTS

- This clinical practice guideline is not intended as a sole source of guidance in managing benign paroxysmal positional vertigo. Rather, it is designed to assist clinicians by providing an evidence-based framework for decision-making strategies. The guideline is not intended to replace clinical judgment or establish a protocol for all individuals with this condition, and may not provide the only appropriate approach to diagnosing and managing this problem.
- Guidelines are never intended to supersede professional judgment; rather, they may be viewed as a relative constraint on individual clinician discretion in a particular clinical circumstance. Less frequent variation in practice is expected for a strong recommendation than might be expected with a recommendation. Options offer the most opportunity for practice variability. Clinicians should always decide and subsequently act in a way that they believe will best serve their patients' interests and needs, regardless of guideline recommendations. Guidelines represent the best judgment of a team of experienced clinicians and methodologists addressing the scientific evidence for a particular topic.
- As medical knowledge expands and technology advances, clinical indicators and guidelines are promoted as conditional and provisional proposals of what is recommended under specific conditions, but they are not absolute. Guidelines are not mandates and do not and should not purport to be a legal standard of care. The responsible physician, in light of all the circumstances presented by the individual patient, must determine the appropriate treatment. Adherence to these guidelines will not ensure successful patient outcomes in every situation. The American Academy of Otolaryngology—Head and Neck Surgery (AAO-HNS), Inc. emphasizes that these clinical guidelines should not be deemed to include all proper treatment decisions or methods of care, or to exclude other treatment decisions or methods of care reasonably directed to obtaining the same results.

IMPLEMENTATION OF THE GUIDELINE

DESCRIPTION OF IMPLEMENTATION STRATEGY

The complete guideline is published as a supplement to *Otolaryngology—Head and Neck Surgery*, which will facilitate reference and distribution. An executive summary highlighting key recommendations from the guideline will be published to facilitate information dissemination. Portions of the guideline will be presented at various clinical meetings including a planned presentation in the workshop series of the American College of Physicians annual meeting. Existing brochures and publications by the American Academy of Otolaryngology—Head and Neck Surgery (AAO-HNS) Foundation will be updated to reflect the guideline recommendations. Members of the panel will be representing the guideline at their specialty societies, and executive summaries to be copublished in the primary care and physical therapy literature are anticipated.

Because the guideline presents recommendations for an office-based diagnosis of benign paroxysmal positional vertigo (BPPV) based on positional maneuvers, an anticipated barrier to implementation is clinician unfamiliarity with the Dix-Hallpike maneuver and with the supine roll test. In addition to the descriptive and diagrammatic representations of the diagnostic tests, readers will be provided with Web-based video links that illustrate performance of these maneuvers, as well as video representations of the expected diagnostic nystagmus findings, especially in the case of lateral canal BPPV. These media aids may also be assisted by a laminated teaching card that describes the maneuvers. It will be important to incorporate guideline recommendations into the development of point-of-care decision support tools to encourage point-of-service adherence to the guidelines, and to facilitate rapid clinical decision making in a busy office environment.

Another barrier to implementation of this guideline is potential clinician or patient preference for the ordering of diagnostic tests to evaluate vertigo. Because the differential diagnosis of vertigo may be vast and at times complex, clinicians may feel obligated to order diagnostic testing such as central nervous system (CNS) imaging or vestibular testing to rule out other causes of vertigo, even when diagnostic criteria for BPPV are met. In addition, patients may expect imaging or additional testing because they perceive that such testing is required or a safer course of action in the routine management of vertigo. Informational pamphlets for patients that explain their diagnosis and provide realistic expectations with regard to the natural history of BPPV may ease this difficulty. Specialty clinicians will likely exhibit a natural tendency for ordering additional diagnostic testing owing to a variety of factors. Clinician and patient education regarding outcome expectations and counseling on proper follow-up may offset these issues. Physician and patient education, either Web-based or published results of large trials on diagnostic outcomes for BPPV, will also help offset these tendencies.

With respect to treatment with particle repositioning maneuvers (PRMs), several barriers may need to be overcome. First, many clinicians are likely to be unfamiliar with the canalith repositioning procedure (CRP) or other treatment maneuvers. In a busy clinical setting, diagnosing physicians may be unable or unwilling to take additional time to treat BPPV at the same time the diagnosis is made. Because of a paucity of data in the primary care setting (only one RCT that failed to demonstrate effectiveness of the CRP), convincing primary care physicians to use the CRP as an initial treatment modality may be difficult. In such cases, increasing familiarity with CRP or additional training of clinicians such as audiologists, physical therapists, and other providers may facilitate patients' access to CRP. Training courses on performance of the CRP offered at societal meetings will also help overcome this barrier.

Finally, patients may seek what are perceived to be simpler solutions such as medication therapy for BPPV. Given that medication therapy has not been shown effective in the treatment of BPPV, clinicians will need to educate patients that these medications offer more harm than benefit. Additional education of patients will be required in the form of handouts or brochures that inform patients of the risks associated with symptomatic BPPV, including risks for falls, recurrence of BPPV, and treatment options. Algorithms for fall assessment and home safety assessment will allow clinicians to stratify patients as to these risks.

INSTITUTE OF MEDICINE (IOM) NATIONAL HEALTHCARE QUALITY REPORT CATEGORIES

IOM CARE NEED

Getting Better
Living with Illness

IOM DOMAIN

Effectiveness
Patient-centeredness

IDENTIFYING INFORMATION AND AVAILABILITY

BIBLIOGRAPHIC SOURCE(S)

Bhattacharyya N, Baugh RF, Orvidas L, Barrs D, Bronston LJ, Cass S, Chalian AA, Desmond AL, Earll JM, Fife TD, Fuller DC, Judge JO, Mann NR, Rosenfeld RM, Schuring LT, Steiner RW, Whitney SL, Haidari J, American Academy of Otolaryngology-Head and Neck Surgery Foundation. Clinical practice guideline: benign paroxysmal positional vertigo. *Otolaryngol Head Neck Surg* 2008 Nov;139(5 Suppl 4):S47-81. [218 references] [PubMed](#)

ADAPTATION

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

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GUIDELINE COMMITTEE

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FINANCIAL DISCLOSURES/CONFLICTS OF INTEREST

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Financial Disclosures

Neil Bhattacharyya: none; Reginald F. Baugh: consultant: Gerson Lehrman Group Councils, stockholder: American Laser Center; Laura Orvidas: research funding: Aventis; David Barrs: none; Leo J. Bronston: none; Stephen Cass: none; Ara A. Chalian: none; Alan L. Desmond: none; Jerry M. Earll: none; Terry D. Fife: none; Drew C. Fuller: none; James O. Judge: none; Nancy R. Mann: none; Richard M. Rosenfeld: none; Linda T. Schuring: none; Robert W. P. Steiner: none; Susan L. Whitney: none; Jenissa Haidari: none.

GUIDELINE STATUS

This is the current release of the guideline.

GUIDELINE AVAILABILITY

Electronic copies: Available to subscribers of the [Otolaryngology - Head and Neck Surgery journal](#).

Print copies: Available from Neil Bhattacharyya, MD, Brigham & Women's Hospital, 75 Francis Street, Boston, MA 02115; E-mail address: neiloy@massmed.org.

AVAILABILITY OF COMPANION DOCUMENTS

None available

PATIENT RESOURCES

None available

NGC STATUS

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